

### Executive Director's Report

#### Smile!

Pictures of the Council, SSC, and AP will be taken on Tuesday between 11:30 a.m. and noon. We will need to go to the Fireweed Room on the first floor, northwest corner of the hotel.

#### April Meeting

This is scheduled for the week of April 20th in Anchorage. And it's going to be a long meeting. Now scheduled is initial review of inshore-offshore 3, essential fish habitat, overfishing definitions, BSAI pollock CDQ extension, groundfish and bycatch amendments, IFQ amendments, and a report from the newly established halibut GHM committee. The SSC and AP will meet on Monday and Tuesday, and the Council will begin on Wednesday and run through the following Monday.

#### Senior Economist

I have promoted Darrell Brannan to Senior Economist, the vacancy left by the departure of Marcus Hartley. Darrell brings to the position over five years of intense experience on the council staff contributing to the economic analyses of groundfish and crab license limitation and moratorium, Pacific cod allocations, cod and pollock trip limits, halibut charterboat management, and inshore-offshore 2. In working on those projects, he developed and demonstrated his skills in data processing and economic modeling. He is one of the leading authorities on fisheries data available for the types of large-scale analyses we perform. He now is providing leadership in the economic analysis of inshore-offshore analysis 3. It is a pleasure for me to announce his promotion.

#### Tasking

Inshore-offshore 3 has been consuming significant amounts of staff time and will continue to through our June meeting in Dutch Harbor. There are many other very important tasks being address now by the Council, NMFS and ADF&G staffs in support of Council programs. Item B-1(a) is a status report on current activities and actions the Council has already taken.

#### Magnuson-Stevens Act Tasking

Item B-1(b) is an update on various tasks sent our way by the 1996 amendments to the Magnuson-Stevens Act. Some of these will be discussed in the agenda items for this meeting, for example, tasking on essential fish habitat (tab C-4), bycatch reduction (tab D-2(c)), and catch and bycatch measurement (tab C-7). I just want to make you aware of this tasking, because much of the work has to be completed by October 1998, and we will want to make doubly sure that we have addressed each item in an appropriate and sufficient manner.

#### Standardized Fishing Vessel Registration and Fisheries Information System

Item B-1(c) has a notice of availability for registration and information systems being developed by NMFS. I have excerpted parts of the discussion draft provided by NMFS as they pertain to Alaska. We are considered one of the stakeholders, and you may want to send in your comments directly to NMFS. A more formal 60-day comment period on the next draft will commence in March, so we may want to place the issue on our April meeting agenda.

## International Year of the Ocean

This year has been declared the International Year of the Ocean (YOTO) by the United Nations. There has been much hoopla in kicking YOTO off to a big start. Under item B-1(d) are related press releases from various organizations, and more information is coming out weekly. The internet is a good place to look to keep up to speed on YOTO. NOAA has established a web site at [www.yoto98.noaa.gov](http://www.yoto98.noaa.gov) and from there you can branch out into sites for many federal and non-governmental organizations. I believe our Council has done a lot to implement responsible fishing practices and I plan to develop a brochure explaining those initiatives. I plan to keep you posted on developments for YOTO between and at Council meetings.

**STATUS OF COUNCIL TASKING**

February 4, 1998

<b><u>ACTION</u></b>	<b><u>STATUS</u></b>	<b><u>TASKING</u></b>
<b>REPORTS:</b>		
1 IFQ Enforcement Report	Report in Feb 98	NMFS
2 IPHC Halibut Report	Report in Feb 98	IPHC
3 International Fisheries	Report in Feb 98	Council
4 Gear Storage Areas/Gear Conflicts	Report in Feb 98	Region/ADFG
5 Vessel Buyback Program	Report in Feb 98	Industry/Council
6 Trip Limits for GOA pollock and Pacific cod	Discussion in Feb 98	Council
7 IFQ Weighmaster Report	Report in June 1998	NMFS/Council
<b>MAGNUSON-STEVENSON ACT REQUIREMENTS:</b>		
1 IFQ/CDQ Fee Program	Under development	NMFS
2 North Pacific Loan Program	Final Action Sept 1997 Formal Submittal Pending	Council/NMFS
3 Essential Fish Habitat Amendments	Discuss in February 1998	Region/Council/Center
4 Catch & Bycatch Measurement	Report in February 1998	NMFS/ADFG/Council
5 Bycatch Reduction Amendment Package	Discuss in February 1998	Council/NMFS/ADFG
6 Overfishing Definitions	Initial Review in April 98	NMFS/Council/ADFG
<b>REGULATORY AMENDMENTS:</b>		
1 Halibut Subsistence Program	Final Action in Dec 1998	Council/NMFS/IPHC
2 Halibut Area 4 Catch Sharing Plan	PR on January 12, 1998 Comments till Feb 11, 1998	Council/Region

	<u><b>ACTION</b></u>	<u><b>STATUS</b></u>	<u><b>TASKING</b></u>
3	Maximum retainable bycatch adjustments	Discuss in February 1998	Region/Council
4	Sablefish Rolling Closures	Final Action in Sept 1998	Region
5	Revise IFQ survivor language	Withdrawn by NMFS	Region
6	Revise Hired Skipper Requirements	Final Action Dec 1997 PR in preparation	Region
7	Sitka Sound Local Halibut Plan	Final Action in Feb 1998	Council
8	Halibut Donations	Approved April 1997 Submitted to SOC 1/23/98	NMFS/IPHC
9	Seabird Avoidance (halibut)	PR in December 1997 FR pending	NMFS
10	Retention of Undersized Halibut in CDQ fishery	Approved in June 1997 PR in preparation	Council/Region/ADFG
11	SR/RE Bycatch Allocations	Final Review in Feb 98	NMFS/Council
12	Local Area Halibut Plans	Review Protocol in Feb 98	Council/BOF

**PLAN AMENDMENTS:**

1	Comp. Rationalization Plan (a) License Limitation/CDQ (PSC trading) (b) IFQ Program for BSAI pollock (c) IBQs/VBAs	(a) Discuss in Feb 98 (b) On hold (c) Discuss in February 98	Council/NMFS Council Council/Center/Region
2	Scallop FMP/future amendments	Discuss in February 98	Region/Council/ADFG
3	Total Weight Measurement in Groundfish Fisheries (a) Scale certification (b) Application to at-sea processors (non-CDQ)	(a) PR on June 10, 1997 (b) FR in preparation	NMFS/Council NMFS/Council
4	Demersal Shelf Rockfish License Limitation Program	Pending Development	ADFG
5	Forage Fish Prohibition	PR on December 12, 1997 Comments till Jan 26, 1998	Region
6	BSAI Improved Retention/Utilization	Approved Sept 3, 1997 Effective January 1998	Region/Council/Center

	<u>ACTION</u>	<u>STATUS</u>	<u>TASKING</u>
7	GOA Improved Retention/ Utilization	Final Rule in Dec 12, 1997 Effective January 1998	Center/Region/Council
8	Groundfish Plan Update	On hold	Council/Region
9	Pelagic Shelf Rockfish Mgmt authority to State	PR on December 12, 1997 FR pending	Council/Region/ADFG
10	Streamline Specs Process	Review in Feb 1998	Council/Region
11	Inshore/Offshore	Discuss in February 98 Initial Review in April 98	Council/NMFS
12	Third Party Observer Program (JPA)	Final Review Feb 98	Region/Council/OAC
13	Observer Fee Plan	Discuss in April 1998	NMFS/Council
14	VIP Program for <i>C. bairdi</i> in BSAI cod fishery	On hold pending other priorities	Council/NMFS
15	Pollock CDQ Extension	Initial Review in April 98	Council/NMFS/ADFG
16	GOA Trimester Pollock Allocation	Final Review in Feb 98	Council/NMFS
17	WC GOA Stand down/ Preregistration	Final Review in Feb 98	Council/NMFS
18	Limited Processing for Catcher Vessels	Analysis in fall of 1998	Center/Region/Council
19	Opilio Bycatch Cap	FR on December 22, 1997 Effective January 21, 1998	Council/NMFS
20	Atka Mackerel jig allocation	FR on December 31, 1997 Effective January 30, 1998	NMFS/Council

**OTHER ACTIONS:**

1	April 24, 1994 Scallop Control Date	Published on June 15, 1994	Region
2	Halibut Charter Control Date	Never published in F.R.	Region
3	1998 CDQ Allocations by group	Review/approve in Sept 97	Council/ADFG/NMFS
4	Halibut GHL	Approved by Council Sept 1997	Council

**ACTION****STATUS****TASKING****COUNCIL COMMITTEES:**

1	Observer Advisory Committee	Will meet in Feb or Mar 98
2	Ecosystem Committee	Meet as necessary
3	Crab Rebuilding Committee	Meet as necessary
4	Enforcement Committee	Meeting September 22
5	VBA Committee	Met August 21-22
6	IFQ Implementation Team	Meeting September 21
7	GOA Trip Limit Committee	Meeting September 24
8	Pacific Northwest Crab Industry Advisory Committee (PNCIAC)	Meeting October 1, 1997
9	IR/IR Monitoring Committee	Not yet appointed
10	Socio-Economic Data Committee	Not yet appointed
11	Halibut GHL Committee	Will meet in Feb or Mar 98

**Special Magnuson-Stevens Act Mandates**

**Section 3: Definitions (p. 4)<sup>1</sup>**

1. NMFS reviewed new definitions and concluded by letter on 2/20/97, that none of the Council's definitions were inconsistent with those contained in the Sustainable Fisheries Act.
2. In the BSAI groundfish plan, the OY is set for the groundfish complex as a whole, at 85% of the overall groundfish complex MSY. In the GOA groundfish fisheries, the OY is set at 97% of the MSY. Therefore both plans now comport with the new definition of OY.

**Section 302(e, i, j): SOPP Updated to Reflect New Procedures (p. 51)**

1. Council approved SOPP revisions on 2/7/97. Submitted to NMFS on 2/12/97. No response from NMFS as of January 1998.

**Section 303(a): New Required Provisions of FMPs (p. 58)**

1. There are five new FMP requirements relating to the following topics: (1) essential fish habitat, (2) overfishing and stock rebuilding, (3) bycatch reporting and minimization, (4) recreational and charter sector descriptions and allocations, and (5) fishery impact statements must now include communities. These are described below and in separate sections further on We have until October 1998 to submit conforming amendments or assure that the plans already conform.
2. **Essential fish habitat:** a tasking plan was considered by the Council in June 1997. The plan requires technical teams to identify and describe EFH for all FMPs by next April. A council final decision will be made in June 1998 on amendments to the plans. Measures to reduce the impacts of fishing on EFH will be developed over the next annual cycle, with final approval in June 1999. Added prohibition on fishing on Cape Edgecomb pinnacles at September 1997 meeting. ADFG will do analysis of that and full retention of DSR in southeast Alaska. Further progress reported below under Section 305(b): Fish Habitat.
3. **Overfishing and stock rebuilding:** fishery management plans already have overfishing definitions and the only rebuilding plan was for POP, and it was considered rebuilt in abundance as of the 1996 stock assessment. Overfishing amendments are being developed by Grant Thompson and due for initial review in April 1998.
4. **Bycatch reporting and minimization:** the Council has implemented many measures to minimize bycatch and these will be inventoried for the June 1997 Council meeting. Bycatch also is reported. In June 1997 the Council instructed staff to put out a special call for proposals during the summer. These were reviewed in September and the prospective amendment package is due for initial review in April 1998.

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<sup>1</sup>Page numbers are keyed to red copy of Act, NOAA Technical Memorandum NMFS-F/SPO-23, December 1996.

Guidance on alternatives and options will be received at Council's February 1998 meeting under agenda item D-2(c). Proposed amendments include:

1. Pelagic trawl only for pollock (AMCC).
  2. Create an individual vessel checklist program, like harvest priority, and provide reward fishery (AMCC).
  3. Create a halibut mortality avoidance program (GF Forum).
  4. Lower chinook PSC trigger from 48,000 to 36,000 fish and add a B-season PSC (Yukon River Drainage Fisheries Association).
  5. Reevaluate halibut discard mortality and implement quick release mechanisms such as grid sorting (UBC).
5. **Charter and recreational fisheries descriptions and allocations:** halibut charterboat measures are being considered, but do not fall under this requirement which is for FMP fisheries only. So no additional work has to be done to respond to this requirement since there is little in the way of recreational fisheries in the Council's jurisdiction for groundfish.
6. **Fishery impact statements for communities:** the Council already incorporates information on effected communities in its fishery management plan amendment analyses as appropriate, and will continue to do so.

**Section 303(d)(4): North Pacific Loan Program (p. 63)**

1. Council must recommend loan program for small boat and entry level IFQ fishermen by October 1, 1997. Additional information is in Section 304(d)(2)(C) on p. 67 and Appendix on p. 120.
2. Council held initial review of amendment in June and took final action in September 1997. This is a plan amendment with authorizing language.
3. NMFS reported in December 1997 that proposed rule was being prepared in Region. The loan program will not be funded probably until 1999 at the earliest.

**Section 304(d)(2): Fees on IFQ/CDQ Programs (p. 67)**

1. Secretary must establish fees up to 3% on IFQs and CDQs.
2. NMFS is preparing fee program as Secretarial amendment to groundfish FMPs.
3. Council received update from NMFS in September 1997. Initial review now scheduled for June 1998.

**Section 305(a): Gear Evaluation and Notification List (p. 72)**

1. By April 1998, the Secretary must publish a list of all fisheries and gears used in them and guidelines for adding new gears. Secretary has lead but Council will need to respond to information requests. The first request is a letter dated December 30, 1996 from Dr. Gary Matlock seeking list of fisheries and gears by March 1, 1997. Responded by letter on 3/31.
2. Draft proposed rule distributed by NMFS to Councils on November 20, 1997. In December meeting notebooks. Individual comments were due by December 5, 1997.



**Section 305(b): Fish Habitat (p. 73)**

1. Secretary must establish guidelines for describing and identifying essential fish habitat by April 1997. A proposed rule was published on April 23, 1997, and comment period has been extended until July 8, 1997. Interim final rule published on December 19, 1997, with comments due by February 17, 1998.
2. Council will review interim final rule and preliminary Essential Fish Habitat descriptions at February 1998 meeting under agenda item C-4.

**Section 305(h): Central Registry System (p. 77)**

1. Secretary must establish registry system by April 1997, and promulgate regulations after consulting with the Councils.
2. ANPRM published on 3/6/97 and industry asked for and was granted an extension of the public comment period to August 5, 1997. No further information available as of February 1998.

**Section 305(i): CDQ Programs (p. 78)**

1. Council must establish CDQ program for groundfish and crab in Bering Sea.
2. CDQs have been approved for all species by the Council as part of the license limitation program which was approved by the Secretary on September 12, 1997. Council urged NMFS to have new multispecies CDQ programs in place for 1998 even if license program is not implemented until 1999 (though NMFS informed the Council in December 1997 that full LLP implementation may not occur until 2000).
3. Pollock CDQs are due to lapse at end of 1998, but will be resubmitted as separate plan amendment, scheduled for final Council approval in June 1998.

**Section 313(f): Four-Year Reduction in Economic Discards (p. 103)**

1. New Section 313(f) requires the Council to submit by January 1998, measures to reduce economic discards for a period of not less than four years. We complied by submitting IRIU amendments for BSAI and GOA, to be implemented in 1998. We need to determine if anything needs to be done for crab, salmon and scallop FMPs, as they are fisheries under our jurisdiction.
2. In June 1997, Council requested a discussion paper from NMFS on Directed Fishing Standards (or Maximum Retainable Bycatch) and how they might be adjusted to reduce regulatory discards. Council also wanted reduction of economic discards emphasized in call for proposals for groundfish during summer.
3. Discussion of Maximum Retainable Bycatch standards is scheduled for February 1998 Council meeting under agenda item D-2(d).

**Section 313(g): Bycatch Reduction Incentives (p. 104)**

1. Council may submit system of fines to provide incentives to reduce bycatch and bycatch rates, and VBA type systems.
2. These are discretionary, but Council is working on VBA system and will review progress in February 1998 under agenda item D-2(b).

**Section 313(h)(1): Total Catch Measurement (p. 104)**

1. Council must submit measures by June 1, 1997 to ensure total catch measurement in each fishery under its jurisdiction, that will include accurate enumeration, at a minimum, of target species, economic discards, and regulatory discards. Our current catch reporting measures based on observers and the blend system may satisfy this requirement. We need feedback from NMFS and then the Council should determine next steps. Obviously, if what the Council has done so far is insufficient, then we will have failed to meet the June 1, 1997 deadline. In that case, we need to request an extension.
2. In June 1997, Council requested a report from NMFS for December 1997 on the accuracy and precision of current catch reporting system. Also examine linkages between total catch measurement and weighing of fish (see below). We requested information from the State of Alaska and NMFS by separate letters in early July. On November 20, NMFS wrote letter pulling this item from the December Council meeting agenda.
3. This issue is scheduled as a major discussion item for February 1998 under agenda item C-7.

**Section 313(h)(2): Weighing of Fish (p. 104)**

1. Council must submit a plan to Congress by January 1, 1998, to allow for weighing by fish processors and processing vessels, unless such measures are determined to be unnecessary to meet catch measurement requirements.
2. In October 1994, Council approved a requirement for all processors in the directed pollock fishery to weigh all pollock harvest on a scale and intended that the program be implemented within two years. NMFS published an ANPRM on 2/20/96, but there has been little further action on this matter because of technical problems with finding scales that perform accurately at-sea, and lack of funds for scale inspectors.
3. NMFS will require that certified scales be used in all CDQ operations beginning in 1998 for new CDQ programs. The Council Chairman, as directed by the Council in February 1997, wrote a letter to NOAA on 2/13/97 urging funding for the certified scale program so that the new CDQ programs could be implemented.
4. Concerning groundfish fisheries, application of scale measurements of total weight will depend on finding a scale that works accurately and consistently at sea. Until such a scale is found and certified for use, and a certification program is established, the current approaches for measuring fish weight through volumetrics must suffice, unless the Council is informed otherwise by NMFS.
5. Proposed rule published by NMFS on June 16, 1997 responding to comments on ANPR of February 1996, but it did not require specific processors or vessels to use certified scales to weigh catch at sea. Rather, it laid out the ground rules for testing and certifying scales and performance and technical requirements in the At-Sea Scales Handbook.
6. Major discussion of the need for weighing fish is scheduled for February Council meeting under agenda item C-7.

**Section 313(i): Report on Full Retention (p. 105)**

1. Council must submit to the Secretary by October 1, 1998, a report on the advisability of requiring full retention and utilization. Council will report first season IRIU results by October 1998.

**Section 401: Vessel Registration and Information Management System (p. 107)**

1. Secretary must publish proposed rule by October 1997 to implement a standardized fishing vessel registration and information management system on a regional basis. He must consult with states, commissions, and councils in developing the system.
2. PSFMC submits proposal based on PACFIN on September 3, 1997.
3. Draft report sent by NMFS to councils and other stakeholders on December 22, 1997. Placed in Executive Director's Report as item B-1(c) for individual comment. A 60-day comment period on the next draft will overlap April meeting. Schedule as discussion item.

**Section 406: NAS Ecosystems Report (p. 114)**

1. The Secretary must establish a panel by April 1997 to develop recommendations to expand the application of ecosystems principles in fishery conservation and management activities, and report the panel's findings to Congress by October 1998. The panel must include Council representatives among others.
2. Formal panel name is Fisheries Systems Research Advisory Panel. Dr. Fluharty serves as chairman. Panel has met several times and will report by the October 1998 deadline. Region sent NPFMC area input to panel on August 27, 1997.

**Appendix: NAS Report on IFQ/CDQ (pp. 118-119)**

1. NAS must consult with councils and develop an IFQ policy report by October 1, 1998. NAS also must consult with the North and West Pacific councils, communities and organizations to develop a comprehensive performance review of the CDQ programs by October 1, 1998.
2. Ocean Studies Board held input meetings on CDQs on August 6 at Alyeska Prince Hotel, and then in Seattle in mid September. Ocean Studies Board held hearings on IFQs at Captain Cook Hotel on September 4.
3. Council staff submitted reports to the CDQ and IFQ panels.

**Appendix: Bycatch to Charities Report (p. 120)**

1. The Secretary must conduct a study of the contribution of bycatch to charitable organizations and report to Congress by October 1997.

**Appendix: Russia Report (p. 120)**

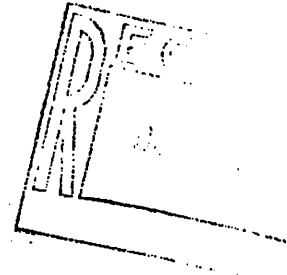
1. Report submitted to Congress by September 30, 1997 deadline.



AGENDA B-1(c)  
FEBRUARY 1998

UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Silver Spring, Maryland 20910

December 22, 1997



Mr. Clarence G. Pautzke  
North Pacific Fishery Management Council  
605 W. 4th Ave.  
Room 306  
Anchorage, AK 99501

Dear Mr. Pautzke:

The 1996 reauthorization of the Magnuson-Stevens Act required NMFS to develop an implementation plan for a standardized fishing vessel registration (VRS) and fisheries information (FIS) system. The enclosed *Federal Register* notice describes the context, status and completion schedule for this project. The consultative approach we have taken thus far has resulted in the production of the enclosed Discussion Draft. The purpose of this Draft is to stimulate further thinking and discussion among key stakeholders prior to the preparation and publication of a Draft Report to Congress in the *Federal Register* in March 1998.

The next step in the process requires your participation. We need you or appropriate staff, members, or other interested parties to read the Draft and be prepared to identify and help resolve issues critical to the successful implementation of a VRS and FIS. These include the identification of funding and staffing needs, changes in regulations or statutes, and institutional arrangements in data collection and management that might need to be modified or created to ensure successful implementation of the VRS and FIS. We hope that your views and ideas can be captured over the next two months to ensure we create an implementation plan that you can support.

The NMFS Core Design Team member from your region will contact you shortly to discuss how we can best capture your input on this important planning activity. Thank you for your interest and we look forward to your support and participation.

Sincerely,

NMFS Core Design Team

Pete Colosi, NE  
Steve Freese, NW  
Mark Holliday, NMFS HQ

John Poffenberger, SE  
Wes Silverthorne, SW  
Galen Tromble, AK

Enclosures (2)



**DATES:** Written comments must be submitted on or before February 10, 1998.

**ADDRESSES:** Direct all written comments to Linda Engelmeier, Departmental Forms Clearance Officer, Department of Commerce, Room 5327, 14th and Constitution Avenue, NW, Washington, DC 20230.

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information or copies of the information collection instrument(s) and instructions should be directed to Michael McMahon, Bureau of the Census, FOB 3, Room 3387, Washington, DC 20233-8400, (301) 457-3819.

**SUPPLEMENTARY INFORMATION:**

**I. Abstract**

The Census Bureau conducts the Survey of Income and Program Participation (SIPP) which is a household-based survey designed as a continuous series of national panels, each lasting four years. Respondents are interviewed once every four months, in monthly rotations. Approximately 37,000 households are in the current panel.

