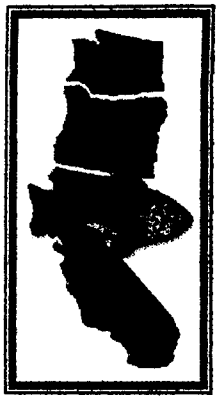


Pacific Marine Conservation Council

"Dedicated to the health and diversity of our marine life and habitat"

May 22, 2003

RECEIVED
MAY 2 7 2003
PFMC

Dr. Donald McIsaac, Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

RE: FishResearchWest

Dear Dr. McIsaac,

We are pleased to announce a reception at which Pacific Marine Conservation Council (PMCC) and our partners in ongoing collaborative research efforts will launch FishResearchWest.org, the first online, coastwide clearinghouse for information on collaborative fisheries research in Washington, Oregon and California. The reception will be held at the Pacific Fishery Management Council meeting in Foster City on June 18, 2003 at 6:00 PM. All are invited to attend.

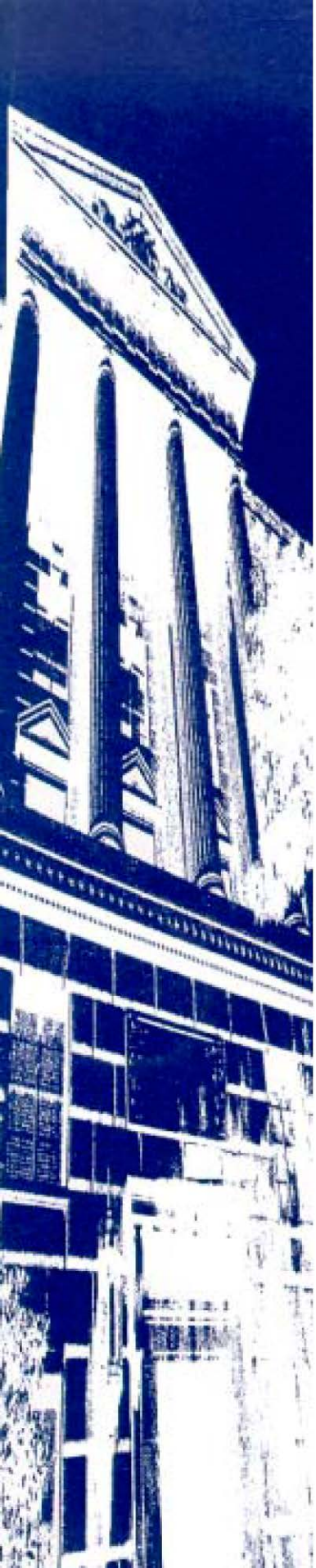
Links on FishResearchWest.org include contact information for interested scientists and fishermen of all gear types, fisheries research priorities, funding opportunities, logistical information, research news and others. As a result of our intent to establish a site that is both neutral and representative, the actual configuration has been developed through an intensive interview process with representatives of academia, fisheries management, and fishermen of various fishing gear types and geographic regions. In addition, via a splash page at FishResearch.org, the new site will link collaborative research efforts on the West Coast to those in New England for the first time.

The intent behind FishResearchWest is to match parties with interests in collaborative research, and identify a broad range of funding sources. We believe that bringing together the tools and the knowledge held by fishermen and scientists will lead to better science and improved fisheries management. With our partners in this endeavor, including the Institute for Fisheries Resources, NOAA Fisheries Northwest Fisheries Science Center, Pacific States Marine Fisheries Commission, Oregon and California Sea Grant Extension Programs, and the Pacific Fishery Management Council, PMCC is now working to clearly define next steps towards the development of a coastwide collaborative research program.

Through FishResearchWest.org and a coordinated and comprehensive collaborative research program, it is our intent to provide a platform for formally merging the skills and knowledge of scientists and fishermen along the West Coast, with the primary goal of improving fisheries science. We believe that authentic collaborations between fishermen and scientists will lead to further discussion of tough questions, more provocative hypotheses, more creative and cost-effective fisheries research strategies, and joint ownership of results.

Sincerely,

Jennifer Bloeser,
Science Director



U.S. DEPARTMENT OF COMMERCE
Office of Inspector General

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NMFS Should Take a Number of Actions to Strengthen Fisheries Enforcement

Final Inspection Report No. IPE-15154/March 2003

PUBLIC RELEASE

Office of Inspections & Program Evaluations

UNITED STATES DEPARTMENT OF COMMERCE
The Inspector General
Washington, D.C. 20230

MAR 3 1 2003

MEMORANDUM FOR: Conrad C. Lautenbacher, Jr.
Under Secretary for Oceans and Atmosphere

William T. Hogarth
Assistant Administrator for Fisheries

FROM: Johnnie E. Frazier

SUBJECT: Final Inspection Report: *NMFS Should Take a Number of Actions to Strengthen Fisheries Enforcement* (IPE-15154)

As a follow-up to our February 25, 2003, draft report, this is our final report on the National Marine Fisheries Service's enforcement efforts. Our review focused on the enforceability of fishing regulations in the fishery management plans and the Office of Law Enforcement's methods of enforcement. The report includes comments from NOAA's March 31, 2003, written response to our draft report. A copy of the entire response is included as an attachment to the report.

We were impressed with the professionalism and dedication of the workforce devoted to protecting marine resources. However, our report outlines a number of concerns about the fisheries regulatory and enforcement process that we believe require attention and improvement. Our report contains a number of recommendations to address our concerns (see page 34).

We are pleased that NOAA has agreed with all of our recommendations, and that you have begun to take action on many of them and provided anticipated completion dates for the recommendations. As such, we ask that you provide an update on your action plan by December 31, 2003.

We thank the personnel in NOAA, including Dr. Hogarth and the Office for Law Enforcement personnel both in NMFS headquarters and in the field offices, for the assistance and courtesies extended to us during our review. If you have any questions about our report or the requested update of your action plan, please contact me on (202) 482-4661, or Jill Gross, Assistant Inspector General for Inspections and Program Evaluations, on (202) 482-2754.

Attachment

cc: Dale J. Jones, Chief, Office for Law Enforcement

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) is responsible for managing, conserving, and rehabilitating marine resources within the United States. NOAA's National Marine Fisheries Service (NMFS) is charged with rebuilding and maintaining sustainable fisheries, promoting recovery of protected species, and protecting the health of coastal marine habitats.