The SIPP represents a source of information for a wide variety of topics and allows information for separate topics to be integrated to form a single, unified data base so that the interaction between tax, transfer, and other government and private policies can be examined. Government domestic policy formulators depend heavily upon SIPP information concerning the distribution of income received directly as money or indirectly as in-kind benefits, and the effect of tax and transfer programs on this distribution. They also need improved and expanded data on the income and general economic and financial situation of the U.S. population. The SIPP has provided these kinds of data on a continuing basis since 1983, permitting levels of economic well-being and changes in these levels to be measured over time.

The survey is molded around a central "core" of labor force and income questions that will remain fixed throughout the life of a panel. The core is supplemented with questions designed to answer specific needs, such as obtaining information about the terms of child support agreements and whether they are being fulfilled by the absent parent, examining the program participation status of persons with specific health and disability statuses, and obtaining detailed information needed to understand the current status of the employment-based health care system and changes that have occurred.

These supplemental questions are included with the core and are referred to as "topical modules."

The topical modules for the 1996 Panel Wave 8 collect information about: (1) Adult Well-being; and (2) Welfare Expenses. Wave 8 interviews will be conducted from August 1998 through November 1998.

**II. Method of Collection**

The SIPP is designed as a continuing series of national panels of interviewed households that are introduced every 4 years, with each panel having a duration of 4 years in the survey. All household members 15 years old or over are interviewed using regular proxy-respondent rules. They are interviewed a total of 12 times (12 waves) at 4-month intervals, making the SIPP a longitudinal survey. Interviewers personally visit all households at least once a year and conduct the other 2 interviews by phone if the respondent agrees. Sample persons (all household members present at the time of the first interview) who move within the country and reasonably close to a SIPP Primary Sampling Unit will be followed and interviewed at their new address.

Persons 15 years old or over who enter the household after Wave 1 will be interviewed; however, if these persons move, they are not followed unless they happen to move along with a Wave 1 sample person.

The survey is administered using Computer-Assisted Personal Interviewing (CAPI) methodologies. Census Bureau field representatives collect the data from respondents using laptop computers, and the data are transmitted to Census Bureau headquarters via high-speed modems.

**III. Data**

*OMB Number:* 0607-0813.

*Form Number:* SIPP/CAPI Automated Instrument.

*Type of Review:* Regular.

*Affected Public:* Individuals or Households.

*Estimated Number of Respondents:* 77,700 (We will obtain interviews from approximately 37,000 households, yielding about 77,700 person-interviews (2.1 persons 15 years old or over per household). The household interviews will be conducted at 4-month intervals.

*Estimated Time Per Response:* 30 minutes per person.

*Estimated Total Annual Burden Hours:* 117,800.

*Estimated Total Annual Cost:* The only costs to respondents is that of their time.

*Respondent's Obligation:* Voluntary.

*Legal Authority:* Title 13, United States Code, Section 182.

**IV. Request for Comments**

Comments are invited on: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: December 8, 1997.

Linda Engelmeier,

Departmental Forms Clearance Officer, Office of Management and Organization.

[FR Doc. 97-32533 Filed 12-11-97; 8:45 a.m.]

BILLING CODE 3510-07-P

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

[I.D. 112897C]

**Vessel Registration and Fisheries Information System**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of availability.

**SUMMARY:** The Sustainable Fisheries Act, passed in October 1996, added various amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). As a result, Section 401 of the Magnuson-Stevens Act requires the Secretary of Commerce (Secretary) to deliver an implementation plan for a national fishing vessel registration and fisheries information system (System) in a Report to Congress. This notice outlines the approach taken by NMFS and its Federal, regional, state, and industry partners on behalf of the Secretary to develop the implementation plan required in the Report to Congress.

**DATES:** Notice of Availability (NOA) of the draft version of the Report to Congress will be published in the

Federal Register on or about March 2, 1998. A sixty (60) day public comment period will commence immediately thereafter. The final Report to Congress will be delivered in July 1998.

**ADDRESSES:** Address all comments concerning this notice to: Section 401, National Marine Fisheries Service, 1315 East West Highway F/ST1, Room 12245, Silver Spring, MD 20910; (301) 713-2328; fax (301) 713-4137. See SUPPLEMENTARY INFORMATION for electronic access instructions.

**FOR FURTHER INFORMATION CONTACT:** Mark Holliday, (301) 713-2328.

**SUPPLEMENTARY INFORMATION:** Because it is one of the major legislative Acts that directs the activities of the National Marine Fisheries Service (NMFS), the Magnuson-Stevens Act specifies various programs and initiatives for the conservation and stewardship of the nation's marine fisheries. Section 401 of the Magnuson-Stevens Act, amended in 1996, directs the Secretary to deliver a Report to Congress on the implementation of a national vessel registration and fisheries information system.

NMFS, the U.S. Coast Guard, coastal states, the three regional commissions (Pacific States Marine Fisheries Commission, Gulf States Marine Fisheries Commission, and Atlantic States Marine Fisheries Commission), and the eight regional Fishery Management Councils (New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, Caribbean, Pacific, North Pacific, Western Pacific) play various roles in commercial fishing vessel registration and marine fisheries data collection. Consistent with the Assistant Administrator's previous directions, NMFS has been engaged in a highly collaborative process to develop joint data collection and planning activities with these organizations and the regional fisheries information networks (Atlantic Coast Cooperative Statistics Program (ACCSP), Alaska Fisheries Information Network (AKFIN), Pacific Fisheries Information Network (PACFIN), Southeast Fisheries Information Network FIN(SE) and Western Pacific Fisheries Information Network (WESTPACFIN)).

Most, if not all, of these governmental bodies maintain or contribute information to various state, regional, and national information systems. Section 401 of the Magnuson-Stevens Act directs the Secretary, in cooperation with the various constituents and stakeholders, to streamline and integrate these vessel registration and fisheries information systems into a national system.

Section 401 of the Magnuson-Stevens Act sets a number of benchmarks for a national vessel registration and fisheries information system. It also defines several overarching principles that should guide the system's development and result in an integrated vessel registration and fisheries information system. Perhaps the most visible and easily measured requirement is the reduction of information reporting burdens on industry and the use of existing data collection and information management systems to the furthest extent possible.

To better organize the project planning activity, NMFS divided the task into two primary components: the Vessel Registration System (VRS) and the Fisheries Information System (FIS). Within these components, NMFS is addressing information management architecture, integration and harmonization of data collection programs, and the institutional arrangements and accountability. The project team is evaluating these components simultaneously both to determine the optimal system requirements and configuration based on data needs and to leverage current data collection and planning efforts.

**Vessel Registration System:** Vessel registration, licensing, and permitting systems among the coastal states, territories, tribal entities and the U.S. Coast Guard are currently under project team review. The Magnuson-Stevens Act requests a plan for a national system that contains the following information for each fishing vessel: (1) The name and official number or other identification, together with the address of the owner or operator or both; (2) gross tonnage, vessel capacity, type and quantity of fishing gear, mode of operation, and other such pertinent information with respect to vessel characteristics as the Secretary may require; and (3) identification of the fisheries in which the fishing vessel participates. Currently, no vessel registration system at any level fully satisfies these criteria.

The NMFS is aware of the Coast Guard's Vessel Identification System (VIS). Designed as a national boating information network, it will comprise the Coast Guard's vessel documentation system and, on a voluntary basis, the states/territories vessel information. NMFS has been in consultation with the VIS programmatic personnel to ascertain how and whether the VIS could be utilized to fulfill the requirements of the Magnuson-Stevens Act. Originally scheduled to be tested in the fall of 1997, the VIS program will not begin pilot testing until January

1998. As a consequence of the delay, NMFS is not yet in the position to evaluate the operational capabilities of VIS and how and whether it can be utilized in the VRS.

**Fisheries Information System:** The project team is studying fisheries data collection programs and information management systems at the regional levels (Pacific, Gulf, Atlantic) as specified in the Magnuson-Stevens Act. State and Federal data collection programs and information management systems have developed independently over time and reflect varying degrees of integration and management efficiency. Through participation in ACCSP, AKFIN, FIN(SE), PACFIN, and WESTPACFIN, NMFS has spent considerable time and money supporting these partners in joint statistics planning and integration efforts. These efforts have definite timeframes and outcomes planned, and NMFS has relied on these processes to support the Section 401 of the Magnuson-Stevens Act activity to avoid duplication of effort and maximize partner participation. During the consultation process, NMFS determined that compliance with the schedule set by section 401 of the Magnuson-Stevens Act will conflict with (and may even be detrimental to) critical path planning stages currently in progress. The fishery information networks are still in the formative stages. For example, ACCSP planning for its coastwide information management system will not produce required inputs for FIS design until February 1998. NMFS is working closely with these groups to develop plans for integration and implementation into a fisheries information system.

**Process:** NMFS strategy has been to seek the highest level of detail possible in the draft report to produce specific and justifiable estimates of implementation resource requirements. It could be argued that the report NMFS is developing provides more detail than called for in the Magnuson-Stevens Act. However, the stakeholders (particularly the Commissions) have supported this level of analysis and have worked with us to develop this detail so that they fully understand the regional implications of a national umbrella program. Due to the complex nature of this task, NMFS received requests from the Commissions for additional consultation on integration. NMFS agrees that to cut off the consultative process at this time could jeopardize the collaborative process, and result in a report that is short on substance and lacking support from our constituents.

To integrate additional information, NMFS decided that a 6 month delay was appropriate to accomplish the task. The benefit of the delay will be a report that will contain well-described courses of action that will actually improve statistics for NMFS and our partners stewardship responsibilities. In particular, NMFS wants to reach a consensus among stakeholders on a VRS and FIS program which will allow determination of a realistic budget consistent with requirements set forth in section 401(a)(5) of the Magnuson-Stevens Act so that Congress can consider the recommendations during the fiscal year, FY 99, appropriations process. The proposed target date will coincide with Congressional timeframes and allow all constituents an opportunity to seek a common goal. Given the current stage of state and commission planning, delivering a report by the original due date would result in little or no consensus on level and documentation of an FY 99 funding request.

The goal for the next 6 months is to craft an acceptable implementation plan that includes unified VRS/FIS system guidelines, proposed rules and legislation, and budgets. NMFS intends to hold additional meetings in January and February with the Commissions and Councils to resolve integration/implementation requirements. Additionally, the pilot testing of the Coast Guard's VIS will allow NMFS the opportunity to develop the necessary integration requirements. This comprehensive plan will be available for public comment upon publication of the NOA of the draft Report to Congress in March 1998.

**Stakeholders:** Stakeholders (or constituents) in the implementation of the vessel registration and fisheries information system include the (1) three regional marine fisheries commissions, (2) the eight fishery management councils, (3) 24 coastal states, (4) U.S. territories, (5) U.S. Coast Guard, (6) tribal entities, (7) industry and trade groups, and (8) other interested parties. In addition to directly consulting with the project's stakeholders over the next 6 months, all parties will have the opportunity for input on the proposed implementation plan through the public comment period commencing in March 1998, when the draft report is available.

Comments on this notice may be submitted to the NMFS Division of Fisheries Statistics and Economics by sending electronic mail to: [sec401@remora.ssp.nmfs.gov](mailto:sec401@remora.ssp.nmfs.gov).

Authority: Pub. L. 104-297.

Dated: December 8, 1997.

Rolland A. Schmittgen,  
Assistant Administrator for Fisheries,  
National Marine Fisheries Service.  
[FR Doc. 97-32475 Filed 12-11-97; 8:45 am]  
BILLING CODE 3510-22-F

## COMMISSION OF FINE ARTS

### Notice of Meeting

The Commission of Fine Arts' meeting scheduled for 18 December 1997 has been cancelled. The next meeting is scheduled for 22 January 1998 at 10:00 a.m. in the Commission's offices in the Pension Building, Suite 312, Judiciary Square, 441 F Street, N.W., Washington, D.C. 20001, to discuss various projects affecting the appearance of Washington, D.C.

Inquiries regarding the agenda and requests to submit written or oral statements should be addressed to Charles H. Atherton, Secretary, Commission of Fine Arts, at the above address or call 202-504-2200.

Dated In Washington, D.C., December 3, 1997.

Charles H. Atherton,  
Secretary.  
[FR Doc. 97-32536 Filed 12-11-97; 8:45 am]  
BILLING CODE 6330-01-M

## CONSUMER PRODUCT SAFETY COMMISSION

### Sunshine Act Meeting

AGENCY: U.S. Consumer Product Safety Commission, Washington, DC 20207.

"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT: [Insert FR citation].

PREVIOUSLY ANNOUNCED TIME AND DATE OF MEETING: 10:00 a.m., December 16, 1997.

CHANGES IN MEETING: The meeting concerning options for bunk beds has been deferred. The meeting will be rescheduled.

For a recorded message containing the latest agenda information, call (301) 504-0709.

CONTACT PERSON FOR ADDITIONAL INFORMATION: Sadye E. Dunn, Office of the Secretary, 4330 East West Highway, Bethesda, MD 20207, (301) 504-0800.

Dated: December 9, 1997.

Sadye E. Dunn,  
Secretary.  
[FR Doc. 97-32665 Filed 12-10-97; 1:49 pm]  
BILLING CODE 6355-01-M

## CORPORATION FOR NATIONAL AND COMMUNITY SERVICE

AmeriCorps: National, Indian Tribes, and U.S. Territories Programs; Correction

AGENCY: Corporation for National and Community Service.

ACTION: Notice of availability; correction.

SUMMARY: On November 28, 1997, the Corporation published a notice of availability of funds and 1998 application guidelines for the AmeriCorps National and Indian Tribes and U.S. Territories program grants. This document corrects the dates of the technical assistance conferences.

SUPPLEMENTARY INFORMATION: In notice document 97-31265 beginning on page 63318 in the issue of Friday, November 28, 1997, make the following correction:

On page 63318 in the third column, the dates for the technical assistance conferences for potential applicants seeking AmeriCorps Indian Tribes and U.S. Territories program funds have been changed to: January 8-9, 1998 in Las Vegas and February 5-6, 1998, in Memphis.

For additional information, or to register, please call Pattie Howell, at (202) 606-5000, ext. 188. The Corporation's T.D.D. number is (202) 565-2799.

Dated: December 9, 1997.

Stewart A. Davis,  
Acting General Counsel, Corporation for National and Community Service.  
[FR Doc. 97-32517 Filed 12-11-97; 8:45 am]  
BILLING CODE 6050-28-P

## DEPARTMENT OF EDUCATION

[CFDA No. 84.170]

Jacob K. Javits Fellowship Program; Notice Inviting Applications for New Awards for Fiscal Year (FY) 1998

**Purpose of Program:** To award fellowships to eligible students of superior ability, selected on the basis of demonstrated achievement and exceptional promise, to undertake graduate study leading to a doctoral degree or the Master of Fine Arts (MFA) degree at accredited institutions of higher education in selected fields of the arts, humanities, or social sciences.

**Eligible Applicants:** Eligibility is limited to students who at the time of application have not yet completed their first year of graduate study or will be entering graduate school in academic year 1998-1999. Eligibility is limited to

# **DISCUSSION DRAFT**

**DECEMBER 22, 1997**

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## **FISHING VESSEL REGISTRATION AND FISHERIES INFORMATION MANAGEMENT SYSTEM**

### ***PROPOSED IMPLEMENTATION APPROACH***



***PREPARED BY:***

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**National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
U. S. Department of Commerce**



## Foreword: Why a Discussion Draft?

This document represents a starting point. It is designated as a "discussion draft" to indicate the need for dialogue among the partners who have a stake in a nationwide fishing vessel registration and fisheries information system. The National Marine Fisheries Service (NMFS) has generated the discussion draft to stimulate discussion among stakeholders, within and outside of NMFS, on the issues surrounding vessel registration and fisheries information systems.

The discussion draft should not be considered a "final product." Rather, it results from the input and feedback of numerous NMFS and external stakeholders since June 1997. It is expected that the contents, structure, and recommendations included herein will continually evolve as the result of this highly collaborative and consultative process. Evolution of the discussion draft will culminate in the creation of a Draft Implementation Plan (Draft Report to Congress) that will be published for official public comment in the *Federal Register* in March 1998. The Report to Congress, called for in Section 401 of the Magnuson-Stevens Fishery Conservation and Management Act, will be delivered in July 1998.

The current schedule calls for the following major milestones over the next several months:

<u>Activity</u>	<u>Projected Completion</u>
• Publication and distribution of Discussion Draft to internal (NMFS) and external stakeholders	December 22, 1997
• Consultative process: working with stakeholders to resolve issues	March 1998
• Publication of Draft Report to Congress in the <i>Federal Register</i>	March 1998
• 60-day public comment period	April/May 1998
• Report delivered to Congress	July 1998

No presumptions have been made about the "best" solutions for implementation at the national or "regional" levels. It is hoped that readers of the discussion draft will provide their views in such a way that constructive changes and/or additions can be made to the document. It is always helpful to receive specific recommendations, alternative approaches, or editorial comments to improve the content, accuracy, and readability of the document.

**Special note to readers:** This version of the Discussion Draft document contains caption boxes like the one at the end of this line. These boxes contain questions, thoughts, and ideas pertaining to various elements in the Draft Implementation Plan. The questions and comments posed in these boxes represent specific areas in which the National Marine Fisheries Service seeks stakeholder input.

**Questions and comments in these boxes indicate concepts for which the NMFS seeks specific stakeholder input.**

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# 1 EXECUTIVE SUMMARY

*[In development]*

## **2 INTRODUCTION**

### **2.1 Purpose of this Report**

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This report is written in response to a requirement in Title IV, Section 401 of the Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson-Stevens Act") entitled "Fishery Monitoring and Research: Registration and Information Management".

Section 401 of the Magnuson-Stevens Act requires the Secretary of Commerce to deliver to Congress, in collaboration with key stakeholders, a proposal for implementing a nationwide fishing vessel registration system and information collection system (System). The Magnuson-Stevens Act requires that the System include and integrate all fisheries information required under all applicable federal statutory and regulatory requirements, including but not limited to the Magnuson-Stevens Act, the Marine Mammal Protection Act, and, with the permission of a state, any marine resource law implemented by that state.

The contents of this document present a recommended approach to achieving the Magnuson-Stevens Act's requirements. This approach involves collaboration among the Secretaries of Commerce and Transportation, NOAA's National Marine Fisheries Service, and appropriate state, regional, and tribal entities including the marine fisheries commissions and the regional fishery management councils.

### **2.2 Report Structure**

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#### **2.2.1 Organization**

This report is presented in seven sections, building from the overall context and framework of the Implementation Plan to the specific actions that are suggested for system design, development, and implementation. **Although the best strategy for reading the document is from beginning to end, special attention should be paid to Section 4, where the concept of a Fisheries Information System is introduced (Section 4.6) and regional implementation is described (Section 4.7).** The document is organized in the following manner:

- ◆ Section 1, **EXECUTIVE SUMMARY**, is a brief synopsis of the major issues and recommendations.
- ◆ Section 2, **INTRODUCTION**, describes the purpose of the report and its organization and terminology.
- ◆ Section 3, **PLANNING ELEMENTS**, defines the need for action, scope, objectives, critical success factors, and important interfaces.
- ◆ Section 4, **FISHERIES INFORMATION SYSTEM (FIS)**, outlines the conceptual and operational principles of the FIS and the national and regional implementation considerations.
- ◆ Section 5, **FISHING VESSEL REGISTRATION SYSTEM (VRS)**, outlines a proposed approach to implement a national commercial/charter fishing vessel registration system.
- ◆ Section 6, **SYSTEM IMPLEMENTATION SUPPORT**, is focused externally on implementation hurdles, budget planning and legislative considerations.
- ◆ Section 7, **APPENDICES**. Included at the time of this draft are the text of Section 401 of the Magnuson-Stevens Act and the Alternate VRS Implementation Scenario. Other appendices will be added as the document develops.

## 2.2.2 Nomenclature

The following definitions and specifications are provided for clarification:

**Use of the term "regions"**. Typically, references to *regions* relate to the five geographic regions (AK, NW, SW, SE, NE) of NOAA's National Marine Fisheries Service (NMFS). This report also uses the term "regions" to reflect the three major coastal areas of the United States: the Atlantic region (Maine through Florida), the Gulf region (Florida through Texas and the Caribbean Territories), and the Pacific region (Pacific states, Hawaii, western Pacific territories, and Alaska).

**Vessel Registration System (VRS) and Fisheries Information System (FIS)**. Section 401 refers to the need for two major system development activities. VRS will be used as the acronym defining the fishing vessel registration system for commercial and charter fishing vessels. FIS will be used as the acronym defining the fisheries information system. The FIS represents a broad, umbrella concept encompassing a wide range regional and national data collection, data management, and partnership activities. The VRS, although somewhat complex and addressed independently, becomes an integral component of the FIS supporting important information and fishery management requirements.

**"System"**. The use of the term, System, refers to the combination of the VRS and FIS or either of them individually, depending on the context of the reference.

## 2.2.3 Acronyms & Definitions

*[In development]*

### 3 PLANNING ELEMENTS

#### 3.1 The Need for Action

Several factors drive the need for the development of a national, standardized fishing vessel registration and fisheries information system. These "drivers" are described below in the form of problems or issues that need to be resolved at regional or national levels, or both. These issues represent challenges that can only be successfully addressed in an environment where all interested parties collaborate to address these issues.

*A glimpse at the current situation reveals the following problems/issues that need to be addressed in the Section 401 project:*

- Inability to enumerate, on a national basis (and in some regions), the number of fishing vessels operating in the United States, exclusive of duplication.
- Inability to enumerate, on a national basis (and in some regions), the level of participation and employment in the fishing industry (operators, crew, etc.), exclusive of duplication.
- Inability to track fishery performance by vessel or operating unit, regardless of geographic area of operation (linkage of harvest and vessel data)
- Inability to aggregate regional summary-level harvest data into national summary-level data.
- Lack of national and some regional data quality standards (accuracy, timeliness, etc.) accepted by all data providers and information managers.
- Lack of agreed upon units of measurement, nomenclature, coding systems (e.g., species, gear, and water body), and formats.
- Multiple, independent regional information management systems, lacking a common or overarching framework and architecture and inability to link these systems with each other and to national systems.
- Lack of confidence by public and other stakeholders that information is being collected and disseminated in the most efficient and effective manner possible.
- Lack of confidence by public and other stakeholders in sampling methodology and validity of statistically analyzed data.
- Multiple independent state, regional and federal permit systems that contain redundant information and that are not linked or integrated with one another.
- Inability to track vessels operating in more than one region.
- Inability to share harvest data between neighboring regions.

*Are these problems accurate? Are there other problems to be solved?*

#### 3.2 Scope

Although not defined in detailed or explicit terms in Section 401 of the Magnuson-Stevens Act, several characteristics of the scope of this project can be described with relative confidence:

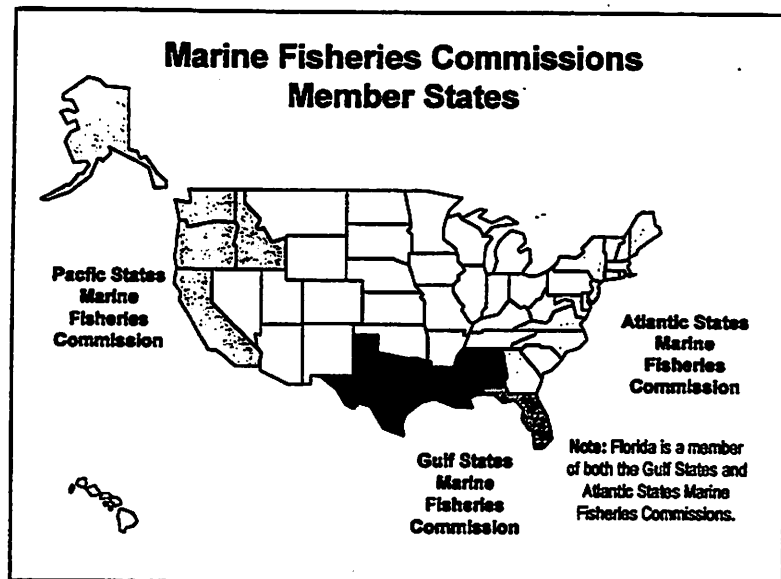
From a leadership perspective, the Magnuson-Stevens Act charges the Secretary of Commerce (and, by delegation, NOAA's National Marine Fisheries Service) with the lead role in developing the System. This includes the important responsibility to engage all appropriate stakeholders in the System design and development process. This assignment of responsibility is consistent with the role that NMFS plays in stewardship of all living marine resources within the Exclusive Economic Zone (EEZ) of the U.S. and the partnership role that NMFS plays with interstate, international, and other inter-jurisdictional fisheries management programs.

From a marine resource law perspective, the Magnuson-Stevens Act specifies that the VRS and FIS be designed to include all federal information requirements specified in the Magnuson-Stevens Act, the

Marine Mammal Protection Act, and "any other marine resource law implemented by the Secretary..." Examples of such laws or agreements might also include the Endangered Species Act, the High Seas Compliance Act, International Commission on Conservation of Atlantic Tunas (ICCAT) and others. The Magnuson-Stevens Act also indicates that relevant State marine resource conservation (primarily focused on "inshore" marine and estuarine fisheries) laws may be included in this scope with the State's permission.

From a stakeholder perspective, the Magnuson-Stevens Act clearly states that the Secretary, in the course of developing the System, must consult with the Secretary of Transportation (U.S. Coast Guard), the States, appropriate tribal entities, the regional fishery management councils (Councils), the marine fisheries commissions (Commissions), industry, and any other interested government and non-government parties. NMFS assumes that industry members who have a specific stake in the outcome of this System include commercial and recreational fishermen and seafood product dealers and processors.

From an end user perspective, the vessel registration and fisheries information system will provide easy access to standardized, integrated regional and national marine fisheries and fishing vessel data. Although much of the required vessel registration and fishery information data exists, it is collected and managed in numerous, disparate systems at all levels. Most information systems are not integrated with others, and do not provide the "one-stop" access for fisheries information sought by the Magnuson-Stevens Act. End-users include, but are not limited to, the Federal and state governments, U.S. Coast Guard, regional fishery management authorities, policy-makers, fishery management officials at all levels, industry officials, commercial and recreational fishermen, and interested members of the public.



From a geographical perspective, this planning process encompasses all of the marine fisheries of the United States, including its states, territories and possessions. Not included in this process are the fisheries of the Great Lakes region of the U.S.

From an information content perspective, the language in the Magnuson-Stevens Act is fairly broad. For the purposes of this report NMFS assumes that the information content of the System includes commercial and recreational fisheries, commercial and charter fishing vessels (for the VRS), all species of fish and shellfish that are either currently under state or federal management or might be in the future, and fishery-dependent data or any information resulting directly from fishing (e.g. harvest data, observer data, biological samples of the catch), processing, economic, social and trade information. It does not include, at this time, fishery-independent data or data collected in resource surveys or other fisheries science or other field and laboratory scientific research activities or fisheries data from the Great Lakes.

From a process perspective, the Magnuson-Stevens Act specifies that the System includes data collection and reporting components as well as information management, sharing, and dissemination components. It also specifies, with respect to the VRS, that any vessel registration issued as the result of implementing a VRS will not be considered a permit and, therefore, may not be revoked or suspended.



### 3.3 System Objectives

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Section 401 of the Magnuson-Stevens Act suggests the broad objectives of the System. Implementation of a well-designed and fully implemented System should deliver concrete, meaningful results for the partners and stakeholders. The desired outcomes are listed below to provide the overall framework and context for system planning, design, and development:

- I. Ability to identify and track a fishing vessel and its activity throughout its "life span" regardless of changes in ownership, location, or fishing activity, as measured by:
  - A. establishment of unique identifier for all commercial and charter fishing vessels operating in U.S. waters.
  - B. ability to link individual vessels and vessel owners with the fishing activity (landings) associated with that vessel, throughout its geographic range.
- II. Reduced burden on fishermen and other industry participants that contribute or collect fisheries data, as measured by:
  - A. reduction in the number of different reporting forms and paperwork required by federal and state fisheries management agencies,
  - B. elimination of duplicative data collection and reporting systems,
  - C. reduction in the average amount of time required by fishermen to comply with mandatory and voluntary harvest reporting systems, and
  - D. successful implementation of technology to aid in the collection, management, and dissemination of fisheries information,
- III. Fisheries information and vessel registration data collection and dissemination systems that are coordinated and integrated across regions, but also recognizing the unique characteristics of regional fisheries, as measured by:
  - A. improved capability in accessing regional trip level and regional summary level fisheries information, and
  - B. improved capability in summarizing and reporting national fishery performance information (harvest, participation, etc.)
  - C. access for industry/public to regional and national summary information
  - D. satisfied consumers of fisheries information products generated by the System.
- IV. Stakeholder partnership agreements and funding arrangements established that clearly define roles, responsibilities, and expectations, as measured by:
  - A. cooperative agreements and/or memoranda of understanding executed by all System partners, including appropriate state agencies, federal agencies, tribal entities, marine fisheries commissions, and regional fishery management councils
  - B. clear, specific, and detailed operations plans
- V. Established regional and/or national standards of measurement, quality, nomenclature, and format for data collection, submission, and sharing, as measured by:
  - A. reduction in number of disparate coding systems, measurement units, data standards, used by partner agencies within each region,
  - B. improved capability to summarize regional information to produce national fishery performance summaries, including accurate inventories of participation (employment) and vessels, exclusive of duplication.

The pursuit of these objectives represents the core activity associated with the development of a fishing vessel registration and information management system. As implementation of the System nears, it will be imperative to fine-tune the performance measures suggested above.

### 3.4 Crosscut Activities/Interfaces

In addition to the key organizations and people who need to participate in the FIS creation, it is critically important to recognize other planning activities currently underway that form the basis for the regional implementation of the FIS.

The Atlantic Coast Cooperative Fisheries Statistics Program (ACCSP) will produce the FIS component for the Atlantic region. The ACCSP schedule calls for implementation of a pilot information management system in 1998. ComFIN and RecFIN, in the Gulf of Mexico region, are engaged in strategic information planning activities and are migrating toward an ACCSP-like model. Likewise, there is a steady stream of improvement efforts in the established Pacific coast systems (i.e. RecFIN, AKFIN and WPacFIN) that comprise the Pacific components of the FIS.

Another interface worth noting is the ongoing development of a Core Fisheries Statistics Program within the National Marine Fisheries Service. The Core Statistics Program is a nationwide effort combining NMFS, the Councils, Commissions, States and commercial and recreational user groups. It is a suite of programs adhering to an agreed-upon set of policies, standards, principles, goals, and objectives in three areas: *data elements/content, information management, and data quality*. The Core Design Team (the Core Statistics Program's steering committee) agreed, as a priority task, to assist in the framing of the Section 401 report. Ultimately, the NMFS core statistics program becomes an integral component of the FIS.

Certain characteristics of the VRS will necessitate detailed interactions with the U. S. Coast Guard (USCG) and state vessel registration agencies, and particularly, staff familiar with management and technical aspects of the USCG's Vessel Documentation and Vessel Identification Systems. The VRS will also have natural connections with NMFS federal fishery and state permit systems (if a state desires) and the linkages of those systems regionally and nationally.

*How can we best include input on FIS/VRS from the fishing industry?*

Additionally, it will be important to review any existing and new issues related to other major Congressional Acts (e.g. Endangered Species Act, Marine Mammal Protection Act) that impact or might be impacted by the Section 401 activities. For example, the MMPA requires permit and registration systems for vessels involved in fisheries where marine mammal interactions occur. There may be lessons learned from implementation of these systems that improve the implementation success of Section 401 systems.

Another issue that requires interfaces outside of the project scope is the information collected and managed under the *fishery-independent* programs within NMFS and the states. In some cases there are subtle distinctions between the two types of programs (i.e. fishery-dependent vs. fishery independent) and often the two are closely related and dependent upon each other to deliver the right information to resource managers and industry members.

The NMFS National Information Management Board (NIMB) has commenced a detailed study of the agency's information architecture. The Core Design Team will work closely with the NMFS Architecture Working Group to inventory the agency's fisheries information systems.

Certainly, other areas intersecting the Section 401 activities will surface so it will be important to recognize these new opportunities and incorporate them and their principles into the design and development of the VRS and FIS.

## 4 FISHERIES INFORMATION SYSTEM (FIS)

### 4.1 Introduction

This section proposes a fundamental model that describes how state, federal, and industry partners integrate and harmonize data collection, data management, and information delivery systems. This document provides an opportunity for partners who manage fisheries information to deliberate and converge on an "umbrella" information system model that serves the information needs of fisheries managers, fisheries statisticians, database managers, industry participants, and the general public. This section:

- provides general background on the specific legislation directing this work
- describes the approach that NMFS employed to develop the framework
- lists the overarching principles upon which the proposed FIS is founded
- details the framework itself, including depiction of an overall FIS process and the basic information content of the proposed FIS and
- proposes specific, high-level implementation strategies for the Atlantic, Gulf & Pacific regions

### 4.2 Background and Rationale

The Magnuson-Stevens Act requires that the System (the combined vessel registration and fishery information systems) include and integrate all fisheries information required under all applicable federal statutory and regulatory requirements, including but not limited to the Magnuson-Stevens Act, the Marine Mammal Protection Act, the Endangered Species Act, and, with the permission of a state, any marine resource law implemented by that state. This section of the Magnuson-Stevens Act also states that the proposal will be developed in consultation with the U.S. Coast Guard (USCG), the States, the Fishery Management Councils (Councils), the Marine Fisheries Commissions (Commissions), Native American Tribes, and any other key governmental, non-governmental organizations or interested stakeholders.

*Are there other systems and/or species outside of the 30+ FMPs that warrant inclusion?*

There are numerous regional and national opportunities to improve the information systems used in fishery-dependent data collection and management. Currently, fisheries information managers are moving aggressively to plan collaborative systems for the Gulf and Atlantic coasts (Southeast ComFIN/RecFIN and Atlantic Coastal Cooperative Statistics Program). Established information systems on the Pacific Coast (PacFIN, WPacFIN, and AKFIN) can also benefit. Pairing existing fisheries information systems with a new vessel registration system provides the critical linkage of vessel and fishery performance information sought by the Magnuson-Stevens Act.

Fisheries management has evolved very rapidly in terms of information types, elements, quality, and frequency and methods of collection. In many instances, data collection and information management systems have been hard-pressed to maintain the pace and have, at times, evolved on an ad hoc basis, i.e. new information systems are developed to meet additional reporting requirements as each new federal fishery management plan is adopted. These inefficiencies, usually resulting from duplicative or redundant systems, are typically most apparent at the point of data collection, where these systems "interact" with the fishermen. The burden of reporting the same information to multiple organizations (states, NMFS, etc.) or completing multiple logbooks for individual fishing trips can be onerous especially in fisheries where the resource information requirements are intensive. Less apparent but equally problematic is the inability to match and

*Can we provide examples of burdens on fishermen, e.g. reporting requirements for a trip that might involve multiple logbooks and other data submission?*

combine data for all fisheries across these independent information systems.

### **4.3 FIS Scope and Stakeholders**

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The FIS scope is essentially described in Section 3.2 "Scope", which describes the various perspectives through which the System can be viewed. The scope is intentionally broad, including issues that span authorizing legislation, data collection activities, data and information management processes and tools, data dissemination and value enhancement, and organizational development.

The FIS is described in the following sections in terms of system requirements, operational concept, system architecture, information content and models, enabling technologies, and specific design principles. The Magnuson-Stevens Act requires, at a minimum, an evaluation of the federal reporting requirements currently embodied in federal fishery management plans. The planning process used to develop this Discussion Draft has taken into consideration a much broader view of fisheries information. Considerable effort has been (and will continue to be) expended in working with the Department of Transportation (USCG), the states, the marine fisheries commissions, the regional fishery management councils and the NMFS regions and program offices.

Significant activities are underway across the nation to design new and re-engineer existing fisheries information systems to leverage newly-created public and private partnerships and to take advantage of significant technology improvements. This is happening at both the state and federal levels. The Congress (Senate Committee on Commerce, Science, and Transportation), in FY98 NMFS Budget Appropriation language, demonstrates concern about the accuracy and effectiveness of regionally-funded commercial and recreational fishery information networks and has asked NMFS to "create an umbrella program to coordinate the techniques used to gather and disseminate data on a national basis while continuing to take into account the unique characteristics of regional... fisheries." This philosophy reinforces the principles stated in Section 401 of the Magnuson-Stevens Act.

It is this "umbrella program" that is the target of this implementation plan. In developing this program the challenges of coordinating with the numerous public and private sector partners, acknowledging regional differences in fisheries, information systems, and infrastructure, and building a context for improved effectiveness and efficiency will be met. All of these activities aid the conservation and management objectives of the Magnuson-Stevens Act.

## 4.4 FIS Framework and Design Options

Three factors were developed that could be used to describe the basic framework of the FIS. Each of these factors, in turn, contains a suite of options representing a range of choices for each factor. The matrix depicted in Figure 4-1, on the following page, represents an options "field" – an opportunity to select one option from each factor ("choose one from Column 1, one from Column 2, and one from Column 3"). Each resulting combination can be thought of as one unique scenario. Certainly, any unique scenario (perhaps with a few exceptions) could be considered as a plausible "FIS Scenario".

**Table 4-1: Factors & Options – FIS Framework**

Options	Factors		
	1 Information Management Architecture	2 Data Collection Integration	3 Institutional Arrangements
<b>A</b>	Central Detail & Summary	State	State
<b>B</b>	Regional Detail & Central Summary	Regional	Commissions
<b>C</b>	Regional Detail & Summary	National	NMFS
<b>D</b>			Shared

### 4.4.1 Factor 1: Information Management Architecture

The architecture options range from highly centralized (Option A) to highly decentralized or fully distributed (Option C). In a highly centralized model, the FIS "master" database resides in one location housing all data. In a highly decentralized model, the FIS databases would be distributed across the range of system users. In the decentralized model, data resides much closer to the point of collection. The underlying data model (map of data elements and their relationships) for the FIS will be virtually the same regardless of the Factor 1 option chosen. The degree of database centralization/distribution will be largely determined by this factor, but the basic tables and their relationships do not change across these options. Generally speaking, references to the term "central" in the options below refer to "national" and reference to the term "regional" typically mean Atlantic, Gulf, or Pacific.

**Option A: Central detail and central summary.** This option is the most centralized model. The database would reside in one location and would contain all detailed (trip-level) records for all states and would also provide summary (regional, coastal, national, etc.) views of the data.

**Option B: Regional detail and central summary.** Slightly less centralized than Option A, this option suggests that all regional detail/trip records are available either on one or distributed across a few computers in that region. The regional detail records would include a set of minimum critical or core data elements agreed to by all partners in that region. This option would also provide central (national) summary-level information "rolled-up" from more detailed regional data.

**Option C: Regional detail and regional summary.** Although slightly more distributed than Option B, this option maintains regional data at both the trip (detail) level and at the summary level. In this option, there is no linkage between regional "systems" so anyone desiring central/national summary level data would have to query regional summary data, rolling it up to national data.

*Note: Since Options A through C each contain either national and/or regional summary-level data, it is implied that regional and/or national data element standards (coding, measurement units, definitions, etc.) have been established at some level. It is also possible that translation tables would be created to help link data elements from disparate databases.*

#### **4.4.2 Factor 2: Data Collection Integration**

The second factor describes the basic level to integrate and harmonize the data collection programs. Integration/harmonization will be accomplished by some combination of standardized forms, data definitions, coding standards, data collection standards, or translation tables.

One could visualize the data flow as a series of data streams from collection points that converge at the FIS database. Where the streams merge, definitions and coding standards must be harmonized. In this factor, we define how far downstream the harmonization is done, or conversely, where we put the translation tables. In this factor, we may choose to standardize some components at one level and others at another (e.g. national data definitions and coding but state-level forms).

**Option A: State.** In this option, individual states/tribes (or other partners) independently decide how data collection will be achieved. This option results in numerous heterogeneous data collection systems developing over time in response to state and federal reporting requirements.

**Option B: Regional.** In this option, partners within a region recognize that there are efficiencies in setting regional standards or developing regional data collection forms or formats. Those efficiencies may be felt by the providers of information or they may be reflected in more efficient retrieval (and interpretation) of summary-level data.

**Option C: National.** In this option, it is more efficient to agree on standard element definitions, measurement units, data formats, data collection forms, etc. at the national level. All partners, regardless of region, follow those standards.

#### **4.4.3 Factor 3: Institutional Arrangements**

The third factor specifies the institutional arrangements (e.g. decision-making entities and processes) that will be implemented to make the system work. In basic terms, this means identifying the parties responsible for data collection, management and quality control. Regardless of the option chosen, all parties involved must cooperate and coordinate their efforts. The range of options presented below reflects the degree to which this collaboration must take place and which party specifically is held accountable for program success.

**Option A: State.** In this option, each state independently assumes responsibility for its data collection and management programs and all relevant database design and construction issues. The states communicate with other partners to the extent possible but state officials make major system development and design decisions. Funding would be provided through federal grants to states and/or directly from state legislatures.

**Option B: Marine Fisheries Commissions.** In this option, the Commissions (Atlantic States Marine Fisheries Commission, Gulf States Marine Fisheries Commission, and Pacific States Marine Fisheries Commission) assume the leadership role and act as the decision-making body on behalf of its members. In this model, the Commission would work with its members and other partners to look for opportunities for collaboration in data collection and management activities. Funding might come from a combination of membership sources, state and/or federal funding.

**Option C: National Marine Fisheries Service.** In this option, NMFS assumes authority and responsibility for coordinating data collection and management activities. Funding could be generated by federal legislation or by joint partner funding arrangements.

**Option D: Shared.** In this option, all of the parties identified in Options A, B, and C (including tribes, territories, and island governments) jointly share the responsibility and accountability for planning and executing the FIS. Business processes and funding arrangements would be decided by consensus of all partners. Funding would be generated through a combination of state and federal budget initiatives.

#### **4.4.4 The "Fourth Factor" – Technology**

If the matrix above (and selection of a scenario) represents the "What" of the FIS, it is worth devoting some attention to the "How" of the FIS. Within each of these three factors several technology options might make sense.

As scenarios are developed to satisfy the standards of a nationwide FIS, it is important to consider, evaluate and suggest technologies that support the achievement of the FIS goal. Data collection and data dissemination technologies are two areas that comprise a vast array of tools for "how" to execute a scenario, and are not necessarily associated with any single scenario. Two examples: (1) the deployment of electronic reporting as a technology tool would be equally at home in a scenario where NMFS was the principal collecting agent versus the states or the Commissions; and (2) use of World Wide Web access tools for data dissemination and access would be appropriate for a scenario that sought a centralized data base as its goal as it would in a scenario that sought a regionalized distributed database. These technology elements are highly relevant but are not to be considered in the same manner as the three factors that are being proposed for differentiating FIS scenarios.

These technologies are important to the FIS task and should be part of a discussion of attributes of the preferred FIS systems. A process to identify these technology opportunities and link them to the development process will be devised. The specific kinds of technologies that might be considered include:

**Data collection technologies:**

- Electronic reporting by dealer/fishermen
- Electronic logbooks by dealer/fishermen
- Electronic clipboards/other capture devices
- Voice Activated Reporting permitting/reporting systems
- Computer-assisted recording/transmission
- Fax based transmission
- OCR, bar code and other technology-based entry system

**Data Dissemination technologies:**

- Web-based reporting
- Groupware
- Business intelligence tools including:
  - Report generators
  - On-line Analytic Processing (OLAP)
  - Data Mining

**Can you suggest additional technology options?**

## 4.5 FIS Proposal

In an effort to generate focused discussion on a possible FIS scenario that could serve as an umbrella concept nationwide, NMFS has engaged several internal fisheries statistics experts as well as experts from other federal agencies, state agencies, interstate fisheries commissions, and fishery management council staff in informal discussions of the options field described above. Discussions of alternative FIS scenarios have converged on a single scenario (1B-2B-3D) as the clear "favorite". This is not to suppose there are no other alternatives but merely indicates a convergence by many experts with diverse perspectives (geographical, institutional, subject matter expertise, etc.) on the 1B-2B-3D scenario.

**Table 4-2: Selected Approach: The 1B-2B-3D Combination**

Options	Factors		
	1 Information Management Architecture	2 Integration/Harmonization of Data Collection Programs	3 Institutional Arrangements & Accountability
A	Central Detail & Summary	State	State
B	✓ REGIONAL DETAIL & CENTRAL SUMMARY	✓ REGIONAL	Commissions
C	Regional Detail & Summary	National	NMFS
D			✓ SHARED

We therefore suggest this scenario as a starting point to gain additional input from an even more diverse stakeholder group. Naturally, a point of concern is the degree to which this scenario requires changes in existing programs and/or information systems. For systems still early in planning phases, adoption of this scenario, if consistent with ongoing system architecture discussions, would create little disruption. On the other hand, any system that, for example, was highly centralized or highly decentralized might have more issues surrounding the migration of their systems to meet the overall framework.

Regardless of the "migration path" for any individual or coastal system toward the preferred scenario, it is useful from an overall perspective to agree on the basic, fundamental model that describes fisheries information systems. Such a model serves as a benchmark against which regional and national cooperative programs can gauge their evolution. Simultaneously, it provides the flexibility for implementation strategies (at state, regional, and national levels) to take into account the unique characteristics of "local" fisheries, industry practices, and level of effort/commitment by cooperating institutional parties/partners/entities.

In Section 4.7 each broad region (Atlantic, Gulf and Pacific) is analyzed according to the 1B-2B-3D approach identified above. The Pacific region is further divided into three subregions: Western Pacific, Pacific Coast States and Alaska. This broad analysis provides the starting point for detailed discussion of data elements, collection, management and dissemination.