The Magnuson-Stevens Fisheries Conservation and Management Act of 1976 placed under federal jurisdiction all living and nonliving marine resources within 200 miles of U.S. coastline, in what is now known as the U.S. Exclusive Economic Zone (EEZ). The act instituted a regional management system to allocate harvesting rights to domestic fisheries and gave responsibility for fisheries management to the Secretary of Commerce (through NMFS) and eight regional fishery management councils. The councils, along with NMFS, prepare fishery management plans that govern domestic fisheries in the EEZ.

NMFS's Office for Law Enforcement (OLE) and the U.S. Coast Guard share responsibility for enforcing federal and council-established regulations designed to protect and conserve marine resources in the EEZ. The Coast Guard primarily handles enforcement at sea. OLE focuses on shoreside enforcement, which includes dockside monitoring and investigative work. In addition, a number of state-level marine enforcement agencies have signed agreements with NMFS and receive federal funds to help enforce federal fisheries regulations.

OIG's Office of Inspections and Program Evaluations conducted a review of NMFS enforcement efforts, focusing on the enforceability of fishery management plans and OLE's corresponding methods of enforcement. We examined OLE's role in the council process; the emerging role of coastal states and territories in federal fisheries enforcement; and the status and importance of information sharing within NMFS, across federal and state enforcement agencies, and with the public. Our major findings are summarized below.

Greater consideration should be given to ensuring fishery management measures are more understandable and enforceable. Fishery management plans are the blueprints for marine protection and conservation. They specify the regulations that govern fisher/vessel activity in a particular area of the EEZ. The Magnuson-Stevens Act sets 10 national standards for fishery management plans, but many of the standards address competing interests. For example, the councils and NMFS are charged with preventing overfishing (usually accomplished by limiting some type of fishing activity) while minimizing the economic impacts of fishing restrictions on fishing communities. We believe that in trying to meet the national standards and regional fishery priorities, complex plans with numerous regulatory exemptions are created, which are often confusing to fishers and difficult for the Coast Guard and OLE to enforce.

NMFS and the councils need to work closely to promulgate measures that are more straightforward and are thus understandable, enforceable, and effective. Once exemptions are introduced, the measure becomes more difficult for fishers to follow and agents to enforce. For example, a measure prohibiting fishing in certain areas of the sea ("closed areas") is most effective when it applies to all vessels, covers an area that is clearly demarcated, is of sufficient size, and is identified by exact latitude/longitude specifications. For more examples of the actions that can be taken to strengthen management measures, refer to Appendix A on page 36.

We believe that in attempting to meet national standards, the councils and NMFS appear to sometimes lose sight of how or whether the plan can be implemented and enforced. Thus, we recommend that NMFS prepare guidance that will help the councils formulate more enforceable measures (see page 9).

The council planning process would benefit from greater fishery enforcement expertise. As the only federal organization dedicated full-time to salt-water fisheries enforcement, OLE has substantial fisheries enforcement expertise that should be helpful to the fishery management councils. We believe OLE's involvement in the council planning process is necessary for ensuring that enforcement issues are adequately considered early in the planning process. OLE's primary option for participating in the council planning process is via involvement with a council's law enforcement committee and/or advisory panel. These groups provide a good forum for raising enforcement concerns associated with management measures the councils are considering. However, the role and influence of the committees and panels vary: some do not meet regularly, and some do not give proper focus to enforcement issues or do not provide input early enough in the planning process to have an impact on council decision making. We identified a number of helpful practices used by some of the groups that would enhance the effectiveness of all in communicating enforcement concerns to their full councils.

To strengthen the role of the law enforcement committees and advisory panels, (1) NMFS should develop and implement guidance that helps ensure that these bodies have clearly defined roles, meet regularly, and give proper focus to enforcement issues, and (2) OLE should seek greater involvement on the committees and adequately represent enforcement matters at council meetings (see page 13).

NMFS should work with the councils to make greater use of vessel monitoring systems to monitor closed areas. Closing areas to certain fishing activities or equipment has proven to be a successful strategy for rebuilding stocks, and its use will likely increase. OLE and the Coast Guard are responsible for monitoring federally closed areas. Many council plans require fishing vessels to install a vessel monitoring system (VMS) so that OLE can monitor fishing activity electronically—24 hours a day, 7 days a week.

VMS is implemented differently across the country. Although OLE has a national VMS team, it can go only so far to promote the use of VMS. Thus, more leadership from NMFS is needed to ensure lessons are learned and VMS best practices are shared across

the councils and NMFS regions. In addition, the high cost of VMS, a general industry aversion to such electronic monitoring, and the inequitable distribution of VMS costs have generated some continuing resistance to using the technology. Fishers are well aware that NMFS shares VMS costs in some areas, pays them entirely in others, and looks to fishing vessels to bear all costs in still other fisheries. We recommend that NMFS become more proactive in addressing fisher concerns and develop a strategy for implementing VMS in various NMFS regions.

As VMS use has spread, some marine scientists have realized the research value of tracking aggregate fishing activity and have considered developing separate VMS systems for scientific inquiry. Monitoring for scientific purposes would likely be less expensive than monitoring for enforcement because it would not require real-time vessel position transmission. However, requiring ships to carry two sets of VMS equipment—one for enforcement and the other for science—would be problematic and expensive. We believe that NMFS science staff and OLE officials should explore the scientific application of current VMS technology, keeping in mind the unique requirements of enforcement as well as the needs and interests of science. We recommend that NMFS develop minimum standards that would satisfy both scientific and enforcement needs for future VMS applications (see page 16).

OLE should make optimum use of joint enforcement agreements with state marine enforcement agencies. Congress gave NMFS $15 million in fiscal year 2001 to fund state assistance with federal fisheries enforcement in the EEZ. Once the appropriation was approved, OLE had to quickly develop and implement a program to distribute funding to the states. OLE uses joint enforcement agreements (JEAs) to transfer funds to participating coastal states. Currently, OLE has JEAs with 20 of 23 coastal states and territories that expressed interest in the program.

According to OLE and some of the JEA partners we spoke with, the joint initiative with the states and territories can fill some of the gaps left by a shift in federal enforcement priorities. However, we found that the JEA program is weakened by (1) lack of guidance regarding federal fishery enforcement priorities, the process for determining funding levels, and the funding options available; and (2) OLE's inadequate verification and documentation of state-submitted performance information. OLE needs to prepare clear and specific guidance for the JEA program that sets forth program goals, priorities, and requirements; spending guidelines; agreement approval process for allocating funds; and federal and state roles and responsibilities. OLE also needs to verify state reported performance and expenditures and conduct on-site program reviews (see page 20).

Fishery enforcement would benefit from increased information sharing and cooperation within NMFS and among federal and state agencies. Information is the backbone of enforcement—paper-based and electronic data systems can be used to detect suspicious activities and track repeat offenders. In addition, sharing information across office and agency lines, leads to productive, cooperative enforcement efforts. Thus, to have maximum impact, information should be made available and shared among fishery

management and enforcement organizations, including the various components of NMFS and federal and state agencies.

Within the NMFS regions, we found that data collection activities related to managing fisheries stocks did not always take into consideration enforcement information needs. However, NMFS's Northeast region has recently undertaken an initiative that is addressing the data collection and dissemination needs of the various NMFS data users. The region is exploring methods for electronically collecting and integrating data on vessel permit applications, fisher logbook (i.e., catch) information, and dealer reports to determine which information other NMFS offices use and then develop a common collection format for sharing the data. We recommend that NMFS establish a working group or other mechanism to develop an integrated data collection system that would meet the research, fishery management, and enforcement needs of NMFS and the councils.

We also found problems with OLE's access to fishery observer data, an important source of potential violations. OLE agents who are collocated with observer staff in Alaska report closer working relationships with the observer staff, resulting in more observer-reported violations. NMFS should explore the possibility of collocating more agents with observer program staff whenever practical, and OLE should work with the program's officials to clearly articulate, in a policy statement or directive, what the observers' compliance role shall be and whether and how observer information will be shared. We also recommend that OLE officials address any concerns expressed by NMFS regional officials regarding the sharing of this data and develop guidelines for agents on its proper use. The OIG will also be looking at this issue further as part of its upcoming review of the Fishery Observer Program.

Finally, information from NMFS, Coast Guard, and state enforcement agencies, such as boarding data and prior fishery violations, is difficult to share across agency lines because of incompatible IT systems and because the Magnuson-Stevens Fishery Conservation and Management Act limits the circumstances under which most enforcement information may be shared with nonfederal agencies. While these barriers can be formidable, we believe NMFS and OLE should (1) work to improve access to law enforcement and other information that would help agencies target known violators and collaborate on cases, to the extent that it can, and (2) consider collocating OLE agents with their Coast Guard and state counterparts to facilitate better exchange of information and cooperative working relationships (see page 28).

On page 34, we offer recommendations to address our concerns.

In its March 31, 2003 response to our draft report, NOAA fully concurred with all eleven recommendations. NOAA also had a number of specific comments on several findings and recommendations in the report, including some suggestions for wording changes and points of clarification with respect to our interpretations and findings. We have made

changes to the final report in response to those comments on the draft report, wherever appropriate. A discussion of NOAA's response to each recommendation, including actions it intends to take and anticipated timeframes, follows each relevant section in the report.

INTRODUCTION

This report details our evaluation of the enforceability of fishery management plans developed by fishery management councils pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. We primarily focused on the various measures contained in the plans and the related enforcement actions taken by the National Marine Fisheries Service's Office for Law Enforcement (OLE). OLE is the office within the U.S. Department of Commerce's National Oceanic and Atmospheric Administration that is responsible for federal fisheries enforcement.

Program evaluations are special OIG reviews that provide agency managers with information about operational issues. A primary goal of these evaluations is to encourage effective and efficient operations, and thus eliminate waste in federal programs. By asking questions, identifying problems, and suggesting solutions, OIG hopes to help managers move quickly to address issues and deficiencies uncovered during the review. Program evaluations may also highlight effective operations, particularly if they are useful for agency managers or adaptable to programs elsewhere.

We conducted this review in accordance with the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency, and under authority of the Inspector General Act of 1978, as amended, and Department Organization Order 10-13, dated May 22, 1980, as amended. We performed our fieldwork from March 15, 2002, through September 27, 2002. During the review and at its conclusion, we discussed our findings with the Chief and Deputy Chief of the NMFS Office for Law Enforcement and the NOAA Assistant Administrator for Fisheries.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our program evaluation sought to (1) assess the methods used by the Office for Law Enforcement to enforce fishery management plans developed by the eight fishery management councils, as well as the enforceability of the measures contained in the plans, and (2) identify best fishery enforcement practices used in different parts of the United States and other countries.

We used the following methodology to perform our review:

- **E-mail surveys.** We sent an electronic survey to 130 OLE agents and officers asking a number of questions related to fisheries enforcement. (Sixty-eight percent responded.) We also e-mailed a survey to and received responses from the executive directors of the eight fishery management councils.
- **Interviews.** We spoke with the chief and deputy chief of OLE, as well as with other headquarters staff, all five OLE divisional heads (special agents in charge), a number of regional agents, the five NMFS regional administrators, representatives from NMFS science centers, NOAA General Counsel for Enforcement and Litigation, Commerce General Counsel for Administration, and other NOAA and departmental officials. We also spoke with officials from the U.S. Coast Guard (representing

headquarters, several Coast Guard districts, and Coast Guard regional fishery training centers), U.S. Fish and Wildlife Service, and state enforcement agencies.

- **Fishery management councils.** We attended four meetings of fishery management councils (two Mid-Atlantic, one Gulf, and one New England) and spoke with council staff, council members, industry, and environmental groups present at the meetings and in subsequent interviews. We corresponded or spoke with the executive directors for the remaining five councils.
- **Review of fishery documents and relevant federal guidance and legislation.** We examined 39 fishery management plans developed by the councils and 20 joint enforcement agreements between OLE and coastal states. We also reviewed sections of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable laws, proceedings from the 1993 *Organisation for Economic Co-operation and Development* workshop on enforcement measures, NMFS and U.S. Coast Guard documents, and studies and reports on the vessel monitoring system.

BACKGROUND

The Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) is responsible for managing, conserving, and rehabilitating marine resources within the United States. NOAA's National Marine Fisheries Service (NMFS) is charged with rebuilding and maintaining sustainable fisheries, promoting recovery of protected species, and protecting the health of coastal marine habitats.