## 4.6 Conceptual Model of Proposed FIS

The FIS provides a context for the design, development, and implementation of data collection and information management systems for fishery-dependent statistics, nationwide. It is based upon the objectives listed in Section 3.3, the design principles stated below and the specific items described in



Section 4.6.1. The FIS "belongs" to no single organization; rather, it represents numerous coastal, regional and national partnerships.

To provide a context for the development of the FIS framework a set of design principles must be articulated. These general principles apply to the FIS regardless of the region of implementation. The principles also provide a basis for shared understanding of the FIS. Universal stakeholder consensus on the following principles provides a context and foundation for future systems planning, design, and development.

*To provide maximum benefit to fishery managers, scientists, information providers, and information users, the FIS should...*

- **Utilize existing programs, systems, and infrastructure investment to the extent possible**
  - Integrate information under existing fishery management plans to avoid duplication
  - Integrate VRS and FIS to produce vessel and fishery performance information (such as vessel identification, owner information, vessel capacity, vessel tonnage, identification of fisheries in which each vessel participates, number of vessels participating in each fishery, time period and location of catch, gear types used, etc.)
  - Avoid duplication of existing state, federal, tribal systems by synthesizing state/federal data reporting/access systems into a single, integrated system, where possible
  - Utilize information collected from existing systems
  - Reduce redundancy in data collection systems
  - Utilize cooperative agreements, where possible, to formalize partnerships among data collectors, managers, and users
  - Develop and include procedures to ensure confidentiality of information
  - Build on emerging socio-economic data collection programs
  
- **Establish regional (and/or national) standards of measurement and quality**
  - Establish standardized units of measurement and nomenclature, where possible
  - Establish standard coding systems, where possible, or build logical bridges between separate coding systems, where necessary.
  - Establish reasonable minimum data quality standards
  - Establish standard (minimum critical) data elements
  - Minimize number of coding systems
  - Develop processes to ensure the timely release of information to the public
  
- **Reduce reporting burden on providers of fishery information**
  - Minimize paperwork required for fishing industry participants to comply with federal reporting requirements
  - Require no fisherman to complete more than one logbook for any particular trip
  - Eliminate situations where more than one state or federal agent interviews an individual fisherman/dealer/buyer
  - Minimize other costs and burdens on those reporting fisheries data
  - Establish standard formats and processes for collection and submission of fishery information

*Are these appropriate? Can you suggest other design principles?*

It is important to understand that the proposed FIS model described herein is not a radical departure from the structure and content of existing systems. Planning for the FIS largely assumes that most of the existing systems will remain the same or will be modified somewhat to create the necessary regional or national linkages. Some inefficient systems may require consolidation, but the purpose of this project is not to replace existing data systems but to build and improve upon them.

In this way, the FIS becomes a source of regional and national fisheries data, where customers of summary-level data within or across regions have access to fisheries information of consistent quality. These customers would consist of fishery management council and commission staff, fisheries scientists/managers in the public, private, non-profit, and academic sectors, and members of the general public, fishing and related industries.

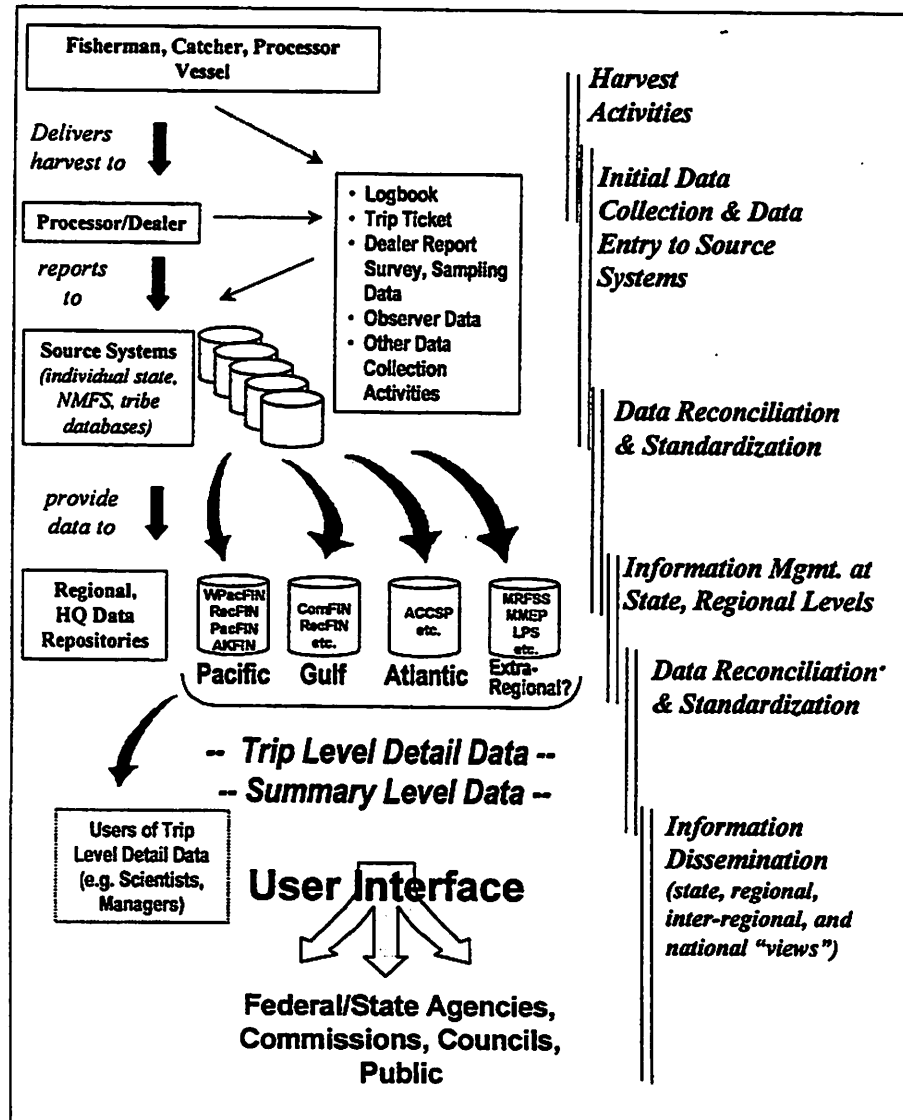
Figure 4-1 below represents a conceptual model of the FIS depicting information flows from various (state/federal) sources through data management systems and repositories at the state, regional and national levels culminating in distribution of raw data and value-added information to the community of end-users.

### Harvest activities

generate catch and effort data contained in trip reports, logbooks, or other reporting forms. This initial data collection either takes place at the state or federal levels and results in the entry of data into source information systems such as that of a state resource management agency (e.g. Florida Department of Natural Resources, New York Department of Environmental Protection, Virginia Marine Resources Commission) or NMFS.

The first data reconciliation and standardization process would occur as state trip-level ("detail") data are extracted from the source state or federal systems into regional data repositories in the Atlantic, Gulf, and Pacific areas. Generally, data collection standards are to be developed at the regional level. However, there may be

**Figure 4-1: FIS Conceptual Model**



opportunities to develop national standards for certain data elements, coding systems, or units of measurement. The higher the level that standardized coding systems can be agreed upon, the fewer data translation and interpretation issues need to be addressed. Each region would maintain its own central repository of trip-level and summary data, serving as the **state/regional information management system**.

The second **data reconciliation and standardization** process would occur as summary data is extracted from the regional repositories, reconciled and summarized to develop national or inter-regional views. This concept would provide consistency by harmonizing regional differences, and would provide data to users in a business context they understand. The extraction process pulls data from each regional repository based on some pre-determined criteria. These criteria will include identification of the specific data needed for the FIS as well as a designated time period.

One consequence of the reconciliation and summarization processes will be the ability to provide information on the performance and status and trends of our inter-regional and national fisheries and the vessels and people operating in those fisheries. The government's role in producing information on this important component of the U.S. economy is long-standing. The ability to enumerate total U.S. commercial and recreational harvests by species/gear/area, direct and indirect employment and fishery participation, the number of vessels fishing in U.S. waters and landing in U.S. ports, the total wholesale and retail and revenues generated by these landings, the imports and exports of fishery products, and other important statistics provides fishery scientists, fishery managers, and economists the basic raw material for their analysis and reporting responsibilities.

**Information dissemination and access to detail-level and summary-level information** demonstrates the real value of the FIS. In order to facilitate the efficient delivery of information, an end-user interface would be developed that consists of data query and analysis tools that allow for both standard and ad-hoc queries and provide advanced data manipulation capabilities (such as drill down and multi-dimensional analysis). Users might access the data through various means including direct network access, modem, and Internet in order to support a wide range of users. WWW interfaces could also be developed for the posting of routine and/or special reports, metadata, or other information that would be of use to the public.

#### **4.6.1 FIS Information Content and Data Models**

Another method to describe the FIS is to identify the information systems or databases that comprise the FIS. This answers the question of "what's in" and "what's out". By identifying the federal and state fisheries data collections (and their resulting databases), a shared understanding of what information systems fall under the FIS "umbrella" will emerge. Once these systems have been identified it becomes easier for FIS participants/stakeholders to evaluate what, if any, changes would be necessary to integrate (harmonize) data collection systems and to link these databases for more effective information sharing.

The following list represents candidate categories of information systems that are proposed as components of the FIS:

- Catch, effort, biological, economic, and socio-cultural data
- State and federal data collection, management, and dissemination components
- Federal fishery permit systems
- State and federal vessel registration systems
- State and federal permit systems
- Commercial and recreational fisheries statistics
- Trade data
- Observer data
- Marine Mammal Protection Act Exemption Program data
- Endangered Species Act data
- Cold storage, processed products

- Fishery dependent tagging systems/programs

The following category of information systems is proposed to be excluded from the FIS umbrella:

- Fisheries Independent Data: scientific, assessment, research data

A detailed list of candidate information systems (federal and state) will be provided in later versions of this document. This information is presented in support of analysis of regional implementation considerations.

#### Data Models

Figures 4-2 through 4-9 are sample data models that show the major areas of information required for use in the VRS and FIS and their relations to each other. These data models are examples of existing alternatives and do not necessarily represent a complete view of the FIS.

A data model can be used to identify and describe the relationships among the specific data elements that ought to comprise an information system. Data models should be used in this case to help visualize information needs, or what information should be contained in the FIS, whether at the national or regional level. It is important to note that the data model is strictly a logical representation of the information requirements. The model does not depict where data physically exists or who owns it. Rather, it consists of a number of important data objects that are elements of VRS and FIS. The rectangular boxes in the Figures represent these objects, called data entities. An entity is simply something about which information needs to be stored. The entity represents all instances of a particular kind of data. In a physical sense, this is akin to records in a file.

The lines connecting the entities (in Figures 4-3 through 4-9) are called data relationships. A relationship documents the fact that certain types of information are associated with other types of information. An example is that a vessel would have an associated vessel description. Therefore, in Figure 4-3, the entity **Vessel** has a relationship connecting it to the **Vessel Description** entity. Relationships are bi-directional and can be read in either direction. Reading in the other direction indicates that a **Vessel Description** is associated with a **Vessel**.

**Figure 4-2: Sample Vessel Registration and Fishery-Dependent Data Systems (FIS): High Level Model**

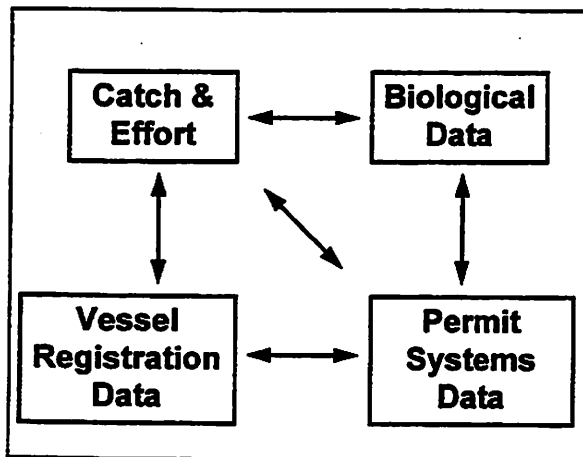


Figure 4-2 depicts an overall view of information areas needed for the FIS.

Figure 4-3 depicts the information areas required to support a vessel registration system.

Figure 4-4 depicts the information areas required for permit management including an identification of the permit holders and the current status of the permit.

Figure 4-5 depicts the information areas required to record catch and effort data.

Figure 4-6 depicts the information areas required to support biological sampling of the catch.

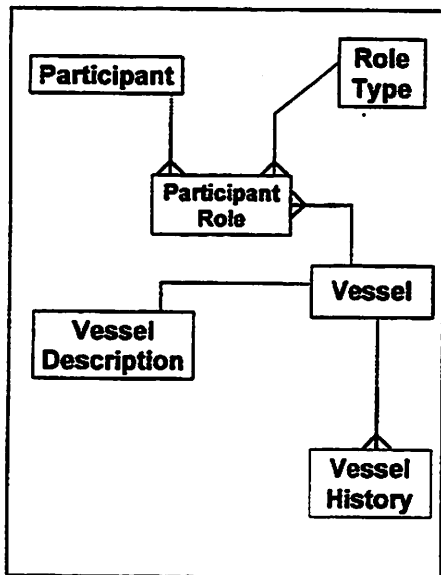
Figure 4-7 depicts the information areas necessary for the recreational social and economic data.

Figure 4-8 depicts information areas for dealer social & economic data.

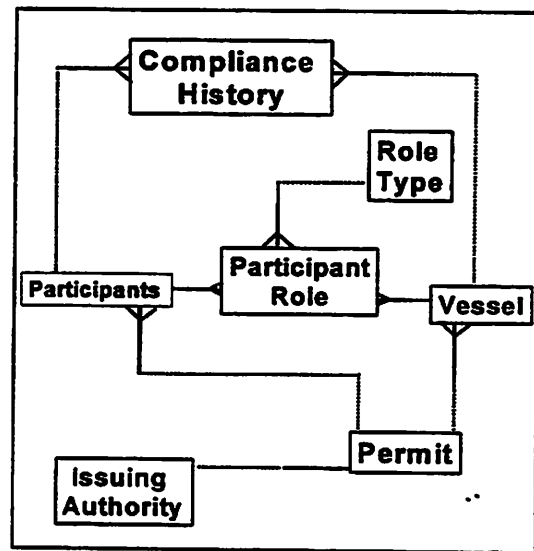
Figure 4-9 depicts information areas for harvester social and economic data.

Table 4-3 presents a description of some of the entities that appear in these proposed data models.

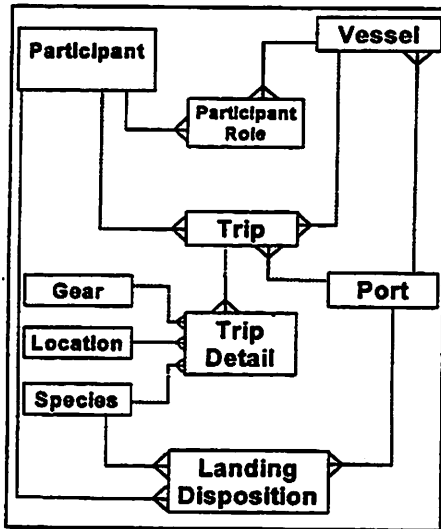
**Figure 4-3: Sample Vessel Registration Data Model**



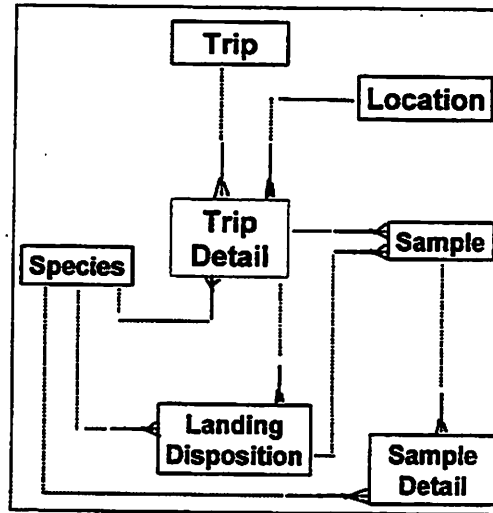
**Figure 4-4: Sample Permit Management Data Model**



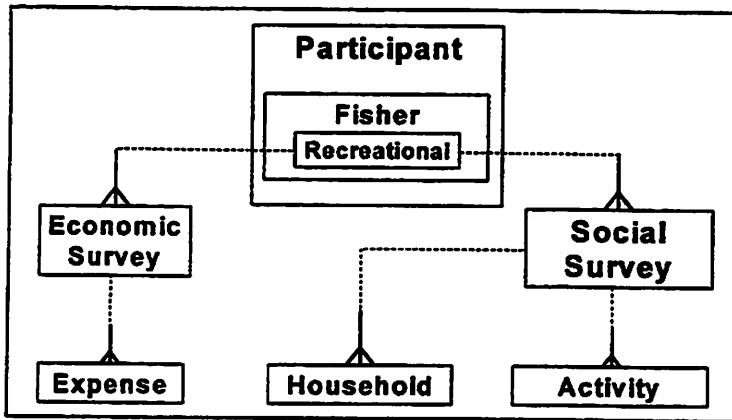
**Figure 4-5: Sample Catch & Effort Data Model**



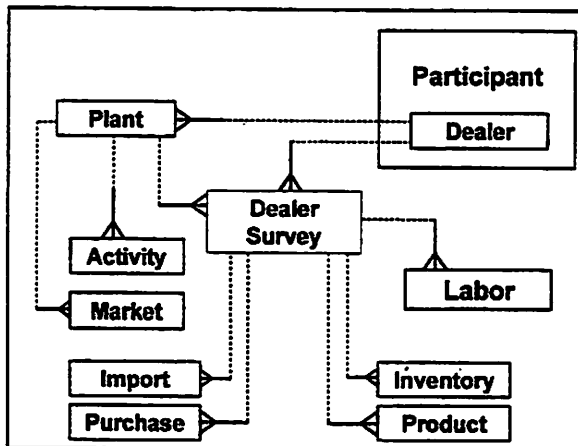
**Figure 4-6: Sample Biological Data Model**



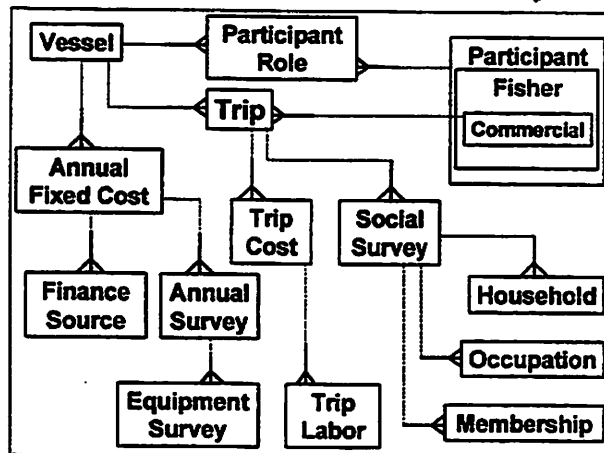
**Figure 4-7: Sample Recreational Social & Economic Data Model**



**Figure 4-8: Sample Commercial Dealer Social & Economic Data Model**



**Figure 4-9: Sample Commercial Harvester Social & Economic Data Model**



**Table 4-3: Representative Data Entity Descriptions**

The following are some of the major data entities and descriptions of the representative system.

Entity	Description
Compliance History	The history of compliance actions taken on an INDUSTRY MEMBER or VESSEL and a description of the disposition or outcome of the action.
Gear	Equipment used for the purpose of catching fish or other living fisheries resource.
Participant	A person or organization conducting, or requesting to conduct a business activity (owners, agents, fishermen, dealers, processors, etc.) involving marine fisheries resources.
Issuing Authority	The authority responsible for granting permits and licenses to an INDUSTRY MEMBER.
Landing Disposition	The record of the disposition of all landings. This includes fish landed and sold, discarded, and used for personal consumption.
Location	A geographic position which identifies where a fishing activity occurs.
Occupation	Stated occupation of members of a household.
Participant Role	The identification of the ways in which an industry member is involved with marine fisheries. For example, a single industry member may be the owner of one vessel, the agent for others, and the operator of another.
Permit	The approval to perform a marine fisheries business activity regulated by State or Federal authorities.
Plant	A plant that processes fishery products.
Port	A harbor town or city that serves as an embarkation point for fishing trips or discharge point for landings.
Role Type	The identification of the various roles a PARTICIPANT may play in the fishing industry.
Sample	The identification of a subset of a catch used for biological and statistical analysis.
Sample Detail	The description of the specific biological and statistical elements collected on an individual fish or other marine organism within a sample.
Species	The biological classification of a marine organism including both common and scientific name.
Trip	Any effort with a specific start and end date undertaken for the purpose of catching fish. A trip may be shore or vessel based.
Trip Cost	The variable cost of TRIP.
Trip Detail	The specific details about a TRIP; including time fished, gear used, location, and species quantity caught.
Vessel	The unique identification of a boat or watercraft.
Vessel Description	The characteristics of a VESSEL including length, breadth, gross and net tonnage, and vessel capacity.
Vessel History	The history of VESSEL name changes.

## **4.6.2 FIS Concept of Operation and Design Principles**

Section 4.4 proposed an FIS framework and a series of design options within that framework. Section 4.5 has presented a description of the preferred design alternative (1B-2B-3D) from an information content and technology perspective. And Section 4.6 described a conceptual model of the FIS.

This sub-section further defines the FIS by describing (1) a concept of operation and (2) specific overarching principles that guide the FIS design. Both of these descriptions are couched within the original 3-factor framework including information management, data collection and institutional arrangements.

***What other architecture implementations make sense?***

### **4.6.2.1 Information Management Architecture**

Creating a nationwide view of summary-level data implemented in a regional data "warehouses" could support a nationwide FIS. This concept would provide a single, complete view of the data, would provide consistency by eliminating regional data differences, and would provide data to users in a business context they understand. The warehouses could be implemented as two mirrored sites - one east coast and one west coast. Each site contains the same data and provides "local" access to data customers from the respective coasts. The rationale for mirrored sites is based upon the need for system security and flexibility (provides redundancy in case of network failure and provides basis for off-site system backups), and ease of access (perhaps reduced traffic at any one site).

In order to facilitate the efficient delivery of information, and end-user interface would be developed that consists of data query and analysis tools that allow for both standard and ad-hoc queries and provide advanced data manipulation capabilities (such as drill down, multi-dimensional analysis, etc.). Users might access the data through various means including direct network access, modem, and Internet in order to support a wide range of users. WWW interfaces could also be developed for the posting of routine and/or special reports, metadata, or other information that would be of use to the public.

*The design principles associated with the Information Management Architecture factor are presented and described below:*

#### **4.6.2.1.1 Data Access Standards (Confidentiality)**

The fishing industry (i.e. fishermen, dealers, processors) is responsible for generating most of the raw harvest data used in the system, and is thus very sensitive to the potential handling of what it regards as proprietary and confidential information. Understandably, competitive pressures force industry to closely guard its business information. This need must be balanced with the needs of resource managers to have access to the types of information required for responsible stewardship and management of these common property resources. The implementation of well-conceived data access standards will not only ensure that industry confidentiality is maintained, but also will help inspire confidence among suppliers and users of high quality data. In the long run, the best interests of all parties are served by complete and accurate information.