NMFS's Office for Law Enforcement supports NMFS's goals and NOAA's mission by protecting, conserving, and managing fisheries in federal waters. OLE's federal jurisdiction extends up to 200 nautical miles from the U.S. coastline, in what is now known as the U.S. Exclusive Economic Zone (EEZ).

OLE and the U.S. Coast Guard share responsibility for enforcing the regulations put in place to protect and conserve marine resources in the EEZ. The Coast Guard primarily handles enforcement at sea. OLE focuses on shoreside enforcement, which includes dockside monitoring and investigative work. In addition, 20 of 23 marine enforcement agencies in coastal states and the U.S. territories of American Samoa and Guam receive federal funds from NMFS to help enforce federal fisheries regulations. The remaining 3 JEA partners have funding requests pending.

Fisheries Management

The Magnuson-Stevens Fishery Conservation and Management Act (originally passed in 1976) was designed to manage fishing efforts within the EEZ. The act instituted a regional management system to allocate harvesting rights to domestic fisheries by establishing fishery management councils (FMCs) in eight regions. These regional councils, along with NMFS, have responsibility for preparing fishery management plans that govern domestic fisheries in the EEZ. The Secretary of Commerce must approve each plan.

Table 1: Fishery Management Plan Summary

FMC	No. of FMC plans	No. of Regulations
New England	5[a]	46
Mid-Atlantic	6[b]	52
South Atlantic	5	59
Gulf	7[c]	68
Caribbean	4	36
Pacific	3	16
Western Pacific	4	39
North Pacific	5	23

Notes:
[a] One plan is jointly managed with the Mid-Atlantic FMC.
[b] One plan is jointly managed with the New England FMC.
[c] Two plans are jointly managed with the South Atlantic FMC.
Source: OIG analysis of fishery management plans

Council membership, as established by the act, consists of individuals knowledgeable in the conservation and management of fishery resources in the geographical area concerned (e.g., commercial and recreational fishers), the NMFS regional administrator, and state fisheries managers. Representatives from the U.S. Coast Guard, U.S. Fish and Wildlife Service, and U.S. Department of State (for international treaty expertise)

are nonvoting members of each council.

The fishery management plans set forth measures for meeting conservation or habitat protection goals. Table 1 shows the number of plans developed and managed by each council, and indicates the number of regulations (that is, management measures) that are promulgated to implement each plan. Many of these regulations have multiple restrictions, thus the number of actual regulatory requirements in effect is much higher than the table reflects. Measures might include prohibiting fishing in a particular area, limiting the amount of fish that can be caught on a fishing trip, or regulating the type of fishing gear that can be used. Although the process for developing the plans includes public comment, the ultimate responsibility for determining the conservation and management measures implemented in the EEZ rests on the voting council members and the Secretary of Commerce.

Federal Fisheries Enforcement

Once plans are developed and published, OLE and the U.S. Coast Guard must enforce the hundreds of resulting regulations over an estimated 3.4 million square miles of ocean and 13,879 miles[1] of coastline that support the nation's $24 billion fisheries industry. These agencies primarily use five methods of enforcement in a variety of combinations, depending on the fishery management measure involved:

- ***At-sea patrols***—enforcement officers board fishing vessels in the zone to monitor compliance with fishery management regulations.

- ***At-sea air patrols***—aircraft fly over large areas of ocean to observe and alert at-sea patrol ships of suspicious vessel activity.

- ***Dockside enforcement***—the off-loading of fishing vessel catch is monitored or compliance with gear restrictions is verified.

- ***Investigations***—any of a range of activities may be conducted, depending on the circumstance—from records' reviews (e.g., reviews of vessel catch reports) to undercover surveillance, often in combination with another enforcement method such as an at-sea boarding.

- ***Technology***—devices can be used to enhance enforcement efforts, such as vessel monitoring systems (VMS), which provide electronic data about a vessel's location via position and communication equipment placed on the ship.

Table 2 lists some of the more common fishery management measures implemented to rebuild stocks and protect marine mammals, and rates their enforceability via the five primary enforcement methods, as described by OLE and others involved in enforcement.

[1] The coastline figure includes both the 12,380 miles of coastline surrounding the 50 states and 1,499 miles attributed to the U.S. Virgin Islands, Puerto Rico, Northern Mariana Islands, Guam, and America Samoa.

Table 2: Enforceability of Selected Fishery Management Measures

	METHODS OF FISHERIES ENFORCEMENT				
KEY X Impossible or Impractical ○ Reasonable ★ Excellent **FISHERY MANAGEMENT MEASURES**	**At-sea vessel**	**At-sea air**	**Dockside**	**Complex investigations**	**VMS**
Closed Seasons-Specific times of the year during which fishing is prohibited.	★	○	○	○	○
Days-At-Sea-A specified number of days that a fishing vessel is absent from port to fish for, possess, or land regulated species.	X	X	○	★	★
Fully Closed Area-Areas of the sea where all vessels are prohibited.	★	★	X	X	★
Gear-Restricted Areas-Areas where the use and/or possession of specific fishing gear is prohibited.	○	○	X	X	X
Gear Regulations-Prohibitions or requirements related to gear. "Gear" includes the methods and tools to harvest the resource, vessels, horsepower, number of traps, and gear modifications used to protect certain marine species (e.g., turtle excluder devices).	★	X	○	○	X
Individual Fishing Quota-Allocation of a specified amount of particular fish species to an individual, vessel, or group of vessels.	X	X	★	○	X
Limiting Amount/Percent Bycatch Landed-Limits on the amount or percentage of nontargeted species allowed on board a fishing vessel.	X	X	○	X	X
Permits-Prohibits fishing for specific species unless authorized by the issuance and possession of a permit.	★	X	★	★	X
Prohibiting Bycatch Retention-Prohibits the retention of nontargeted species aboard fishing vessels.	○	X	★	○	X
Prohibited Species-Prohibits possession or retention of specific species.	○	X	★	○	X
Record Keeping & Reporting-Tracks fishing effort and catch as input to future management decisions (e.g., vessel logbooks).	○	X	○	★	X
Size Restrictions-Prohibits possession of fish below or above a specified size.	★	X	★	○	X
Bag/Possession Limits-Specifies amount of a particular species that may be landed per trip. Low volumes are generally measured by numbers of fish that can be easily counted on-board.	○	X	★	○	X
Trip Limits-Specifies amount of a particular species that may be landed per vessel per trip.	X	X	○	★	X
Vessel Monitoring System-Requires vessels to keep a positioning transmitter (transponder) on board.	★	X	○	★	★

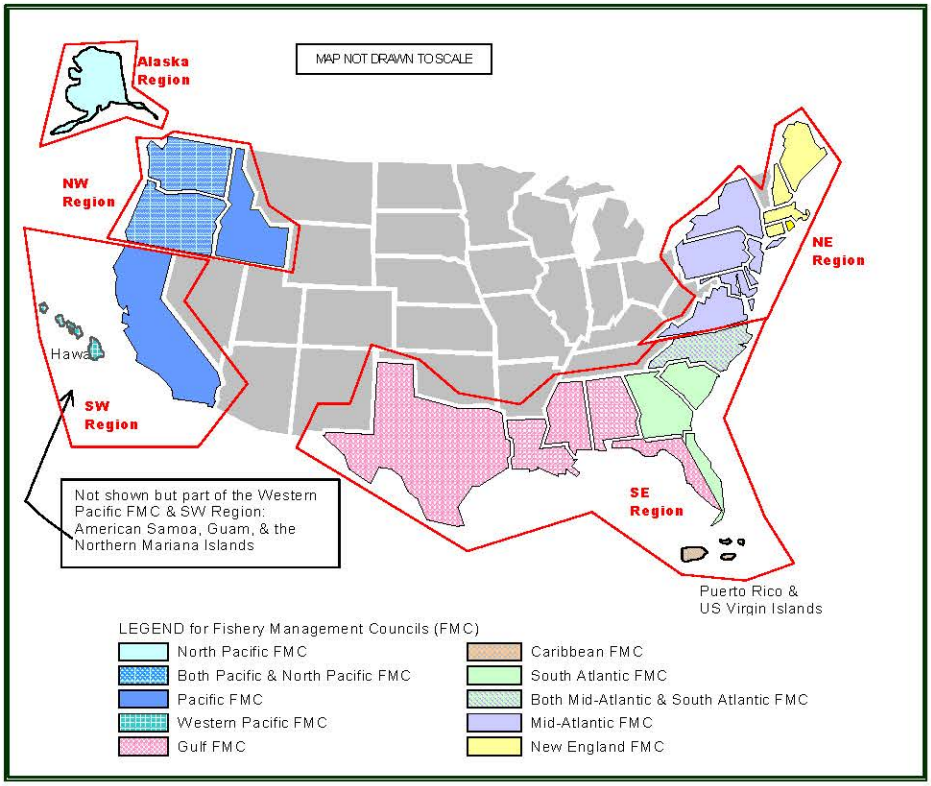
Source: OLE responses to OIG questionnaire, Coast Guard documentation, Atlantic States Marine Fisheries Commission documentation, and interviews.

OLE Structure

OLE is headquartered in Silver Spring, Maryland, and maintains 54 field offices throughout the United States. Five regional OLE divisions operate out of the five NMFS regional offices: (1) Northeast—Gloucester, MA; (2) Southeast—St. Petersburg, FL (3)

Northwest—Seattle, WA; (4) Southwest—Long Beach, CA; and (5) Alaska—Juneau, AK (figure 1).

Figure 1: Boundaries for NMFS Regions & Fishery Management Councils



Source: OIG
Note: The states of Washington, Oregon, and North Carolina are members of two councils.

OLE's staff of 200 includes 120 criminal investigators, 20 enforcement officers, and 60 technical and support personnel and program analysts. Special agents in charge (SACs) head each regional division and report directly to OLE headquarters, where the chief and deputy chief are supported by a staff of nine special agents, analysts, and support staff.

OLE Operations

OLE focuses on investigating civil and criminal violations of the 29 statutes that support NOAA's marine protection responsibilities. These include the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq.), the Endangered Species Act (16 U.S.C. §1531 et seq.), the Marine Mammal Protection Act (16 U.S.C. §1361 et seq.), the Lacey Act (16 U.S.C. §3371 et seq.), and the National Marine Sanctuaries Act (16 U.S.C. §1431 et seq.).

OLE uses technology to meet some of its compliance and enforcement goals—primarily satellite-based remote vessel monitoring systems. Fishing vessels with VMS carry onboard transmitter units that send signals to a satellite, which in turn logs and interprets

the time and position of the signal and relays the data to computers monitored by enforcement officials on shore.

OLE relies on the Coast Guard and state marine enforcement agencies to patrol the waters in the EEZ and inspect ships suspected of illegal activity. Regardless of the organization that conducts the at-sea boarding, OLE investigates the majority of federal fishery violation cases. It also conducts onshore and dockside inspections with assistance from the states under two types of agreements. The first deputizes coastal state and territorial enforcement officials to carry out federal fisheries enforcement in the EEZ, and thus expands the state enforcement agency's jurisdiction to federal waters. Although cooperative agreements between NMFS and many coastal states have been in existence for well over 10 years, they were not fully utilized because state agencies lacked the personnel and equipment to enforce beyond their own boundaries. This hurdle was overcome in 2001 when Congress appropriated $15 million to NMFS for a joint enforcement initiative between OLE and the states.

The second type of agreement—known as the joint enforcement agreement—was specifically developed to transfer the $15 million to coastal states and territories for the purpose of federal fisheries enforcement. Congress first initiated the program in 1999, providing $450,000 for the state of South Carolina. The success of the OLE-South Carolina partnership prompted Congress to fund joint enforcement initiatives with any U.S. coastal state and territory interested in participating. As of October 2002, 20 joint enforcement agreements have been approved.

Other activities. OLE's National Outreach Program uses the Community Oriented Policing & Problem Solving (COPPS) philosophy as the focal point for reaching target audiences. The outreach initiative, established in 1998, promotes voluntary compliance with fishery laws and regulations through public awareness and community interaction. For example, in California, OLE used COPPS to educate the public about regulations protecting the Hawaiian humpback whale. OLE gave presentations to schoolchildren, whale-watching tour operators, and others about appropriate whale-watching behavior, such as the minimum distance humans should be from the whales. As a result, there was a reduction in complaints about whale abuse from previous years that OLE attributes to its outreach efforts.

The agency also issues press releases on enforcement actions as part of its effort to educate the fishing community and other interested parties about fisheries laws and regulations. Such publicity has a deterrent effect. Initially we were concerned that the process for issuing press releases was extremely burdensome and lengthy, thus diminishing the timeliness and impact of enforcement events. However, since we started this review, OLE has made some improvements, and is now clearing time-sensitive press releases in 3 days (down from more than a week). We commend the actions taken so far to issue press releases in a more timely manner.