Policies on confidentiality are stipulated in federal and state legislation and regulations and are not subject to change from an information management perspective. However, much is to be gained from all regional partners working together to clearly specify confidentiality issues and their impact on data collection, summarization, and delivery to users.

#### **4.6.2.1.2 Data Flow Protocols/Policies**

If state, regional, and national systems are to be integrated, there must be a shared understanding of how information will flow from sources to repositories to the ultimate users. Protocols must be established to guide the various data collection programs in establishing data



collection and transmission, measurement, quality and coding standards. These protocols and information management policies might include performance standards for timeliness of data submissions at various levels of summarization, disaster recovery and security management plans, configuration management, referential integrity assurance plans, and mechanisms for data validation and "cleaning". One also might expect on-line documentation of these protocols and policies. Additionally, there may be a case for standardizing software or specific applications in order to leverage an existing technology base.

#### **4.6.2.1.3 Data Delivery/Dissemination**

Various data dissemination technologies must be evaluated to determine the best mix of technologies to support potentially diverse end-users. The effectiveness by which data delivery can be controlled by authorized users will help determine the overall success of the system. To this end, flexible data access tools need to be provided to support the variety of users. In addition to the tools, a number of data delivery methods (e.g. WWW-based deployment) will also need to be evaluated.

#### **4.6.2.1.4 Infrastructure**

The FIS infrastructure consists of all the physical components that will comprise the system. These components include the hardware platforms, communications, storage devices, database, operating software, and application software. The design of this infrastructure will have a significant impact on the overall costs of the FIS. The physical location of the components, as well as issues regarding connectivity, security, and access contributes to this issue. Additionally, the ability to use existing infrastructure, especially in terms of hardware and communications, can result in reduced development costs for the FIS. The detailed design of the FIS needs to result in key decisions regarding infrastructure at the national and regional levels.

#### **4.6.2.1.5 FIS Data Models/Relationships**

FIS data models need to be developed to present a conceptual view of the required FIS information. The data models combine related data elements into entities and define a unique identifier for each entity. The models further describe the relationship between entities (i.e. how one entity is associated with another). The importance of these models is that they provide a picture of FIS information requirements that represent user data needs. The models therefore act as a baseline against which current systems can be evaluated. The gap between current systems data and the FIS models indicate where improvements in data collection systems are needed.

#### **4.6.2.2 Data Collection Integration**

The following data systems might be included in the FIS:

- Commercial harvest by species, gear, area
- Recreational harvest by species, mode, area
- Cold storage holdings
- Trade data
- Processed products data
- Coast Guard Vessel documentation data
- Marine Mammal Protection Act Permit system
- High Seas Fishing Compliance Act Permit system
- Capital construction vessel files

Generally, data collection standards should be developed at the regional level. However, there may be opportunities to develop national standards for certain data elements, coding systems, or units of measurement. The higher the level that standardized coding systems can be "imposed", the fewer translation issues need to be addressed in the information management arena. Adoption of national standards that are either too cumbersome or not responsive to regional information needs would not be a logical path to follow.

Data collection of course occurs at all levels. Each region maintains its own central repository of trip level data. Periodically, detail data could be transmitted from the regional repositories, reconciled, summarized, and loaded into the FIS data warehouses. The extraction process pulls data from each regional repository based on some pre-determined criteria. These criteria will include identification of the specific data needed for the FIS as well as a designated time period. Typically, the extracts will access only new data or data that has changed since the previous extraction. The reconciliation process would involve taking raw data from the regions and harmonizing it for easy use. This implies that one common standard is in place for use at least at the national level for summary level data. This standard may or may not also be adopted by one or more of the regions, as described above.

Once reconciliation is complete, a repository of harmonized data will exist. The repository will exist temporarily while the harmonized data is summarized. The exact nature of the summaries that will be created will depend on the end-user reporting requirements.

*The design principles associated with the Data Collection Integration factor are presented and described below:*

#### **4.6.2.2.1 FIS Content**

The scope of the Fisheries Information System (FIS) data collection program should include all fishery-dependent data collection programs for all living marine resources. This scope is necessary in order to have an effective, non-duplicative FIS while capturing adequate data to ensure responsible management of all living marine resources.

*"All living marine resources"* includes commercial and recreational fisheries currently covered by the SFA. It might also include:

- species that are not inter-jurisdictional and are managed by individual states (shellfish and some crustaceans), subject to state participation in the FIS;
- internationally managed species (tuna managed by NMFS and ICCAT); and
- species subject to authorities other than fishing statutes (marine mammal and endangered species bycatch, and non-consumptive uses of living marine resources)

The types of data collected include the usual fisheries-dependent statistics on landings, harvest, catch, effort, participation, as well as biological data, economic data, and social data. The usual statistics (landings, catch, etc.) are necessary to monitor impacts of fisheries and develop appropriate management measures. Biological data (e.g. lengths, weights, and hard parts) are increasingly critical for stock assessments and often can be integrated with collection of catch and effort data. Economic data include, but are not limited to, commercial cost-earnings studies, processed products and cold storage studies, and recreational demand and impact studies. Social data include, but are not limited to, community studies and attitude and opinion studies. These economic and social data are necessary for proper allocation and management of the resource for the maximum benefit to the States and the nation. At a minimum, the data required under the numerous Fishery Management Plans (FMPs) are to be included.

#### **4.6.2.2.2 Data Forms**

Another opportunity for regional coordination is in the area of design and deployment of data collection forms. Asking for the same or similar information in the same or similar ways ought to be the goal in order to present a consistent approach from the data providers' (harvester/dealer/processor) perspective. This data collection model reflects all partners working together to develop the most efficient and consistent data collection methods and forms (and paperless technologies where forms can be digitized). "Modular" logbooks might consist of a base portion (fisherman/vessel information) and fishery-specific modules (species, catch, effort, etc.). Ultimately, this will minimize redundancy and overlap in data collection systems (especially state and federal systems), thus minimizing the likelihood that any individual data provider would be asked for the same information twice (or more).

#### **4.6.2.2.3 Quality Assurance/Quality Control (QA/QC)**

Quality assurance and control procedures need to be established in the FIS to help ensure the validity and integrity of FIS data. Data standards and procedures should be designed and developed to provide a common basis for FIS data quality. These procedures might be applied at several points in the data flow, beginning at the point of collection and ending with the final distribution of the data to end-users. Checks on the completeness and accuracy of the data, validation of self-reported data, and verification of the database integrity could all be included as quality control procedures.

Quality standards need to be established for coding, error rates, missing data, and statistical validity. Coding standards can be established at either the national or regional level, depending on the data collection process. Maximum allowable rates for coding errors and missing values should be established for important data. Data from surveys should adhere to certain minimum standards of statistical validity and, at the very least, statistical procedures used to produce estimates need to be properly documented.

Regardless of the specific data capture technologies or data collection systems, in general, data quality standards and quality assurance systems are best implemented at the regional level in order to leverage the benefits as regional detail level data rolls up to summary level data. Data element standards must be agreed upon so that there are commonly held data element definitions. A data resource directory (DRD) should be developed so all partners understand the basic characteristics of the data. Metadata ("data about the data") should be maintained so data users have the information they need to interpret data elements and the data itself.

#### **4.6.2.2.4 Data Dictionary/Metadata**

The subject areas of information and the specific data elements (data dictionary) that will comprise the FIS need to be identified and described. Metadata describing the data dictionary elements will be based on the QA/QC standards and procedures developed for the data. The completion of the FIS data dictionary and associated data quality standards will provide the basis for evaluating current data collection methods and systems. The extents to which current collection systems can provide the required data will determine in large part the scope and complexity of the FIS development effort.

#### **4.6.2.2.5 Coding Standards**

Regional coding standards should be developed for certain elements (e.g., species codes, gear codes). All entities feeding data to the FIS would be required to use established coding systems. While building bridge tables to accommodate multiple coding systems is certainly an alternative approach, the gains of up-front agreement on definite standards are significant, especially in regional data retrieval exercises. In cases where a state elects to use the FIS as its state data

repository, adherence to regional standards would be mandatory. Where possible, regional coding standards ought to be devised in the context of national coding standards. Ultimately, similar gains are to be reaped when regional data, nationwide, are combined and summarized for users of national/central summaries.

#### **4.6.2.2.6 Technology Adoption**

As we develop scenarios to satisfy the standards for a nationwide FIS, we should simultaneously evaluate opportunities and suggest technologies that support the achievement of the FIS vision and goals. Once there is a shared understanding of the specific business processes and information flows that are needed, data collection and data dissemination technologies can be identified that support those processes. These technology elements might be crosscutting in that there are potential applications of technology across all components of a VRS and FIS. If the FIS requires mandatory trip-level reporting for each state, for example, there might be a strong business case for the development of uniform electronic logbooks for trip data. Likewise, if we establish unique identifiers for commercial fishing vessels nationwide then we may be able to move toward a state-federal "one-stop shopping" system for fishery permits and licenses.

These business processes and technologies are an important element of the FIS vision so a process will be designed to identify and evaluate candidate technologies and evaluate them according to specific criteria. Examples of the kinds of technologies that might be considered include, but are not limited to, electronic logbooks, electronic clipboards or other data capture devices, interactive voice response for permitting and catch reporting, computer assisted recording and transmission, fax-based data reporting, and OCR/bar code and other technology-based data entry systems.

#### **4.6.2.2.7 Non-Duplicative Participation Estimates**

Answers to relatively simple questions about the number of fishermen operating regionally or nationally or the number of commercial fishing vessels operating in the U. S. are surprisingly difficult to answer. An underlying principle of the FIS should be the establishment of unique identifiers of all commercial fishing vessels as part of a nationwide fishing vessel registration system. This registry (VRS) would be able to track and enumerate vessels, exclusive of duplication and would link vessel data with harvest data, producing reasonable estimates of fishery performance and employment.

#### **4.6.2.3 Institutional Arrangements**

Management responsibility for the FIS would be shared by a number of key program stakeholders and participants. Leveraging work done by the steering and technical committees of the regional planning programs and including those leaders responsible for the FIS capitalizes on the expertise and experience of key information management and data collection experts throughout the nation.

Representatives of the ACCSP on the Atlantic coast, ComFIN/RecFIN in the Southeast, and WPacFIN, PacFIN, and AKFIN in the Pacific region, would work collaboratively to explore opportunities for implementation of national standards and for protocols and business rules for managing the integration of regional information into national information. In this regard, an FIS data committee might be formed of representatives of the NMFS, ASMFC, GSMFC, PSMFC, U.S. Coast Guard, industry representatives and regional fishery management council staff. This proposed committee would be responsible for technical architecture and communication issues, security and confidentiality issues, and developing standards for data elements, coding systems, and units of measure.

*How many committees do we need? What might their roles and responsibilities be? Who should be members?*

Some guiding principles might be:

- Specific decisions regarding standards for the FIS should be made jointly with all partners.
- Issues such as confidentiality, security, data ownership must be resolved among the partners.

A policy level FIS Board might also be created to provide senior management support and policy level guidance for the program. This would elevate inter-regional and state-federal issues to high-level decision-makers in the partner organizations identified in the previous paragraph. This board might also name an industry advisory committee (or use an existing Federal Advisory Commission Act (FACA)-sponsored group like the Marine Fisheries Advisory Committee) to provide industry input to the process.

*What other principles can you suggest?*

*The design principles associated with the Institutional Arrangements factor are presented and described below:*

*These three sections are still works in progress.*

#### **4.6.2.3.1 Roles & Responsibilities**

Since numerous public and private partners must collaborate to build the FIS, it will be necessary to clarify the specific roles and responsibilities of these parties. It is likely that a shared FIS management model will emerge. Nonetheless, it will be important to specify the organizational structures, staff responsibilities, and institutional agreements that will facilitate long-term collaboration and success. The degree to which success is achieved may be tied to establishment of clear lines of authority and accountability and development of specific, measurable performance objectives.

#### **4.6.2.3.2 Funding**

Funding might be generated through a combination of state and federal budget initiatives and then allocated among the various federal, state and regional partners depending upon FIS strategic and operational planning. Part of FIS design phase will analyze possible allocation process scenarios resulting in a decision-making process that gets the right resources to the right "location" (functionally or geographically) at the right time. This resource allocation process will be part of the collaborative model of FIS program management.

#### **4.6.2.3.3 Statutory Needs**

New or modified federal and state rules and regulations will likely be necessary to facilitate the implementation of the FIS. These legislative and regulatory instruments will provide the statutory authority to collect and protect important fisheries data. A detailed analysis of federal and state statutory authority and regulations would be a major component of the project's research phase. All of the partners will need to work together to ascertain the depth and breadth of need for statutory changes supporting the FIS implementation.

**Proposed Model**

The proposed model is the current model.

**Gap Analysis/Change Strategy**

No major gaps are evident, but major expansion of implementation is needed, e.g. economics, logbooks, observers, and comprehensive data integration.

**4.7.3.7 Alaska: Information Management Architecture**

The state of Alaska is unique among the coastal states considering the significant fishery production and the tremendous contribution of the harvesting and processing industries (revenues and employment) to its economy. Several federal and state institutions are involved in fisheries data collection and management and recent planning efforts have resulted in a formal partnership among these entities and the Pacific States Marine Fisheries Commission (PSMFC) and the design and development of the Alaska Fisheries Information Network (AKFIN).

**Current Situation**

Currently, information management responsibilities are distributed among the organizations sponsoring the various data collection programs. Those include:

- Alaska Department of Fish and Game
- National Marine Fisheries Service, and
- Alaska Commercial Fishing Entry Commission.

In order to obtain harvest statistics, processor data, vessel licensing data, permit data, and other information used for fishery management, primary data customers (including the PSMFC and the North Pacific Fishery Management Council) must go to the individual data sources and agencies for the data.

These information systems are essentially independent of one another, each with individual data element, coding and quality standards. Increasing demands for Alaska groundfish data for fishery management purposes has meant increasing reporting burdens through weekly production reports from catcher-processor vessels, ADFG trip tickets from catcher vessels delivering to shore-based processors, and observer information. There is a significant need for the agencies involved to develop systems that enable them to share information more efficiently and effectively to minimize industry reporting burden and duplicative or redundant data management systems.

<b>Information Management Entities in the Alaska Region</b>
Alaska Department of Fish & Game
Commercial Fisheries Entry Commission
North Pacific Fishery Management Council
NMFS Alaska Region
Pacific States Marine Fisheries Commission
Pacific Halibut Commission

The data systems currently available often contain redundant (and sometimes inconsistent) data that fishery analysts must resolve, increasing the amount of time required for analysis and impacting overall quality of these analyses. These data systems should be integrated to improve data quality and consistency.

**Proposed Model**

A major initiative designed to address data system integration and consolidation and coordination of information collection and management systems was commenced in 1994. This initiative, known as the Alaska Fisheries Information Network (AKFIN) is sponsored by the PSMFC and provides the framework needed to consolidate collection, processing, analysis, and reporting of a variety of information essential to management of Alaska fisheries. The AKFIN partners consist of PSMFC, ADFG, NMFS, and the CFEC as primary participants. The North Pacific Fishery Management Council, although not a data provider, is a primary data customer of AKFIN. The AKFIN program is designed to:

- Implement and manage a coordinated relational data/information system encompassing State of Alaska and federal fisheries data for use by fishery managers, associated agencies, and the public.
- Provide data management consultation and technical advice to the North Pacific Fishery Management Council and participating agencies upon request.
- Assist agencies to improve the efficiency, effectiveness and timeliness of data acquisition and delivery with a minimum of duplication.
- Develop and implement data standards across agencies to facilitate the merging and distribution of fisheries data in AKFIN.

AKFIN will be designed to manage information on catch, effort, and participation for Alaska's groundfish fishery, crab fishery, salmon fishery, scallop fishery, and sablefish and halibut IFQ programs. It is based upon the premise that data systems will be developed in a relational DBMS software in a client-server environment, with the server (currently on order) located at the NMFS Alaska Regional Office in Juneau. The degree of distribution versus centralization of this system is still under consideration at this time, however. It is not clear which data and how much of it would be stored on the central AKFIN server and how much would remain or reside on ADFG or CFEC servers. It is envisioned that the major data sets would be available on the AKFIN server. Ultimately data customers will be provided remote access to data tables and be provided the tools to extract the specific information needed for analytical or statistical purposes.

**Table 4-9: Data Collection Systems of the Alaska Regional Fishery**

Information System	Responsible Agency
Fish Tickets	ADFG
Fish Tickets/Ex-Vessel Price Estimates	CFEC
Weekly Production Reports	NMFS AKRO
Weekly At-Sea Production Reports	NMFS AKRO
Foreign And Joint Venture Observer Data	NMFS AKFSC
Domestic Observer Data	NMFS AKFSC
Federal Fishery Permits	NMFS AKRO
AK Vessel Registration	CFEC
Commercial Operators Annual Reports	ADFG
Intent To Operate Files	ADFG
Bering Sea Crab And Scallop Observer Data	ADFG
Coast Guard Vessel Registration Files	CFEC
AK Fishery Permit Files	CFEC
Federal Processor Permits	NMFS AKRO
IFQ Registered Buyer Permits	NMFS AKRO
IFQ Holdings And IFQ Landings	NMFS AKRO
Vessel Moratorium Permits	NMFS AKRO

#### **Gap Analysis/Change Strategy**

In order to test the AKFIN system design, a prototype database is currently under construction that includes trip-level detail data for the groundfish fishery from 1994-96. These initial data sets will be primarily derived from NMFS data sets. Once the concept is tested and proven, it is likely that this database will be expanded to include crab and salmon data.

### **4.7.3.8 Alaska: Data Collection Integration**

#### **Current Situation**

Currently, the Alaska Department of Fish and Game, the National Marine Fisheries Service, and the Commercial Fisheries Entry Commission share fisheries data collection and management responsibilities. Table 4-8 lists the data collection systems that currently form the basis for the AKFIN.

Groundfish is the primary fishery resource in Alaska's EEZ. Groundfish production reports are submitted by more than 200 catcher-processor vessels directly to the NMFS (AKRO) in Juneau, by fax, on a weekly basis. Another 200 catcher vessels delivering their trip-by-trip catch to shore-based processors participate in the Alaska fish ticket reporting system. Federal funds are used to support this state-conducted trip ticket program. ADFG also conducts data collection programs for other inshore species, particularly crabs, scallops, and salmon. Vessel registration and state fishery permit/ licensing systems are conducted by the CFEC.

Other federal fishery permit and fisheries information systems are operated by NMFS in direct response to requirements of NPFMC Fishery Management Plans and Sablefish and Halibut IFQ programs.

These data collection programs have evolved over time in response to specific fishery management needs at the federal and state levels. Most data collection systems were developed without the benefit of knowing about future system development so they tend to "stand alone" with respect to collection methodologies, technologies, and data element/coding/quality standards. In order for fishery analysts to effectively use data across computer platforms, data sources, agencies, or fisheries, it is necessary to create numerous translation and look-up tables to generate overall consistent views of information.

#### ***Proposed Model***

The AKFIN system partners have recently decided to coordinate the development of data element standards and coding systems in concert with other Pacific area fisheries data. AKFIN will essentially adopt the PacFIN code sets for species, gear, and area, including some modifications in the PacFIN codes to accommodate unique Alaska requirements. The AKFIN institutional arrangements will be in place that allow continued collaboration among all of its partners to approach data collection issues and data standard/quality issues from an Alaska perspective in order to avoid the future development of stovepipe systems.

Although AKFIN has not been fully implemented, the system partners have discussed potential opportunities for developing new data collection systems that capitalize on new technologies and reduce overall industry burden and transaction/processing costs. For example, there is considerable interest in developing a single reporting instrument that combines the federal fax-based weekly groundfish production reports with the Alaska trip ticket system. This may be accomplished by having data entered directly on computers at processor sites and regular transmission of this data to the AKFIN database.

#### ***Gap Analysis/Change Strategy***

Planning efforts have resulted in a fairly clear vision of the implementation strategy for AKFIN. High-level data models with entity relationships have been developed that describe the types of information to be included in AKFIN. The next step is to refine these models to include specific data elements, definitions, and relationships.

### **4.7.3.9 Alaska: Institutional Arrangements**

#### ***Current Situation***

Prior to the chartering of AKFIN, federal, state, and industry partners collaborated in information management and data collection activities. This arrangement, however, lacked the critical mass of resources to implement the best possible approach to establishing information management architecture, communications systems, and data collection system.

#### ***Proposed Model***

The current institutional arrangements supporting AKFIN include a partnership modeled after the PacFIN system, where state and federal agencies share the responsibilities for system design, development and implementation. The PSMFC is responsible for overall coordination, management, administrative support and funding through grant awards. NMFS is responsible for administering the AKFIN grant awards, will provide administrative support for computer and telecommunication networks, and will participate in planning and policy development. ADFG will also contribute staff and funding and planning/policy support.

#### ***Gap Analysis/Change Strategy***

Since AKFIN is a "work-in-progress", NMFS recommends that the following elements are incorporated into AKFIN planning, if they have not been already. The following committees should be formed to provide the direction necessary for AKFIN planning, implementation and integration with other Pacific region programs:



- **AKFIN Policy Committee:** This committee might be comprised of NMFS, ADFG, CFEC, PSMFC, NPFMC and Industry representatives to shape high level policy, direction, and funding for the continuing development of AKFIN.
- **AKFIN Steering Committee:** The Steering committee might also be staffed by NMFS, ADFG, CFEC, PSMFC, NPFMC and Industry representatives, but would focus its efforts primarily on technical issues such as policy guidance, technical implementation, priority-setting/resource allocation.
- **AKFIN Technical Work Groups:** Technical Work Groups could be convened by the Steering Committee for technology, implementation and integration issues, and would be staffed by appropriate representatives from the member entities.

#### **4.7.4 Extra-Regional Information Systems**

Most fisheries information systems and databases are somewhat easily attributed to one of the three "regions" described above. However, it should be recognized that some data collection and information management programs are managed with an inter-regional or national focus. For example, the Marine Recreational Fisheries Statistics Survey is a national program managed in the NMFS Office of Science and Technology at NMFS headquarters in Silver Spring. Although managed nationally, customers of these data are found throughout the fisheries management community of the United States.

The development of an FIS should take into account data collection and information systems that span regional and/or coastal boundaries. Examples of such systems are identified below:

<b>Information Management System</b>	<b>Responsible Organization</b>
Marine Recreational Fisheries Statistics Survey	NMFS Office of Science and Technology
Large Pelagic Survey	NMFS Office of Sustainable Fisheries
Marine Mammal Exemption Permit Program	NMFS Office of Protected Resources
International, U.S. Trade	NMFS Office of Science and Technology
Others?.....	