In its response to our draft report, NOAA indicated that Joint Enforcement Agreement funding was not available to tribes, as the OIG had indicated. The OIG had included the reference to tribes in its draft report based on the *Report on the Coastal and Ocean Activities Implementation Plan* that was provided to the House and Senate Appropriations Committees by the Department of Commerce Assistant Secretary for Administration and Chief Financial Officer on July 9, 2001.

Upon further review, it appears that initially the Department and OLE believed that tribes were eligible for funding. However, under the Magnuson-Stevens Fishery Conservation and Management Act and other authorities cited in the joint enforcement agreement that distributes the funds, this is not the case. The Magnuson Act defines the term "State" as each of the "several States, the District of Columbia, the Commonwealth of Puerto, American Samoa, the Virgin Islands, Guam, and any other Commonwealth territory, or possession of the United States." Tribes are not included in this definition. We also reviewed the language in the appropriations bill and found that tribes were not specified for cooperative enforcement funding.

FINDINGS AND CONCLUSIONS

I. Fishery Management Measures Need to be More Understandable and Enforceable

Fishery management plans are the blueprints for marine protection and conservation activities. They contain measures that define regulatory actions designed to help conserve and rebuild a species' stock. According to the Coast Guard, next to the science behind a measure, enforceability is the single most critical factor in its success.

The process for developing plans is complicated and results in large numbers of regulations. The Magnuson-Stevens Act sets 10 national standards[2] for fishery management plans, but many of the standards compete with each other. For example, the councils and NMFS are charged with preventing overfishing (usually accomplished by limiting some type of fishing activity) while minimizing the economic impacts of fishing restrictions on fishing communities. In trying to meet national standards and regional fishery priorities, the councils and NMFS appear to often lose sight of whether and how a measure can be implemented and enforced. This results in complex plans with numerous regulatory exemptions, which are often confusing to fishers and difficult for the Coast Guard and OLE to enforce.

The OLE personnel and Coast Guard officers we spoke with all commented on the difficulties of understanding and enforcing complex regulations that frequently undergo revisions. Consider, for example, the 2003 pacific coast groundfish regulations: these are summarized in three tables, each of which pertains to a specific gear type. Together, the tables list in excess of 90 trip limitations and gear requirements for more than 20 groundfish species. Table 3: Sample of Pacific Groundfish shows five lines of the 55-line table containing requirements for just one type of gear—limited entry trawl gear—for three pacific groundfish species (dover sole, thornyhead, sablefish) in a fishery located south of the 40° 10' north latitude (N. lat.) to the U.S.-Mexico border. The table contains only 11 percent of the requirements for fishing with a limited entry trawl gear permit.

[2] 16 U.S.C. §1851 states that conservation and management measures should (in many cases, where practicable) prevent overfishing while achieving optimum yield; be based on the best scientific information available; manage individual stocks as units throughout their range; manage interrelated stocks as units; not discriminate between residents of different states; allocate privileges fairly and equitably; promote efficiency; allow for variations among and contingencies in fisheries, fishery resources, and catches; minimize costs and avoid unnecessary duplication; sustain fishing community participation and minimize adverse economic impacts; minimize bycatch and bycatch mortality; and promote safety of human life at sea.

Table 3: Sample of Pacific Groundfish Regulations for Limited Entry Trawl Gear

Species/ Groups	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
DTS* complex –South [3/ 4/]						
Sablefish	6,000 lb/2 months		7,000 lb/2 months			6,000 lb/ 2 months
Longspine thornyhead	8,000 lb/ 2 months	9,000 lb/2 months				7,000 lb/ 2 months
Shortspine thornyhead	2,300 lb/ 2 months	2,400 lb/2 months				2,200 lb/ 2 months
Dover sole	26,000 lb/2 months		25,000 lb/2 months			26,000 lb/ 2 months

[3/] Fishery is restricted to inside of 100 fm using small footrope trawls, except for July-August when the fishery is restricted to inside of 75 fm using small footrope trawls; or outside of a management line specified at 250 fm north of Point Reyes (38° N. lat.) except the line will be modified to incorporate some petrale sole fishing grounds during January-February and November-December

[4/] Fishery is restricted to outside of 150 fm or inside 20 fm (in federal waters) with the following exceptions: (1) north of Point Conception (34° 27' N. lat.) to Cape Mendocino: small footrope trawls are allowed inside 50 fm during January-February and inside 60 fm during March-December; (2) south of Point Conception (34° 27' N. lat.): small footrope trawls are allowed inside 100 fm along the mainland coast (not including the Cowcod Conservation areas) year round; (3) north of Point Reyes (38° N. lat.): the deeper water fishery is restricted to outside of 250 fm (see footnote 3).

fm= fathom

*DTS=dover sole, thornyhead, sablefish.

Source: Pacific council website (http://www.pcouncil.org/groundfish/gfcurr/2003/table3.pdf)

This example is not unique. In the Gulf of Mexico, fishers for sharks and some 50 other species must know—for each species—the size limit, trip limit, fishing season, permit requirements, closed areas, and gear prohibitions and requirements.

Regulations that are difficult to understand or have multiple exemptions are harder to comply with and enforce. The Coast Guard, the New England Council's Law Enforcement Committee, and the Atlantic States Marine Fisheries Commission have all independently prepared documents showing how compliance and enforceability directly correlate with the number and complexity of exemptions: the higher the number and the greater the complexity, the lower the ability to enforce and, presumably, the lower the measure's success. Responses to our questionnaire to the OLE agents and officers also confirmed this.

For example, a closed season, which limits fishing during specific times of the year, is a clearly understandable and useful prohibition when there are no exemptions that allow fishing on certain days or in certain areas. Without such exemptions (1) at-sea boarding can be used to detect and stop violations as they occur; (2) dockside enforcement can detect a violation during off-loading; (3) at-sea air surveillance can detect vessels fishing in an area where the species occurs and coordinate a boarding or dockside check; (4) complex investigations can target suspect vessels by analyzing seafood dealer and vessel records, and where feasible, check for sales of the species at auctions or fish

markets (or check their records for sales of the species); and (5) VMS can monitor when vessels are leaving the port. When exemptions exist, only at-sea enforcement vessels and air patrols can adequately document the exact time and location of fishing, and thus determine whether a violation occurred. While councils typically include exemptions to ameliorate the adverse economic impact of regulations on fishing communities, these concessions often undermine a plan's ability to attain its overall conservation and management goals.

There is no overall guidance to the councils to assist them with formulating enforceable fishery management measures. NMFS needs to take a leadership role to ensure that the councils (1) consider the enforceability of different measures and (2) when weighing multiple options, let a measure's clarity and enforceability in a specific fishery be a factor for its selection.

The fishery management councils, NMFS, and OLE should work closely to develop measures that are both clear and enforceable. For example, a number of actions can be taken to simplify and aid enforcement of most management measures, such as the following:

- Closed areas are most effective if they are off limits to all vessels, have a clearly defined shape with straight lines, and specify exact latitude and longitude. The area should also be large enough to make patrolling feasible. In addition, if vessels are allowed to transit through the closed area, they should be required to stow fishing gear and transit through the area in designated lanes. Designated lanes allow for better remote monitoring and enable air and sea patrols to target their resources on those vessels deviating from the transit lanes.

- Gear restricted areas and gear regulations are more enforceable when the "possession" of gear is restricted. Restricting the "use" of gear (i.e., fishers are allowed to carry the gear on board but not use it) limits the method of enforcement to at-sea boardings when the gear is deployed and hauled on-board. This is impractical for both the fisher, who should not be expected to stop fishing, and the at-sea patrol, which should not have to wait until the fisher is ready to haul the gear on-board.

- Prohibited species regulations are most effective if there are no exemptions as to how or where fish are taken.

(See appendix A for additional actions that can strengthen enforcement of fishery management measures.)

RECOMMENDATION. NMFS should prepare guidance that will help the councils formulate more enforceable measures

NOAA concurred with the recommendation. In its response, NOAA reported that the NMFS Office of Law Enforcement has, in the past, drafted and disseminated such guidance to some of the fishery management councils. However, NMFS has agreed that it will now prepare enforcement guidance for each council. These documents will be tailored for the fisheries in each region and will be produced with input from its enforcement partners and other stakeholders. NMFS anticipates completing distribution of the enforcement guidelines to the councils by December 1, 2003.

II. The Council Planning Process Would Benefit From Greater Fishery Enforcement Expertise

OLE should seek greater involvement in council activities so as to be proactive in educating fishery management councils about the enforceability of measures they are considering. As the only federal organization dedicated full-time to salt-water fisheries enforcement, OLE has substantial fisheries enforcement expertise. Currently, most special agents in charge, or their designees, attend council meetings and are members of council subcommittees or advisory bodies that consider enforcement issues. However, the role and influence of the committees and panels vary: some do not meet regularly, and some do not give proper focus to enforcement issues or do not provide input early enough in the planning process to have an impact on council decision making.

Law enforcement committees/advisory panels

All fishery management councils have either a committee or an advisory panel on law enforcement, or both, whose purpose is to communicate enforcement issues and concerns to the full council. Committee members are usually council members. Panels typically draw their membership from state and federal marine enforcement experts, but may include council members and other federal enforcement specialists, such as representatives from the U.S. Department of Interior Fish and Wildlife Service or NOAA's Office of General Counsel. Representatives from OLE and the Coast Guard usually sit on either the law enforcement committees or advisory panels. The type and level of activity of these committees and panels vary.

- The **New England** council has a law enforcement committee that has not met in more than a year but has in the past prepared and distributed enforcement guidance to council members.

- The **Mid-Atlantic** council has an active law enforcement committee whose primary activities appear to be general enforcement education and award presentations to the Coast Guard for its enforcement efforts.

- The **Gulf of Mexico** council has a law enforcement committee and an advisory panel. The committee focuses on general enforcement policies, while the panel evaluates specific provisions of draft amendments and other aspects of enforcement.

- The **Caribbean** council has a law enforcement committee that reviews, monitors, and makes recommendations on proposed measures and regulations.

- The **South Atlantic** council has a law enforcement committee and a law enforcement advisory panel, although the division of responsibilities between the two is unclear: both provide advice and guidance on proposed fishery management provisions.

- The **Western Pacific** council has two standing committees, one on enforcement and the other on closed-area vessel monitoring.

- The **Pacific** council has an advisory panel consisting of enforcement specialists who meet prior to council meetings.

- The **Northern Pacific** council has an enforcement committee that is activated "as-needed."

These committees and panels provide a formal mechanism for OLE to voice enforcement concerns to the councils. However, these bodies are not always effectively raising enforcement problems or identifying ways to make regulations more enforceable. NMFS should take steps to strengthen the influence of the committees and panels and expand their role, wherever possible, to ensure that enforcement is adequately considered during the fishery management planning process. In addition, OLE agents should seek ways to expand their involvement in the committees and to sharpen their focus on enforcement issues.

Our review identified a number of noteworthy practices that some law enforcement groups use to promote adequate attention to enforcement issues among council members. NMFS should consider promoting the use of these practices by all eight councils and law enforcement committees/panels.

Regularly scheduled advisory panel meetings. While all councils have a law enforcement committee or panel, we found that some do not meet regularly, and in at least one case, has not met in three years. The advisory panels for the Pacific, Western Pacific, and Gulf of Mexico councils meet regularly for the purpose of informing their councils about plan-related enforcement issues. The Pacific and Western Pacific panels hold their meetings prior to or the evening of council meetings, ensuring that members will be present and available. The Gulf panel holds semiannual meetings that are announced in the federal register.

Multiagency involvement. The Gulf panel draws its membership from a broad base—law enforcement officers from the Gulf states, as well as representatives from OLE, the Coast Guard, the U.S. Fish and Wildlife Service, and NOAA's Office of General Counsel. The General Counsel's involvement brings a unique perspective to enforcement issues that council members might not normally consider.

Voting chair. A voting council member (i.e., not OLE or the Coast Guard) chairs the New England council's law enforcement committee to ensure that committee views are adequately voiced at council meetings. An OLE representative is vice chair, thereby bringing federal enforcement expertise and continuity to committee and council deliberations. As mentioned earlier, the Coast Guard is an official though nonvoting member of all eight councils, thereby lending its expertise in both fisheries enforcement and vessel safety. However, the Coast Guard has numerous missions, including search and rescue, boat safety, drug interdiction, and alien migrant interdiction, all of which may supersede fisheries enforcement as a regional priority or on a daily basis. Moreover,

Coast Guard officers rotate assignments every 2 years, and therefore may not consistently have the expertise, at least initially, to adequately represent enforcement concerns.