***Can you help identify other fishery dependent systems for inclusion in the FIS?***

## 5 FISHING VESSEL REGISTRATION SYSTEM

### 5.1 Introduction

Section 401 of the Magnuson-Stevens Fishery Conservation and Management Act requests recommendations for implementation of a standardized fishing vessel registration system, and specifies certain data elements (see "VRS Requirements" below) that must be collected in the system. Currently there is no national fishing vessel registration system that tracks vessels in accordance with the Magnuson-Stevens Act's requirements. Although various registration, permitting and tracking activities are performed by the U.S. Coast Guard ("Coast Guard"), NMFS and the individual states, no one program exists to standardize or share this data among states to comprise a national system. NMFS has created a plan for a VRS that satisfies the Magnuson Act's requirements as well as the operational requirements of a distributed, national system.

### 5.2 VRS Scope, Requirements, and Stakeholders

Specifically, the Magnuson-Stevens Act requires a national VRS to:

1. Identify the name and official number or other identification, together with the name and address of the owner or operator or both;
2. Indicate the gross tonnage, vessel capacity, type and quantity of fishing gear, mode of operation (catcher, catcher/processor, or other), and such other pertinent information with respect to vessel characteristics as the Secretary may require; and
3. List (by species, gear type, geographic area of operations, and season) the fisheries in which the vessel participates.

*How can we arrive at standard calculations for gross tonnage and vessel capacity?*

The data elements listed above are merely the baseline statutory requirements of the system. NMFS anticipates the need for additional data elements (to be decided in the database planning phase) in the VRS to facilitate tracking and cross-linking with other data in the FIS.

### 5.3 Integration with Catch Data

An important element of the VRS is the critical link between vessel catch data and species conservation. Among the many functions of the planned Fisheries Information System (FIS), detailed elsewhere in this document, is the processing of harvest information. Catch data from the fishing vessels (and cross-linked with dealer-generated information) will comprise much of the FIS catch data. Validity and integrity of this data are vital to the NMFS conservation and management mission.

Although Magnuson-Stevens Act requests this data in the VRS section, this information will actually be tracked in the FIS and linked to the VRS using the vessel Coast Guard number or state number as the primary key. The vessel ID number would be linked to the Hull Identification Number (HIN) VRS file.

### 5.4 Current Situation

Although vessel documentation already occurs at the federal and state levels, there is currently no system that satisfies the requirements of the Magnuson-Stevens Act.

As the sole vessel numbering authority in the United States (as delegated by the

*Needs information on Tribal registration systems. NWIFC submission.*

Secretary of Transportation), the Coast Guard documents all commercial vessels equaling five net tons or more. This documentation process has been relatively stable over the past several decades and provides a unique, "Coast Guard Official Number" for each vessel regardless of its string of ownership and location(s) of operation. This system currently records more than 200,000 vessels, approximately 30,000 of which are commercial fishing vessels.

The Coast Guard delegates numbering authority to the states for all undocumented vessels. States must comply with strict reporting requirements determined by the Coast Guard to ensure data standardization and integrity. Currently all states (and territories) except Alaska number undocumented vessels with what is generally referred to as a certificate of number (similar to a license plate number on an automobile). In every state/territory except Alaska, vessels are typically numbered through state-sponsored vessel registration systems that are operated through that states' natural resource management agency, taxing/revenue agency, or its motor vehicle registration agency.

Due to the distributed nature of these documentation systems, no one is able to track, as a unique craft, any vessel less than five net tons throughout its operating range and ownership history. Only their current state or Coast Guard number identifies vessels when they report their harvest statistics via state trip ticket systems or federal/state logbooks. If a vessel changes ownership or relocates in another state, a new State certificate of number will be assigned. Because all of these vessels do not carry a unique identifier, NMFS is unable to verify the fishery history or ownership of the vessel.

It bears noting that the Pacific States Marine Fisheries Commission has developed a proposed system that meets VRS needs for vessels operating off Alaska, Washington, Oregon and California. With minor changes to the existing system, all vessels engaged in commercial/charter activities in Pacific coast and Alaskan waters can be uniquely identified and registered with one or more of the states' and federal fishery agencies. The crux of this proposed system is described in Appendix 7.2.1 as the **Alternate VRS Implementation Scenario**.

## 5.5 VRS Design Criteria

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Any acceptable VRS scenario must meet the first four basic VRS criteria specified in the Magnuson-Stevens Act:

1. Provides a unique vessel identifier for life of vessel regardless of changes in ownership/usage (includes ability to link to landings records)
2. Provides information on vessel owner or operator, or both (name and address)
3. Provides vessel characteristics (gross tonnage, vessel capacity)
4. Provides information on mode of operation (commercial, charter or for-hire, recreational, etc.)

Eight additional evaluation criteria were used to evaluate VRS options. The criteria, which were neither weighted nor ranked, are:

1. Meets federal reporting requirements (permit requirements, landings data, etc.)
2. Minimizes duplication of existing vessel registration systems
3. Promotes implementation at a regional level
4. Minimizes burden to industry (reduces paperwork, reduces monetary outlay, reduces number of required contacts with government entities)
5. Minimizes burden on agencies (minimize burden on Coast Guard, minimize burden on NMFS, minimize burden on States)
6. Provides nationwide availability of timely/accurate vessel registration data (industry, NMFS, States, Tribes, Coast Guard, etc.)

7. Minimizes need for additional legislation/regulations or changes in legislation/regulations (including state and federal laws, regulations, and policies regarding data collection authority, confidentiality, etc.)
8. Provides high degree of NMFS control and flexibility to add new data elements when required.

In addition to the evaluation criteria, several overarching principles, derived from the Magnuson-Stevens Act's requirements, guided the VRS evaluation process.

- The scenario creates standard units for measurement, nomenclature, reporting formats.
- That all necessary stakeholders are participants.
- The scenario is cost effective.
- The scenario can be regularly updated by reporting participants.
- That a cooperative implementation strategy can be attained.

Information resulting from internal NMFS discussions, meetings with the U. S. Coast Guard, and a survey of over 400 government and industry stakeholders was utilized to analyze the various options and to identify a preferred option. (See Appendix #.# for a summary of the survey results.)

## 5.6 VRS Proposal

Based upon the evaluation of the available options, an implementation approach has been devised that satisfies the Magnuson-Stevens Act's requirements and meets the selection criteria to the fullest extent possible. Two implementation scenarios are suggested below in the form of a preferred and alternative implementation approach.

### 5.6.1 Proposed VRS: Utilize U.S. Coast Guard Vessel Identification System

The preferred option for a national VRS is an upgrade and expansion of the current Vessel Identification System (VIS) currently under development by the U.S. Coast Guard.

VIS is a compilation of the Coast Guard documentation system and the state registration systems. Current USCG implementation calls for voluntary state participation in the VIS. If all states participated however, the VIS would provide the critical "universe" of data sought not only by the Magnuson-Stevens Act, but would also assist the missions of other state and federal conservation, management and enforcement agencies as a single source for national vessel data.

**Does the U.S. Coast Guard have an official opinion on the mandatory VIS and HIN proposals?**

Under the current planning, VIS will be used to access information about state-numbered and Coast Guard-documented vessels. Participating states will connect to the central database in order to share easily accessible, up-to-date and accurate vessel information.

NMFS recommends that Congress mandate the VIS for all states and territories. Additionally, to provide a unique identifier the Hull Identification Number (HIN) would be required on all commercial fishing and charter vessels not possessing an HIN or Coast Guard documentation number. *There may also be significant benefits for other state, regional and federal authorities if this coordinated national system for identifying and tracking vessels were implemented.*

**What are some of the other national benefits of a uniform HIN for all craft?**

This VIS option combines feasible elements of Coast Guard options initially devised by the Core Design Team, and appears prima facie to carry the least universal burden. This option also leverages significant

federal and state monies already spent on developing the system. Although budget data has not been prepared, NMFS assumes that the marginal cost of building onto the VIS is considerably less than tasking NMFS, an agency that does not register or document vessels, with this responsibility.

Political feasibility of this recommended scenario may depend upon Congressional willingness to shift and/or impose various, but comparatively minor, burdens on government, industry and the public, including mandating the HIN for all vessels, commercial and recreational.

The Coast Guard VIS option is a suitable option for many reasons, summarized below according to the 12 VRS evaluation criteria:

**Figure 5-1 VRS Recommendation: How Proposed Solution meets Design Criteria**

<b>VRS Recommendation: Coast Guard VIS</b>	
<b>VRS Evaluation Criteria</b>	<b>Scenario Criteria Satisfaction</b>
1. Provides a unique vessel identifier for life of vessel regardless of changes in ownership/usage (includes ability to link to landings records)	A Hull Identification Number (HIN) would be mandatory for all commercial and charter fishing craft not documented by the Coast Guard. The HIN provides the necessary reference link to the state registration number. The NMFS recognizes that the length of the HIN makes it inappropriate to use in day-to-day operations. The HIN and Coast Guard documentation number are to be used as a reference link back to the identifier used in normal catch records or logbooks.
2. Provides information on vessel owner or operator, or both (name and address)	VIS provides owner name and address information.
3. Provides vessel characteristics (gross tonnage, vessel capacity)	State licensing files may provide for length, horsepower, and tonnage. Net tonnage and gross tonnage are calculated for Coast Guard documented vessels. Capacity is difficult to measure for open deck vessels not possessing a fish hold. Capacity could be calculated after linking to the catch databases and measuring historical maximum catch. The VIS provides length as the standard measurement. Length is utilized in various management plans as a measurement of performance.
4. Provides information on mode of operation (commercial, charter or for-hire, recreational, etc.)	The VIS system specifically requires the use of the vessel. The states and Coast Guard specifically require endorsements for commercial fishing and for recreational use. There is no specific break out for charter fishing vessels. These vessels at this time would be endorsed as passenger vessels. NMFS recommends that "charter fishing" be mandatory as a type of endorsement for both Coast Guard documented and state registered vessels. NMFS defines the term as means fishing from a vessel carrying a passenger for hire as defined in 46 U.S.C. 2101(21a) who is engaged in recreational fishing.
5. Meets federal reporting requirements (permit requirements, landings data, etc.)	With appropriate reference links between the VRS and FIS information on gear, season, catch, area of operation, and permits can be accessed.
6. Minimizes duplication of existing vessel registration systems	This system draws from the existing Coast Guard system under development.
7. Promotes implementation at a regional level	The VIS is information compiled from both the Coast Guard documentation system and state registration systems.
8. Minimizes burden to industry (reduces paperwork, reduces monetary outlay, reduces number of required contacts with government entities)	Burden is minimal under the VIS system. There is an anticipated burden for vessels if mandatory to have a HIN assigned by the state or Coast Guard.
9. Minimizes burden on agencies (minimize burden on Coast Guard, minimize burden on NMFS, minimize burden on States)	Apart from initial investments to comply with the proposed VIS and additional NMFS requirements, long-term effect is to minimize burden by providing "one-stop" reporting.
10. Provides nationwide availability of timely/accurate vessel registration data (industry, NMFS, States, Tribes, Coast Guard, etc.)	Based on the requirements set forth by Coast Guard the VIS system would be updated daily.
11. Minimizes need for additional legislation/ regulations or changes in legislation/regulations (including state and federal laws, regulations, and policies regarding data collection authority, confidentiality, etc.)	Additional legislation/regulations would be required for both federal and states.
12. Provides high degree of NMFS control and flexibility to add new data elements when required.	The VIS system is a joint Coast Guard - State cooperative system. NMFS would not have direct roll in adding new elements except in an advisory capacity.

### 5.6.1.1 Hull Identification Number (HIN)

Perhaps the most significant recommended change to emerge from this evaluation process is the need for a permanent, national vessel identifier. Indeed, in order for ANY VRS implementation scenario to meet the Magnuson-Stevens Act's requirements, a unique identifier is required. **NMFS recommends that Congress mandate a uniform Hull Identification Number (HIN) for all vessels, commercial or charter fishing, in order to identify and track, and link vessels consistently and on a national basis.** Similar to a Vehicle Identification Number on an automobile, the HIN would stay with each craft for its lifetime, and would allow cross-linking with permit and fishery data to be collected in the Fisheries Information System (FIS), in compliance with the Magnuson-Stevens Act's Section 401 requirements. Currently, only manufacturers of recreational vessels are required to assign HINs.

The Hull Identification Number is a unique 12 character alphanumeric identifier assigned to recreational vessels either by the manufacturer, or, if not assigned by the manufacturer (i.e. vessels built before 1972), by the state upon titling and/or registration. The HIN consists of the manufacturer identification code (three characters), the boat's serial number (five characters), the month and year of certification or manufacture (two characters), and the model year (two characters). The Coast Guard is currently considering expansion of the HIN to a 14 character alphanumeric code, which would add a country of origin code (two characters) in order to meet International Standards Organization (ISO) HIN standards.

The HIN is a permanent identifier and can be used to cross-reference and authenticate vessel registration records as well as link catch data to vessels and permits as specified in the Magnuson-Stevens Act. (The law enforcement utility of the HIN for tracking, identifying and recovering vessels has been well documented by the Coast Guard.)

Commercial vessels five net tons or greater are documented with the "Coast Guard Official Number", and all undocumented vessels less than five net tons are identified by the state certificate of number, which may or may not be linked with an HIN. As a result, *there is no primary key with which to identify all vessels.* A mandatory and universal HIN would fill the critical documentation gap among commercial vessels (less than five net tons vs. greater than five net tons) and enable NMFS, Coast Guard and the States to track all vessels, including fishing vessels, in compliance with the Magnuson-Stevens' Act's requirements.

Since the recommended HIN requirement represents creating a standardized data element, manufacturers who do not currently assign HIN numbers would be burdened somewhat. Existing vessels not already assigned an HIN would obtain them either through the Coast Guard or state in which they are registered. This recommendation does not, however, require any state, regional or federal vessel registration authority to surrender current responsibility or revenue streams.

### 5.6.1.2 Improvements

*[In development]*

NMFS recommends the that following improvements are made to the Coast Guard VIS.

- **Improve Endorsement Designation to include Commercial Fishing or Charter Fishing**
- **Collect Data on Crew Size (and Officers), and number of berths, if applicable**
- **Seek ways to integrate with existing state, regional and tribal systems.**

### 5.6.2 Implementation Steps

*[In development]*

### **5.6.3 Incorporation of Recreational Fishing Vessels**

*[In development]*

***Congress has requested that NMFS explore inclusion of recreational fishing vessels in the VRS. Any thoughts?***



## 6 SYSTEM IMPLEMENTATION

*[Note: large portions of this section cannot be written until decisions are made regarding the structure of the FIS/VRS]*

### 6.1 Critical Success Factors and Implementation Hurdles

There are several important factors that must be achieved to realize a successful system implementation:

- Leadership commitment and management support of all stakeholder entities
- Clear agreement on (and continuous validation of) System objectives/desired outcomes.
- Realization by all stakeholders that the "perfect" solution is achievable, will evolve over time, and is enabled by FIS partners' compromise and flexibility being built in the planning and implementation processes.
- Realization by all stakeholders that different regions are at different stages of development of regional "systems" and that one solution may not "fit all" regions.
- Continuous and constructive communication among all stakeholders.

### 6.2 Implementation Plan

Section 401 of the Magnuson-Stevens Act requires the development of an implementation plan for the FIS and VRS. In part, this implementation plan consists of the individual implementation plans for all of the regional (and sub-regional) components of the FIS. However, it should also include the steps required to form the "umbrella" portion of the FIS. Similarly to the regional plans, this could be broken up into "Institutional Arrangements", "Information Management", and "Data Collection Integration" sections.

Without a clear notion of the proposed system, it is premature to map out an implementation plan for the FIS/VRS. However, within the next few months, through the public comment period, many issues should be resolved. At that time we will expand this section to include more details on implementation.

What suggestions can you make regarding implementation issues?

### 6.3 Financial Considerations

Section 401(a)(5) of the Magnuson-Stevens Act requires that the Report to Congress provide for "funding (subject to appropriations) to assist appropriate state, regional or tribal entities and marine fisheries commissions" for implementing activities associated with this Report. Until there is consensus on the proposed FIS and VRS systems discussion of financial implications would be premature. As the basic approach is to build upon existing systems, this section would be devoted to discussing the incremental costs of implementing this proposal over and above current federal funding activities. We will specifically request information from state agencies, commissions, and tribes on additional funding requirements via the March 1998 Federal Register Notice of Availability.

What information can you provide regarding cost estimates in your region or area of expertise?

Cost estimates for the "umbrella" structure should be straightforward once that structure is clearly described. This section will be expanded to include cost estimates as they become available.

## **6.4 Legislative/Regulatory Considerations**

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The Magnuson-Stevens Act also requires proposals for legislation to aid in implementation the FIS and VRS. It is premature to make these proposals before the FIS/VRS structure has been fully developed.

**Can you suggest specific legislative actions or cooperative agreements that may facilitate FIS/VRS implementation?**

## **6.5 Cooperative Agreements**

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The Magnuson-Stevens Act also requests proposals for implementation of the FIS and VRS through cooperative agreements. These can be more fully developed after the "umbrella" implementation plan is closer to its final form.

## **6.6 Performance Measures**

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Finally, in order to measure progress in implementation of the FIS/VRS, some measures of performance need to be established. Some of these will arise naturally from the requirements set forth in the Magnuson-Stevens Act itself; others could be independently developed.

**Other than the measures associated with compliance with the Magnuson-Stevens Act, what performance measures make sense? What measures of success will be useful and meaningful?**

## 7 APPENDICES

### 7.1 Section 401 of the Magnuson-Stevens Fishery Conservation and Management Act

#### SEC. 401. <<NOTE: 16 USC 1881.>> REGISTRATION AND INFORMATION MANAGEMENT.

(a) **Standardized Fishing Vessel Registration and Information Management System** —The Secretary shall, in cooperation with the Secretary of the department in which the Coast Guard is operating, the States, the Councils, and Marine Fisheries Commissions, develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis. The recommendations shall be developed after consultation with interested governmental and nongovernmental parties and shall—

- (1) be designed to standardize the requirements of vessel registration and information collection systems required by this Act, the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.), and any other marine resource law implemented by the Secretary, and, with the permission of a State, any marine resource law implemented by such State;
- (2) integrate information collection programs under existing fishery management plans into a non-duplicative information collection and management system;
- (3) avoid duplication of existing State, tribal, or Federal systems and shall utilize, to the maximum extent practicable, information collected from existing systems;
- (4) provide for implementation of the system through cooperative agreements with appropriate State, regional, or tribal entities and Marine Fisheries Commissions;
- (5) provide for funding (subject to appropriations) to assist appropriate State, regional, or tribal entities and Marine Fisheries Commissions in implementation;
- (6) establish standardized units of measurement, nomenclature, and formats for the collection and submission of information;
- (7) minimize the paperwork required for vessels registered under the system;
- (8) include all species of fish within the geographic areas of authority of the Councils and all fishing vessels including charter fishing vessels, but excluding recreational fishing vessels;
- (9) require United States fish processors, and fish dealers and other first ex-vessel purchasers of fish that are subject to the proposed system, to submit information (other than economic information) which may be necessary to meet the goals of the proposed system; and
- (10) include procedures necessary to ensure—
  - (A) the confidentiality of information collected under this section in accordance with section 402(b); and
  - (B) the timely release or availability to the public of information collected under this section consistent with section 402(b).

(b) **Fishing Vessel Registration** —The proposed registration system should, at a minimum, obtain the following information for each fishing vessel—

- (1) the name and official number or other identification, together with the name and address of the owner or operator or both;
- (2) gross tonnage, vessel capacity, type and quantity of fishing gear, mode of operation (catcher, catcher processor, or other), and such other pertinent information with respect to vessel characteristics as the Secretary may require; and
- (3) identification (by species, gear type, geographic area of operations, and season) of the fisheries in which the fishing vessel participates.

(c) **Fishery Information** —The proposed information management system should, at a minimum, provide basic fisheries performance information for each fishery, including—

- (1) the number of vessels participating in the fishery including charter fishing vessels;
- (2) the time period in which the fishery occurs;
- (3) the approximate geographic location or official reporting area where the fishery occurs;
- (4) a description of fishing gear used in the fishery, including the amount and type of such gear and the appropriate unit of fishing effort; and
- (5) other information required under subsection 303(a)(5) or requested by the Council under section 402.

(d) **Use of Registration** --Any registration recommended under this section shall not be considered a permit for the purposes of this Act, and the Secretary may not propose to revoke, suspend, deny, or impose any other conditions or restrictions on any such registration or the use of such registration under this Act.

(e) <<NOTE: Federal Register, publication>> **Public Comment** -- Within one year after the date of enactment of the Sustainable Fisheries Act, the Secretary shall publish in the Federal Register for a 60-day public comment period a proposal that would provide for implementation of a standardized fishing vessel registration and information collection system that meets the requirements of subsections (a) through (c). The proposal shall include--

- (1) a description of the arrangements of the Secretary for consultation and cooperation with the department in which the Coast Guard is operating, the States, the Councils, Marine Fisheries Commissions, the fishing industry and other interested parties; and
- (2) any proposed regulations or legislation necessary to implement the proposal.

(f) <<NOTE: Proposals.>> **Congressional Transmittal** --Within 60 days after the end of the comment period and after consideration of comments received under subsection (e), the Secretary shall transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Resources of the House of Representatives a recommended proposal for implementation of a national fishing vessel registration system that includes--

- (1) any modifications made after comment and consultation;
- (2) a proposed implementation schedule, including a schedule for the proposed cooperative agreements required under subsection (a)(4); and
- (3) recommendations for any such additional legislation as the Secretary considers necessary or desirable to implement the proposed system.

(g) **Report to Congress** --Within 15 months after the date of enactment of the Sustainable Fisheries Act, the Secretary shall report to Congress on the need to include recreational fishing vessels into a national fishing vessel registration and information collection system. In preparing its report, the Secretary shall cooperate with the Secretary of the department in which the Coast Guard is operating, the States, the Councils, and Marine Fisheries Commissions, and consult with governmental and nongovernmental parties.

## 7.2 VRS Option Summary

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To arrive at the recommended VRS scenario, several options, falling under two broad scenarios, were initially considered:

**Scenario 1: NMFS Administers Program**  
Option 1A: NMFS Manages System  
Option 1B: States Act as NMFS Agents  
Option 1C: "Third Party" Acts as NMFS Agent

**Scenario 2: U.S. Coast Guard Administers Program**  
Option 2A: USCG Documentation System Expansion  
Option 2B: USCG-State Vessel Identification System

These scenarios were contemplated and weighed against the twelve design criteria listed in Section 5.5. Based on early stakeholder feedback, NMFS created two recommended VRS implementation scenarios. The primary recommendation was detailed in Section 5.6. The Alternate Scenario is detailed below. This plan is largely modeled after the FIS/VRS efforts underway in the Pacific Region (see Section 5.4).

### 7.2.1 Alternate VRS Implementation Scenario

If the primary Coast Guard VIS expansion scenario cannot be implemented, NMFS offers this alternate plan as a suitable option. This "MFC" (marine fisheries commissions) scenario relies heavily upon operational systems and minor data collection improvements.

In this option, vessel registration and documentation activities occur as they do now, with the states issuing State registration numbers for commercial and recreational vessels less than five net tons and the Coast Guard issuing documentation numbers for commercial vessels 5 net tons or greater.

State fish & game agencies (or similar registration authorities for the states) share vessel licensing data with the marine fisheries commissions. The commissions transmit regional detail data to NMFS, which generates national summary data.

Using the Pacific Fisheries Information Network as an example, identifying each vessel is only part of each state's efforts relative to fishing vessels. In addition, state fishery agencies typically require that commercial fishing and recreational charter vessel are annually registered or licensed to catch and/or land fish in each state. As a result of this registration, states maintain an annual computerized registration file typically consisting of (at a minimum) Vessel ID (either the USCG documentation number or the State registration number), length of the vessel, vessel capacity in either net tons or gross tons, horsepower of the vessel's engines, name of the vessel, and the name and address of the vessel's owner(s). Three of the state fishery agencies in the Pacific region also include an additional five-digit identifier used exclusively to report catches on fish tickets<sup>1</sup>. In Oregon, which does not use the additional five digit identifier, catch data is tracked using the vessel ID number (i.e. Coast Guard documentation number or State registration number).

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<sup>1</sup> Fish tickets (and logbooks) are paper-based reporting documents submitted by fishermen to local authorities to track catches. Although the use of fish ticket (or logbook) based reporting by fishermen will be evaluated in the FIS design context, it is assumed that some kind of trip-based reporting system will persist, and the need to associate vessels with catch data will remain.

States participating in the PacFIN vessel registration system submit monthly vessel registration data to a central database. PacFIN develops fisheries participation data by joining vessel registration data with catch history records and/or records of fishing permits. Vessel profile data, such as principal species caught, principal gear used and principal port of landing is available by week, month and year for participating entities.

### **7.2.1.1 Hull Information Number (HIN)**

The PacFIN System, as an example, compensates for the absence of a mandatory Hull Identification Number through the combined use of Vessel ID numbers (Coast Guard documentation number or State registration number), annual license/permit registration, and the five-digit vessel identifier (which is used in California, Washington and Alaska). In an internal analysis, PacFIN uncovered a small number of vessel synonyms. A vessel synonym is defined as any additional vessel ID number (Coast Guard number or State registration number) used to identify a vessel during any year. Among California, Oregon and Washington, a total of 29 vessel synonyms (totaling less than .4% for each state) were discovered for 1996. PacFIN feels this is a manageable number, and that simple data collection and management measures can solve this.

Although PacFIN has effectively managed this potential data problem across three states, according to the Coast Guard, there are a total of 56 state and territorial entities that would be involved in a national VRS, inviting numerous potentially ad hoc solutions to deal with a consistent problem. Furthermore, like Oregon in the PacFIN, not all states assign an additional identifier by which vessels are cross-referenced.

Therefore NMFS maintains its position that for an effective national VRS, a uniform HIN number would simplify vessel tracking at comparatively minor cost to all involved. *The MFC Scenario is workable and implementable nationally with the addition of the mandatory HIN.*

Choice of this scenario may raise other questions outside of the scope of this document, such as utility of the Coast Guard VIS system.

### **7.2.1.2 Implementing Entities: Marine Fisheries Commissions**

The Gulf States Marine Fisheries Commission (GSMFC) has proposed a system with similar organizational relationships and reporting lines, and is prepared to implement such a system should it be selected. The GSMFC has provided a de facto endorsement of the PacFIN-based scenario.

The Atlantic States Marine Fisheries Commission (ASMFC) has formed the Atlantic Coastal Cooperative Statistics Program (ACCSP) to design a regional fisheries statistics and vessel identification system. The ACCSP, representing the ASMFC, supports the implementation of the Coast Guard VIS Scenario, but would implement it's own system if the Coast Guard VIS system does not meet ACCSP standards.

AGENDA B-1(d)  
FEBRUARY 1998

# TROUBLED WATERS: A CALL FOR ACTION

## TROUBLED WATERS: A Call for Action NEWS RELEASE

### For Immediate Release

January 6, 1998

Contact:

Dr. Elliott A. Norse  
Amy Mathews-Amos  
(703) 276-1434

### 1,600+ SCIENTISTS WARN THAT THE SEA IS IN PERIL, CALL FOR ACTION NOW

Washington DC...At the start of the United Nations's International Year of the Ocean, more than 1,600 marine scientists and conservation biologists from 65 countries have issued an unprecedented warning to the world's governments and citizens that the sea is in trouble. Troubled Waters: A Call for Action summarizes the urgent threats to marine species and ecosystems and calls for immediate action to prevent further damage.

Troubled Waters paints a dismaying picture of the destruction of marine biological diversity from five causes: 1) overexploitation of species, 2) physical alteration of ecosystems, 3) pollution, 4) alien species from distant waters disrupting local food webs and 5) global atmospheric change. Overfishing has decimated commercial fish populations and caused the collapse of many fisheries worldwide, including the once-bounteous cod fisheries of Georges Bank off New England. Destructive fishing methods such as bottom trawling have crushed and buried bottom-dwelling species by scouring a vast area of seabed. Coastal development has consumed mangrove forests and salt marshes. Reef corals and marine mammals are falling victim to new diseases, perhaps caused by pollution. And global warming has dramatically reduced the sea's productivity off Southern California since 1951 and contributed to the steep decline of salmon in the North Pacific.

The call for action comes from scientific leaders in renowned marine research institutions such as Woods Hole Oceanographic Institution, the Australian Institute of Marine Sciences and the Russian Academy of Sciences. from scientists in universities. federal agencies. local governments. tribal fisheries commissions.

conservation groups and private industry. Endorsers include marine scientists such as Drs. Jane Lubchenco, Past President of the American Association for the Advancement of Science; Paul Dayton of Scripps Institution of Oceanography and Sylvia Earle of Deep Ocean Exploration and Research. Leading conservation biologists who are expert on conserving species and ecosystems on land and are all too familiar with threats to biological diversity, including Drs. Edward O. Wilson of Harvard University; Peter Raven of the Missouri Botanical Garden and Michael Soulé, the father of the science of conservation biology, have also endorsed Troubled Waters. The signatures were collected in only eight months, starting just before the first Symposium on Marine Conservation Biology in June 1997.

"A recent New York Times poll found that only 1 percent of Americans consider the environment the most important problem facing our country," said Dr. Elliott Norse, marine ecologist and President of Marine Conservation Biology Institute (MCBI), the nonprofit organization that coordinated the statement. "Because few of us spend much time below the surface, it is easy to overlook signs that things are going wrong in the sea." But the signs are increasingly obvious to the experts," according to Norse. "The scientists who study the Earth's living systems are far more worried than the public and our political leaders. That's a wake up call that nobody can afford to ignore."

Dr. JoAnn Burkholder of North Carolina State University, who discovered the linkage between coastal pollution and outbreaks of nightmarish fish-eating *Pfiesteria piscicida*, said "It's hard to imagine that farming on land and building in cities could harm the marine environment and fishermen, but it does. The tons of sewage produced by millions of people don't just go away when we flush... a lot of it winds up in our coastal waters. And construction, agriculture and logging send clouds of choking sediments and excess nutrients into marine waters, smothering sensitive habitats. What we do on land profoundly affects life in the sea."

"If it's business as usual," said Dr. M. Patricia Morse, a marine biologist from Northeastern University, "we'll see more declines in corals, fishes, marine mammals and seabirds. That spells disaster for industries like fishing and tourism that depend on healthy marine life, and for every human on Earth, because we all use goods and services provided by the sea every day. Oceans regulate our climate, provide a breathable atmosphere and break down wastes. Coastal wetlands protect our shores from flooding and storm damage, improve water quality and provide crucial habitat for fishes and other marine life. When we destroy these ecosystems, we lose both their products and services."

Troubled Waters calls on citizens and governments to act now to reverse current trends and avert even more widespread harm to marine species and ecosystems. It outlines needed changes, including elimination of government subsidies that encourage overfishing, an end to fishing methods that damage fish habitat, reduction of non-point source pollution from activities on land, cuts in emissions that cause global warming and the creation of an effective system of marine protected areas from the shore to the open ocean.

"Getting scientists to agree on anything is like herding cats," said Norse, "so having 1,600 experts voice their concerns publicly highlights how seriously the sea is threatened. Troubled Waters shows that the world's experts want the public and our leaders to know that threats to marine species and ecosystems are urgent, and that we must change what we're doing now to prevent further irreversible decline. A White House Conference on the Marine Environment would help to highlight what's known about marine environmental problems and to address the most pressing ones. The International Year of the Ocean



# TROUBLED WATERS: A CALL FOR ACTION

## TROUBLED WATERS: A CALL FOR ACTION

**We**, the undersigned marine scientists and conservation biologists, call upon the world's citizens and governments to recognize that the living sea is in trouble and to take decisive action. We must act quickly to stop further severe, irreversible damage to the sea's biological diversity and integrity.

Marine ecosystems are home to many phyla that live nowhere else. As vital components of our planet's life support systems, they protect shorelines from flooding, break down wastes, moderate climate and maintain a breathable atmosphere. Marine species provide a livelihood for millions of people, food, medicines, raw materials and recreation for billions, and are intrinsically important.

Life in the world's estuaries, coastal waters, enclosed seas and oceans is increasingly threatened by:

1) overexploitation of species, 2) physical alteration of ecosystems, 3) pollution, 4) introduction of alien species, and 5) global atmospheric change. Scientists have documented the extinction of marine species, disappearance of ecosystems and loss of resources worth billions of dollars. Overfishing has eliminated all but a handful of California's white abalones. Swordfish fisheries have collapsed as more boats armed with better technology chase ever fewer fish. Northern right whales have not recovered six decades after their exploitation supposedly ceased. Steller sea lion populations have dwindled as fishing for their food has intensified. Cyanide and dynamite fishing are destroying the world's richest coral reefs. Bottom trawling is scouring continental shelf seabeds from the poles to the tropics. Mangrove forests are vanishing. Logging and farming on hillsides are exposing soils to rains that wash silt into the sea, killing kelps and reef corals. Nutrients from sewage and toxic chemicals from industry are overnourishing and poisoning estuaries, coastal waters and enclosed seas. Millions of seabirds have been oiled, drowned by longlines, and deprived of nesting beaches by development and nest-robbing cats and rats. Alien species introduced intentionally or as stowaways in ships' ballast tanks have become dominant species in marine ecosystems around the world. Reef corals are succumbing to diseases or undergoing mass bleaching in many places. There is no doubt that the sea's biological diversity and integrity are in trouble.

To reverse this trend and avert even more widespread harm to marine species and ecosystems, we urge

citizens and governments worldwide to take the following five steps:

- 1) Identify and provide effective protection to all populations of marine species that are significantly depleted or declining, take all measures necessary to allow their recovery, minimize bycatch, end all subsidies that encourage overfishing and ensure that use of marine species is sustainable in perpetuity.
- 2) Increase the number and effectiveness of marine protected areas so that 20% of Exclusive Economic Zones and the High Seas are protected from threats by the Year 2020.
- 3) Ameliorate or stop fishing methods that undermine sustainability by harming the habitats of economically valuable marine species and the species they use for food and shelter.
- 4) Stop physical alteration of terrestrial, freshwater and marine ecosystems that harms the sea, minimize pollution discharged at sea or entering the sea from the land, curtail introduction of alien marine species and prevent further atmospheric changes that threaten marine species and ecosystems.
- 5) Provide sufficient resources to encourage natural and social scientists to undertake marine conservation biology research needed to protect, restore and sustainably use life in the sea.

Nothing happening on Earth threatens our security more than the destruction of our living systems. The situation is so serious that leaders and citizens cannot afford to wait even a decade to make major progress toward these goals. To maintain, restore and sustainably use the sea's biological diversity and the essential products and services that it provides, we must act now.

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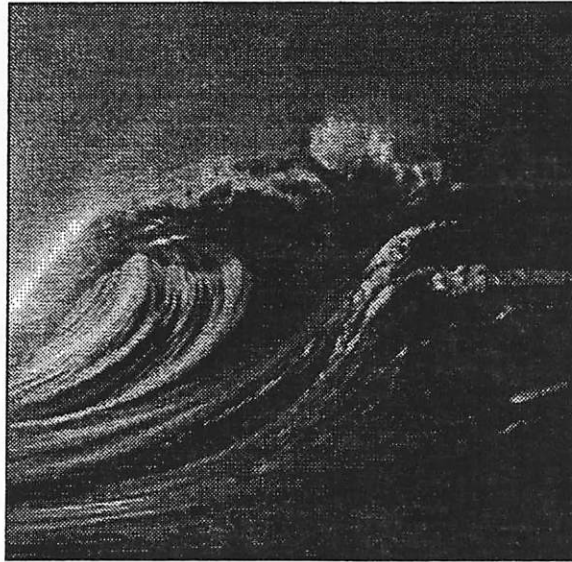
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COVER STORY

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**A Sea of Troubles**

*In the International Year of the Ocean, Are We Reaching the Limits?*

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*By Kieran Mulvaney*

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Ours is a water planet. The ocean covers 71 percent of the surface area of the globe, and constitutes over 90 percent of all habitable space on Earth. Its total volume is around 300 million cubic miles and its weight is approximately 1.3 million million million tons. No wonder that Arthur C. Clarke, scientist and writer, once remarked that it was "inappropriate to call this planet Earth, when clearly it is ocean."



The vast dimensions of the global ocean moved one scientist to suggest 40 years ago that it "may be rash to put any limit on the mischief of which man is capable, but it would seem that those 100 and more million cubic miles of water...is the great matrix that man can hardly sully and cannot appreciably despoil."

But those "100 and more million cubic miles" need to be put into perspective. As Jim Lovelock, originator of the Gaia hypothesis, has observed, "Although the weight of the oceans is 250 times that of the atmosphere, it is only one part in 4,000 of the weight of the Earth." If the Earth were a globe 12 inches in diameter, notes Lovelock, the average depth of the ocean

would be no more than the thickness of a piece of paper, and even the deepest ocean trench would be a dent of a third of a millimeter.

Even so, it is easy to understand the reasoning behind the logic of that 1950s scientist. Dr. Sylvia Earle, former chief scientist for the National Oceanic and Atmospheric Administration (NOAA), points out that, "As recently as a half century ago, the sea still seemed to be in excellent health physically, chemically and biologically. When the explorer Thor Heyerdahl sailed in 1947 with a crew of five others across the Pacific Ocean from Peru to Tahiti, weeks passed with no clues to suggest that humankind existed anywhere except on their raft."



*Catastrophic oil spills like that of the Exxon Valdez in Alaska's Prince William Sound can devastate whole ecosystems.*

Photo: © 1990 Ken Graham/Ken Graham Agency

But, says Earle, by 1970, when Heyerdahl set out on another raft journey, this time across the Atlantic, something of a "sea change" was already underway. "He reported seeing far more oil lumps than fish, and alerted the world about the enormous quantities of trash, oily wastes and plastic debris he observed in the sea."

Heyerdahl was a harbinger of deepening bad news for the world's oceans. Since the 70s, commercial fisheries have pushed fish stocks to collapse. Pollution has claimed the lives of millions of seabirds, and untold numbers of birds, marine mammals and sea turtles become entangled or ensnared each year in plastic debris that finds its way into the sea. Vital coastal habitats are being buried, damaged, altered or destroyed by construction and development.

In response, the United Nations has declared 1992 the International Year of the Ocean. This year's Expo, or World Fair, to be held in Lisbon, Portugal, will have the oceans as its main theme. And across the globe, scientists, environmentalists and others are training their focus on the array of human impacts that are making themselves felt on the global ocean:

### **Fisheries: Reaching Depletion**

According to the United Nations Food and Agriculture Organization (FAO), an estimated 70 percent of global fish stocks are "over-exploited," "fully exploited," "depleted" or recovering from prior over-exploitation. By 1992, FAO had recorded 16 major fishery species whose global catch had declined by more than 50 percent over the previous three decades-and in half of these, the collapse had begun after 1974. In 1992, the virtual disappearance of Northwest Atlantic groundfish led the Canadian government to close commercial fisheries and, later, all fishing on these stocks. A 1997 paper in the British journal *Nature* predicted that, unless swift and effective action was taken to protect them, cod stocks in the North Sea were also in danger of collapse. At least one species-the California white abalone-is now considered a likely candidate for extinction, 20 years after intense exploitation ended.

At the same time, as much as 27 million tons of fish are thrown overboard annually because

they are undersized, of the wrong species, of inferior quality or surplus to quotas. A study in Alaska suggests that Bering Sea red king crab discards amounted to 16 million animals in 1990, more than five times the number actually landed.

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*As recently as a half century ago, the sea still seemed to be in excellent health physically, chemically and biologically.*

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Large numbers of marine mammals, sea turtles and seabirds are also caught in commercial fisheries operations around the world. The National Research Council has identified bycatch in shrimp trawls as the most significant cause of sea turtle mortality in the US. Tuna long line fisheries in the Southern Ocean are estimated to entangle at least 44,000 albatrosses every year, and possibly many more. Harbor porpoises are caught in large numbers virtually everywhere gill nets are set in coastal waters.

Aquaculture, or fish farming, which is often touted as a panacea for the problems of fisheries over-exploitation, is not necessarily an answer. The construction of aquaculture facilities can result in the loss and fragmentation of habitats, particularly mangrove forests. Fish farms also often result in high levels of nutrient and chemical pollution and the escape of introduced fish species and associated diseases into the wild. In addition, large numbers of wild fish are caught to feed those raised in farms: for example, the production of one ton of cage-reared salmon requires approximately 5.3 tons of fish. The over-exploitation of stocks for fishmeal is considered the likely cause of the dramatic collapse of some seabird populations in the North Sea region during the 1980s.

### **Pollution: Our Global Garbage Can**

Pollution of the ocean comes in many and varied forms, and from a wide range of sources. The National Research Council has estimated that as many as 8.8 million tons of oil enter the ocean each year as a result of human activity, and that at any given time, the ocean contains 280,000 tons of tar balls. All kinds of garbage, ranging from fishing nets to trash from cargo ships to litter on the beach, finds its way into coastal waters and the ocean, where it traps, ensnares and entangles marine wildlife such as marine mammals, sea turtles and seabirds. Plastic pellets have been found on the surface of the Pacific at concentrations of 21,000 per square mile; a clean-up exercise on the coast of Texas yielded 15,600 six-pack rings along 1.8 miles of coastline; and a National Academy of Sciences review once estimated that over 14 billion pounds of garbage enters the ocean from sea-based sources alone. In the 1980s, it was reckoned that 30,000 northern fur seals died each year after becoming entangled in marine debris, principally lost or abandoned fishing gear.

Heavy metals—for example, mercury and lead—and organochlorine compounds such as PCBs and DDT have been associated with a wide range of impacts on marine wildlife. According to Boyce Thorne-Miller, senior scientist with SeaWeb, a marine conservation education initiative of The Pew Charitable Trusts, "Although it's difficult to definitively establish cause and effect in a lot of these cases, these contaminants have been linked with mortality, malformation, reduced hatching success, developmental abnormalities and chromosome aberrations in fish eggs and larvae contaminated at the surface, and reproductive problems and reduced immune system in marine mammals." Because heavy metals and organochlorines are bioaccumulative—that is, they build up in progressively greater concentrations as they are passed up the food chain. Top-line predators are particularly at risk, and their plight has been taken up by the new Ocean Wildlife campaign. Striped dolphins in the western North Pacific, for example, have concentrations of PCBs and DDT more than 10 million times higher than that of the water they live in.



*The medical waste that washed up on U.S. beaches in the summer of 1988 alerted many Americans to the dangers of ocean pollution.*

Photo: © Mark Sherman/Photo Network

### **Coastal Habitat Destruction: Pushed by Population**

The fate of the ocean is inextricably entwined with that of the coast. "The coasts," says Beth Milleman of the Washington, D.C.-based Coast Alliance, "have been described as underwater rainforests because of the incredible diversity of life they contain, and there's a lot of truth to that."

Many ocean species rely on coastal habitats for breeding, feeding and shelter: one-third of the world's marine fish species are found on coral reefs, the most productive coastal ecosystems of all, and it has been estimated that the total number of species of all kinds in reef systems could number a million. Other coastal habitats, such as mangroves and sea grasses, are also vital breeding, feeding and nursery areas for fish and shellfish species, home to a variety of wildlife species, and important protection and shelter against storms and coastal erosion. Ninety percent of the current world fisheries harvest comes from within 200 miles of the coast, and most of that within a strip of just five miles from the coast.

But the coastal zone is also home to the majority of the world's population. As much as 66 percent of the world's population lives within 40 miles of the shore, and coastal populations are growing faster than the global population as a whole. In the U.S. between 1960 and 1990, the population in coastal counties grew by 41 million, an increase of 43 percent. Between 1983 and 1991, 90 percent of all building activity in Australia took place within the coastal zone.

As a result of such growth in population and development, among other factors, coastal environments are coming under increasing pressure. It is estimated, for example, that, worldwide, as much as 10 percent of the world's coral reefs have been degraded beyond recovery, and that another 30 percent is likely to decline within the next 15 or so years. Seventy-five percent of mangrove forests in the Philippines, and 40 percent in Ecuador, have been cut down to make way for aquaculture ponds. Around the world, seagrasses are being stifled by turbidity in the water as a result of nutrient pollution.

## ***Nitrogen pollution as arguably "the most serious human threat to the integrity of coastal marine ecosystems.***

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By interrupting the flow of freshwater from rivers, the construction of dams has impacted coastal regions and destroyed the habitats of many fish species worldwide: they are considered, for example, to be one of the primary causes in the extinction of at least 106 major populations of salmon and steelhead on the west coast.

### **Introduced Species: the Havoc of Exotic Migration**

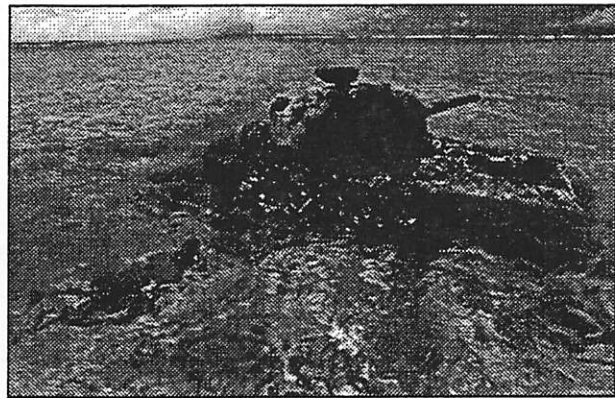
Although still an obscure problem, the constant introduction of exotic species to marine environments where they do not naturally occur is, says Dr. James Carlton, professor of marine science at Williams College-Mystic Seaport, Connecticut, playing "ecological roulette with the ocean. There is no way of knowing where and when the next invasion will occur, or what the consequences will be. But we do know that every time we introduce a species, we run the risk of radically transforming marine ecosystems, with tremendous ecological, economic and social consequences."

The principal method by which exotic species are introduced into marine environments is through the intake and discharge of ballast water. When ships take on ballast at their point of departure, they also take on board thousands of microscopic organisms, including the planktonic life stages of larger plants and animals. As the ballast is emptied at the port of call, these passengers are discharged as well.

"We reckon that, at any time, there are 3,000 species in motion in ballast water," says Carlton, "and that, somewhere in the world, one introduced species is taking hold every day."

One dramatic example is the Atlantic comb jelly, a U.S. east coast native, introduced by ballast water into the Black and Azov Seas in the early 1980s. By 1988, it had become the dominant species in the Black Sea, leading to collapses in fish stocks and an estimated \$250 million of lost fisheries revenue. Introduced species have also transformed marine ecosystems in the U.S.:

there are at least 250 exotic organisms in San Francisco Bay alone, including the Asian clam, which is now found at densities of 3,000 per square foot.



*This 50-year-old American tank is part of the coastal debris in Saipan, Micronesia.*

Photo: © Paul Chesley Photographers/Aspen

The International Maritime Organization (IMO) is looking at ways to regulate ballast water discharge, and researchers in Australia and the United States are finding ways to tackle the problem by using heat to kill organisms in ballast water, or developing filters to trap the organisms when the ballast is discharged or taken on board. The island nation of Bonaire prohibits the dumping of ballast water in its coastal waters. But it is, admits Carlton, like

"pushing a peanut uphill," and in the meantime, more catastrophic species introductions seem certain to occur.

### Ozone Depletion: Climate Change and Global Warming

Finally, all these separate threats need to be placed in the context of overall global change, with an altered climate and increased ultraviolet radiation as a result of ozone depletion two prime examples.

According to a review by the Intergovernmental Panel on Climate Change (IPCC), a grouping of some 300 scientists from around the world, climate change "has the potential to significantly affect biological diversity in ocean and coastal areas. It could cause changes in the population sizes and distributions of species, alter the species composition and geographical extent of habitats and ecosystems, and increase the rate of species extinctions."

These changes could come about, says the IPCC, through any combination of sea-level rise, increases in sea-surface temperature, increases in storms and other extreme events, and increased precipitation leading to greater run-off of pollutant-and-nutrient-rich soil and water into coastal areas. For example, rising sea-levels may swamp coastal habitats, and higher sea surface temperatures have already been implicated in some coral diseases and in nurturing some harmful algal blooms.

In addition, there is growing evidence that increased levels of UV-B radiation as a result of ozone depletion may be harming marine species, particularly those in the upper layers of the sea. Numerous studies have shown, for example, that increased UV-B can cause death, decreased reproductive capacity, reduced survival and impaired larval development in some of the plankton species that form the basis of the marine food chain.

### The Healing Process

Given the size and extent of the ocean, and the complexity and variety of the issues it faces, addressing threats to the marine environment generally requires a multi-faceted approach. Because of the global nature of human activities that impact the ocean, many environmentalists concentrate their efforts on seeking to have those activities regulated or, if necessary, banned by international conventions.

Unfortunately, observes Clifton Curtis, political advisor to Greenpeace International, "There remains a tendency on the part of international agreements to put the ocean in a box and say, 'OK, we've done rainforests, now let's address oceans.' But 'ocean issues' cover such a wide range—fisheries, oil and gas, minerals, to name a few—that you can't just fence them off that neatly."

That said, Curtis does see progress in the willingness of some countries to begin addressing those issues. Specifically, he cites the recent United Nations Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks, developed to deal with the thorny issue of fisheries



*Not all ocean pollution is as obvious as this outflow pipe; industry has found subtler ways to manage its ocean dumping.*

Photo: H. Abernathy/H. Armstrong  
Roberts



whose targets straddle or migrate between countries' national waters and the high seas; the entry into force of the UN Law of the Sea, which covers a huge array of subjects, from navigation rights to fisheries to seabed mining; the interest of established agreements, such as the Convention on Biological Diversity and the Commission on Sustainable Development, in supporting ocean conservation; and the development, under the leadership of the United Nations Environment Program (UNEP), of a broad-based Global Program of Action for the Protection of the Marine Environment from Land-Based Activities.

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***Worldwide, as much as 10 percent of the world's coral reefs have been degraded beyond recovery.***

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Unfortunately, Curtis admits, it is often one thing for countries to adopt strict-sounding rules and regulations, and quite another to show the political will to enforce them. "For example, when it became clear that the Soviet Union had been dumping large amounts of radioactive material in the Kara and Barents Sea, in direct violation of the London Convention, very little was done. Certainly, no punitive measures were taken" (see [sidebar](#)).

Even when there is some element of political will on the part of a number of the signatories to a convention, it is not always enough. Fifteen years after the International Whaling Commission voted for an indefinite global moratorium on commercial whaling, for example, the IWC remains powerless to prevent Japan and Norway from killing hundreds of whales a year under the guise of "scientific research."

Even getting to the stage where strong international commitments to protect the ocean are put down on paper has been, thanks to inertia from governments and pressure from industry, far from simple.

In 1995, for example, representatives of nations from around the world gathered in Washington, D.C., and agreed to negotiate a treaty that would severely curtail production and emissions of persistent organic pollutants. Initially, says Boyce Thorne-Miller, the plan had been to work toward eliminating the tens of thousands of such pollutants in existence; it was finally agreed, however, to concentrate on only 12. And while these are all important contaminants-including PCBs, DDT and dioxins-many of them, Thorne-Miller says, "are no longer made in Western Europe or the United States, so it's not such a great hardship for the chemical industry to give them up. I overheard a member of one national delegation checking with an industry representative: 'This list OK with you guys?'"

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***Because of the weaknesses and loopholes that international agreements usually contain, environmentalists are looking at other means to bring about change.***

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In another case, the MARPOL Convention on pollution from ships recently began attempting to address the issue of pollution as a result of nitrous and sulfurous compounds in ships' fuel. But, says Sally Lentz, executive director of Ocean Advocates, "As a result of pressure from countries such as Mexico, which produces a lot of fuel with high sulfur content, we're probably looking at an agreement that, instead of reducing the levels of sulfur in ships' fuel, will set a cap that is higher than the levels that are actually commonly found right now."

"To be honest," sighs Mike Sutton, director of the Endangered Seas Campaign for WWF International, "I've become so disappointed with the political process that I've begun moving away from the political scene altogether. I tend to doubt that the political process is going to get us where we need to be. The inevitable compromise between conservation and exploitation almost invariably tends to leave us in a position which does not provide the protection the environment needs."

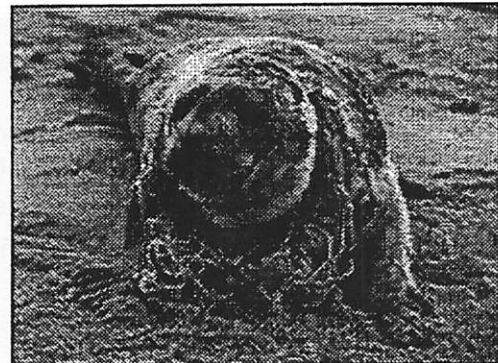
None of which is to say that international conventions and agreements are without merit. Sutton agrees that "they need to get ratified and implemented." Boyce Thorne-Miller sees them very much as "a tool that we can use to bring pressure on governments and industry." Sally Lentz points out that, without the pressure from international agreements to set a timeline to phase out a particular technology or chemical, for example, such changes are unlikely to happen.

But, not least because of the laborious nature of bringing an agreement to fruition and the considerable weaknesses and loopholes that even the best agreements almost invariably contain, environmentalists are increasingly looking at other means to bring about change.

The WWF Endangered Seas Campaign, for example, has begun focusing more on the market-and, specifically, working with food giant Unilever to establish a Marine Stewardship Council, setting up a global, industry-wide mechanism for identifying and labeling sustainably-caught fish. In India, the National Fishworkers' Forum is seeking to establish the first-ever international association of small-scale, inshore fishers, to draw global attention to the threat to their livelihood from giant offshore fishing fleets and the destructive environmental and social effects of shrimp aquaculture.

"I've never seen anything quite like" the burgeoning opposition to shrimp aquaculture, says Greenpeace's international oceans campaign coordinator, Matthew Gianni. "It's a real grass-roots movement, the thrust of which is trying to persuade American consumers--who, according to our research, eat more than 50 percent of the world's farmed shrimp--that 'all you can eat' offers from Red Lobster or whatever really aren't such good deals, at least not from the point of view of the environment or of inshore fishers in places like India, Bangladesh, Thailand and Ecuador."

Indeed, for many, that kind of effort-making consumers and citizens aware of the way in which their actions impact on ocean and coastal ecosystems, sometimes thousands of miles away--is the most important exercise of all.



*The outlook is bleak for this gray seal, trapped in a discarded fishing net. Similar debris kills 30,000 northern fur seals every year.*

Photo: Robin W. Baird/Earth Views

As Sylvia Earle observes, maybe what we need is to develop an "ocean ethic"-a recognition that the ocean, far from being a "great matrix that man cannot sully and cannot appreciably despoil," an endless provider of resources or a bottomless sink for wastes, is as finite, and as vulnerable to human impacts, as any other environment. And the decisions that we all make-to build one more house near the coast, to drive a car when we could walk or take public transport, to eat one more plateful of shrimp-can all combine to the ocean's detriment.

"There are many unknowns," Earle admits, "but one thing is certain: we have the power to undermine the healthy functioning of the sea that supports us and all of the rest of life on Earth, but no sure way to heal the harm. For ages, the sea has taken care of us. For ourselves and all who follow, the time has clearly come for us to take care of the sea."

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#### **SIDEBARS:**

- **Nutrient Pollution: Choking the Seas**
- **Nuclear Waste: A Watery Grave?**

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The press conferences were called by SeaWeb, a public education ocean initiative, the Ocean Wildlife Campaign, a coalition of conservation groups, including National Audubon Society, National Resources Defense Council, National Coalition for Marine Conservation, and the World Wildlife Fund, along with the American Sportfishing Association, an industry trade organization. The Ocean Wildlife Campaign released a report which lays out the bykill problem and offers possible solutions.

"The carnage can be stopped," said David Wilmot, Director of the Ocean Wildlife Campaign, one of the event sponsors. "We can reduce bykill by changing the way fish are caught and by keeping damaging gears away from fish in trouble."

With passage of the Sustainable Fisheries Act in 1996, Congress required fishery managers to minimize bycatch of non-target fish. The Ocean Wildlife Campaign and American Sportfishing Association are calling for swift action to bring the U.S. into compliance by the October 1998 deadline established by Congress.

The press conferences were timed to coincide with the start of the International Year of the Ocean, designated for 1998 by the United Nations to focus global attention on the plight of the world's ocean.

"Overfishing and bykill are just two of many threats to our ocean today," said Vikki Spruill, executive director of SeaWeb, a project of The Pew Charitable Trusts. "Eighty five percent of the public, when recently polled, said that the destruction of the ocean represents a threat to their own quality of life. There is no better time than now to take action to protect what may be our most valuable resource."

**Ocean Wildlife Campaign** — a coalition of four conservation organizations—National Audubon Society, National Coalition for Marine Conservation, Natural Resources Defense Council, and World Wildlife Fund—working to enhance understanding and appreciation for sharks, tunas, swordfish, and marlins and strengthen management and conservation. Address: 1901 Pennsylvania Avenue, NW, Washington, D.C. 20006, Tel: 202-861-2242, Fax: 202-861-4290, E-mail: [dwilmot@audubon.org](mailto:dwilmot@audubon.org)

**American Sportfishing Association** — a non-profit industry association working to ensure healthy and sustainable fisheries resources and increase sportfishing participation through education, conservation, promotion, and marketing. Expenditures made by America's 50 million anglers contribute more than \$108 billion annually to the U.S. economy and sustain more than 1.2 million full time jobs. Address: 1033 North Fairfax Street, Suite 200, Alexandria, VA 22314, Tel: 703-519-9691, Fax: 703-519-1872, E-mail: [ASAFishing@aol.com](mailto:ASAFishing@aol.com)

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**Bykill Press Conference Comments  
Washington, D.C.  
David Wilmot, Director, Ocean Wildlife Campaign  
January 12, 1998**

Good morning. My name is David Wilmot and I am the director of the Ocean Wildlife Campaign, a coalition of four organizations—National Audubon Society, National Coalition for Marine Conservation, National Resources Defense Council, and World Wildlife Fund—working to conserve giant ocean fish such as sharks, swordfish, marlin, and tuna.



What you have just seen in our video is only the tip of the bycatch iceberg. On a global basis 1 out of every 4 fish caught is discarded as bykill. Sharks, swordfish, marlin, and tunas — many already severely depleted from years of overfishing and neglect — are being hard hit by non-selective gears such as drift nets and drift longlines and killed by the thousands each year. We organized this event today to call for immediate and decisive action to stop the waste and destruction of large ocean fish and other marine wildlife.



Bykill is not an inevitable consequence of fishing. Some fishing gears and methods are selective, but most do not discriminate between a valuable fish and another sea animal that is illegal to keep, too small to eat, or of limited commercial value. Indiscriminate fishing gear, destructive practices, and managerial neglect are causing the unplanned capture, killing, and waste of fish and other marine wildlife such as albatrosses and turtles at staggering levels.



A look offshore demonstrates the problem ocean giants face. Longliners, like the ones that operate up and down the East Coast, catch fish by reeling out a single strand of fishing line, about 25 miles long, baited with hundreds of hooks. A drift longliner is going after tuna or swordfish, but they catch every creature that will bite a hook. Each year tens of thousands of marlin, sharks, juvenile swordfish and tunas, sea turtles, seabirds, and many other wild marine animals die on longlines.

This spells bad news for fish already depleted by years of overfishing. For example, bluefin tuna, marlins and some shark species have declined by nearly 90 percent. And swordfish is not far behind and dropping fast. An estimated 40,000 juvenile swordfish were discarded dead in 1996 by the U.S. commercial Atlantic longline fleet. 80% of the female swordfish killed were TOO young to have ever spawned. You don't have to be a fish biologist to know that when you kill fish you faster than they can reproduce their population will plummet.

The thousands of juvenile swordfish that fishermen kill and throw away each year are NOT EVEN COUNTED against the U.S. swordfish catch limit. While ignored for management purposes, there is no getting around the fact that these fish are dead. This mismanagement defies reason and must be stopped.

The Ocean Wildlife Campaign is calling for changes in the way fish are caught. We call for immediate changes that will result in a significant reduction in bykill — ultimately, a 75% reduction by the year 2005. The keys are to reduce what fishermen's encounters with non-target species, increase survivability of unavoidable encounters, and improve monitoring and enforcement.

The first step is to avoid juveniles and non-target species. This can be accomplished in a number of ways including modifying gear or restricting the use of destructive gears. Certain fishing areas could be closed at key times to protect juvenile fish and other marine wildlife. Areas of particularly high bycatch should be designated off-limits.

Unintentionally caught marine wildlife brought to the boat alive should be released unharmed. Practices such as the killing of sharks just for their fins and dumping their bodies, often still alive, should be banned. This barbaric practice is still legal for U.S. fishers in the Pacific.

Fisheries regulations must be clear and firm on bykill. The Sustainable Fisheries Act, passed by Congress in 1996, requires that fishermen minimize bycatch and its associated mortality. Regulations have not yet been developed to address bykill of the giant ocean fish. We are demanding that NMFS establish maximum bycatch standards, including specific bykill reduction measures, for sharks, tunas, swordfish, and marlin.

We encourage citizens to call Secretary Daley at the Department of Commerce and urge him to stop the bykill [202-482-2112; or call 1-888-4SEAWEB for more information on helping stop bykill].

In closing, we're killing — and wasting — too many fish. 1998 is the Year of the Ocean. It's the time to act.

Thank you.





**Bykill Press Conference Comments  
Washington, D.C.  
Vikki Spruill, Executive Director, SeaWeb  
January 12, 1998**

Greetings, and greetings to you in this New Year, designated as the International Year of the Ocean by the United Nations. I am Vikki Spruill, executive director of SeaWeb, a public education initiative of The Pew Charitable Trusts, created to raise awareness of our ocean. A recent public opinion poll, sponsored by SeaWeb, showed that most Americans are greatly concerned about the state of the world's ocean, with 85% stating that the destruction of the ocean represents a threat to their own quality of life.

Overfishing is one of the growing problems that threatens life in the ocean and our dependence on it for food and recreation. The video you are about to see is being released by the Ocean Wildlife Campaign, an alliance of major environmental groups including the World Wildlife Fund, the National Audubon Society, Natural Resources Defense Council, the National Coalition for Marine Conservation and the American Sportfishing Association, an industry trade association dedicated to serving the needs of the sportfishing community. This dramatic footage graphically shows a major reason why some fish populations are plummeting. Let's take a look and then our spokespeople will make brief statements and answer your questions. Thank you.



# International Game Fish Association

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January 12, 1998

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Hello, I'm Mike Leech, president of the International Game Fish Association. We are a nonprofit, membership-supported sport fishing organization with members in over 110 countries. We are well known as the keeper of all world record gamefish in fresh and salt water, but we are also deeply involved in fishery conservation.

Last year the world's commercial marine catch totaled about 84 million tons. According to the Food and Agriculture Organization, another 20 million tons of bycatch was discarded, mostly dead, back into the sea. That's about 1 lb wasted for every 4 lbs retained.

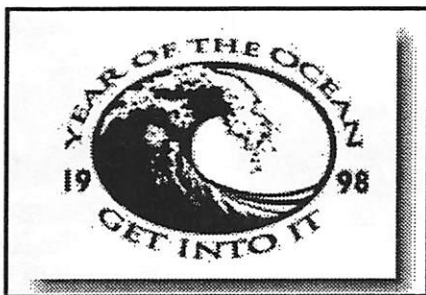
In the Gulf of Mexico alone, offshore shrimp boats discarded 9.6 billion fish in a single year. That's enough fish to reach to the moon and back twice with enough left over to more than circle the equator -- and that's just 13 species out of more than 100 species in the bycatch. A more recent study revised the bycatch figure. We now know that just two species in the Gulf shrimp bycatch total about 16 billion fish. They are destroying the bottom of the food chain.

- ▶ Shrimp trawlers kill 85% of all juvenile red snapper as bycatch in the Gulf of Mexico.
- ▶ Shrimp trawling accounts for from 4 lbs to 15 lbs of wasted bycatch for every pound of shrimp harvested. That's more than 100 creatures wasted for every pound of shrimp. Is it worth it?

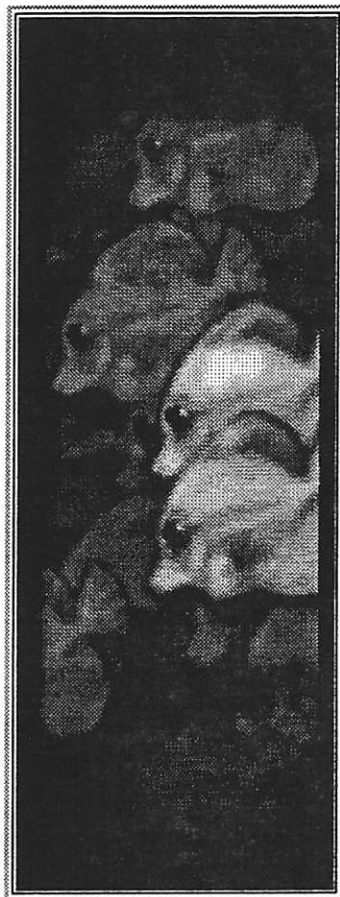
- ▶ In the north Pacific, discarded bycatch represents about 50 million meals a year.
- ▶ U.S. longliners discard over 500 metric tons of juvenile swordfish per year. Because they aren't counted against the quota, statistically they don't exist. If the discarded juvenile swordfish were allowed to reach their reproductive size of 150 lbs, it would result in 4.1 million pounds of swordfish steaks each year. Retail value of those steaks at \$9 a pound would be \$36.9 million.
- ▶ In Alaska, 17 million pounds of halibut were discarded in a recent year. Total discard of all Alaska species equates to almost 1 billion marine creatures per year.
- ▶ Worldwide the wasted bycatch would provide more than 10 lbs of food for every man, woman and child on earth.
- ▶ Bycatch kills 65,000 to 80,000 whales, porpoises and other mammals annually.
- ▶ If each pound of discarded bycatch was assigned a value of 10 cents, the annual loss would be \$22 billion.

These shocking figures are having a serious effect on recreational fishing. We need a healthy resource to sustain our industry that generates a \$108 billion economic impact and supports 1.2 million jobs. In the United States, almost 1 person out of 4 fishes, including about 17 million saltwater anglers. Fishing is the world's most popular sport, but without fish this industry is in big trouble.

Bycatch problems are completely preventable if fishery managers will start doing their job. It's time we got started.








# Federal Agency Links




**The Ocean Principals Group**, consisting of senior representatives from all civilian and military agencies with ocean-related activities, manages the Federal role in the Year of the Ocean. It has also made possible a national Year of the Ocean effort through establishment of a joint project agreement with the Heinz Center for Science, Economics and the Environment. This agreement provides a mechanism for coordination among "stakeholders" from government, private industry, non-governmental organizations, and the academic sector.

The Ocean Principals Group has identified seven themes— Maritime Transportation, National Security, Ocean Resources, Marine Environmental Quality, Recreation and Tourism, and Weather, Climate and Natural Hazards— and four cross-cutting issues— science, technology, and research; Legal Framework, Management of Ocean Areas, Uses and Resource; and Education and Exploration. Stakeholders will be engaged in an examination of these themes and issues and in the development of an agenda to take advantage of the opportunities for action that the Year of the Ocean provides.


 <p><b><u>National Oceanic and Atmospheric Administration (NOAA)</u></b></p>	 <p><b><u>The U.S. Department of Commerce</u></b></p>
 <p><b><u>National Aeronautical and Space Administration (NASA)</u></b></p>	 <p><b><u>U.S. Department of the Interior, Management Service (MMS)</u></b></p>




**U.S. Army Corps of Engineers**




**The Oceanog  
the Na  
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**Office of Naval Research (ONR),  
Department of Defense**



**Office of Po  
Internationa  
Department o**




**Office of Fossil Energy,  
Department of Energy**



**U.S Geological S  
Department**



**US STATE DEPARTMENT**  
**Office of Marine Law and Policy,  
Department of State**




**U.S Agency for International Development  
(USAID),  
Global Environmental Center,  
Department of State**




**U.S Maritime Ad  
Department of T**



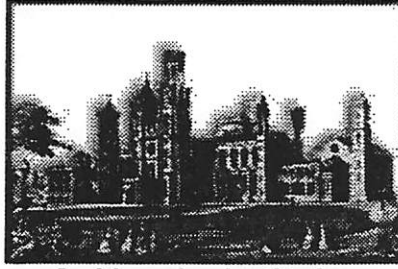
**United States  
Environmental Protection Agency,  
Environmental Protection Agency (EPA)**



**National Science Foundation (NSF)**



**Federal Em  
Management Ag**



**Smithsonian Institution**



**The White House  
Science and Technology  
Policy Office**



**The White House Council on Environmental  
Quality (CEQ)**



**Federal Maritime  
(FMC)**



**The United States  
Coast Guard**

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