Charter. Only the Pacific advisory panel has a well-documented charter explaining its objectives, membership, election, attendance, and reporting procedures. The charter clarifies the purpose, roles, and responsibilities of the group and defines how it will function.

Designated time on council meeting agenda. The Pacific panel has a standing time slot on the full council's meeting agendas to allow for discussion of enforcement concerns.

Precepts document. The New England law enforcement committee issued guidance to council members for preparing enforceable fishery management plans. The precepts and subsequent addendum contained advice similar to that found in this report—keep regulations simple and avoid exemptions.

OLE participation early in the planning process. The New England council informed us that it will soon assign OLE agents and Coast Guard officers to monitor the committees responsible for developing the initial management measure options. Many decisions impacting enforcement are deliberated early in the fishery management planning process. Involving enforcement experts early will facilitate consideration of a potential measure's enforceability during the council deliberation process and increase the likelihood that the council's plan will reflect these considerations.

RECOMMENDATION. To strengthen the role of the law enforcement committees and advisory panels, (1) NMFS should develop and implement guidance that helps ensure that these bodies have clearly defined roles, meet regularly, and give proper focus to enforcement issues, and (2) OLE should seek greater involvement on the committees and adequately represent enforcement matters at council meetings.

NOAA concurred with the recommendation and, through the Regional Administrators and the OLE Special Agents in Charge, will communicate the need to strengthen law enforcement committees and panels to the councils. Since the councils, their chairs, and the council executive directors are key to the implementation of this recommendation, NOAA predicts that it will take time to thoroughly address the recommendation. It anticipates that the recommended actions will be completed by April 15, 2004.

III. NMFS Should Work With the Councils to Make Greater Use of Vessel Monitoring Systems to Monitor Closed Areas

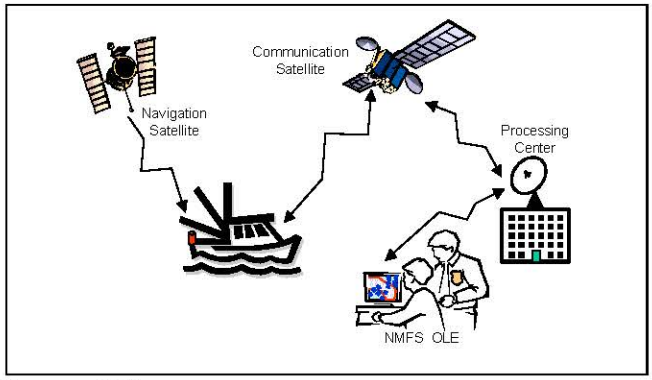
OLE and the Coast Guard are responsible for monitoring closed ("marine protected") areas in the EEZ, most of which have gear or fishing restrictions to protect habitats, species, and fishery stocks, and/or promote species recovery. Closing areas to certain activities or equipment has proven to be a successful strategy for rebuilding stocks, and its use will likely increase. In the past, the best methods for monitoring closed areas have been at-sea vessel and air patrols. However, these patrols are expensive and limited in that at-sea air patrols only assist by directing Coast Guard cutters to potential illegal activity and at-sea patrols are not around-the-clock and may only cover a small portion of a closed area. Dockside monitoring is unreliable for determining catch locations for three reasons: (1) it depends on fishers' self-reporting—yet those who knowingly fish in an illegal area are unlikely to acknowledge it, (2) it is time consuming—overseeing a vessel unload its catch takes several hours, and (3) it is limited—an enforcement officer can only monitor one vessel at a time.

A vessel monitoring system or similar technology can enhance enforcement of a closed area regulation by enabling NMFS to monitor the location of multiple vessels inside the area 100 percent of the time.

VMS operations

Ships equipped with VMS have electronic devices onboard that receive positioning data from a navigation satellite and transmit the data to a communications satellite, which in turn relays the information to a land-based station. The land station then transmits the data to OLE. Some systems support two-way communications between the vessel and OLE or other outside entities (see figure 2). In these instances, the VMS equipment is linked to a personal computer that receives navigational information and transmits it to OLE via a secure two-way communications hookup. OLE is able to electronically notify the vessel if it is in or approaching a closed area. The two-way communications system has won over many fishers who were initially opposed to VMS because it also allows contact with corporate offices and home-based computer systems.

Figure 2: Vessel Monitoring System



Source: OIG

VMS technology was piloted in Hawaii in June 1994, prompted by a requirement in the Western Pacific council's fishery management plan that all pelagic longline ships carry and use such systems as a condition of obtaining a permit to operate from Hawaii ports. Because Hawaii's VMS application was a pilot, NMFS has paid all equipment, installation, repairs, and data communication costs since the program's inception, while the vessels have covered the cost of any non-VMS communications.

The number of VMS programs has since grown, and the councils and OLE have proposed instituting still more programs (see table 4).[3]

Table 4: Vessel Monitoring System Programs (Current and Proposed* as of October 2002)

Fishery Management Plan/Species	Estim-ated No. of Vessels	Equipment Costs paid by:	Commun-ication Costs paid by:	OLE Division	Fishery Management Councils
Atlantic sea scallop	284	Vessel	Vessel	Northeast	New England
Atlantic herring	26	Vessel	Vessel	Northeast	New England
Northeast groundfish	42	Vessel	Vessel	Northeast	New England
Atlantic highly migratory species	300	Vessel	Vessel	Southeast	N/A
South Atlantic rock shrimp*	400	Vessel	Vessel	Southeast	South Atlantic
Reef fish*	165	Vessel up to $1,200	Vessel	Southeast	Gulf
Pelagic fisheries of the Western Pacific	125	NMFS	NMFS	Southwest	Western Pacific
Lobster	15	NMFS	NMFS	Southwest	Southwest
Krill	1	Vessel	Vessel	Southwest	N/A
Limited-entry groundfish*	500	Vessel	Vessel	Southwest/ Northwest	Pacific
Alaskan groundfish	500	Vessel w/rebate	Vessel	Alaska	North Pacific
Mackerel	8	Vessel	Vessel	Alaska	North Pacific

Source: NMFS Office for Law Enforcement, fishery management plans, U.S. Coast Guard.

Each council, with the NMFS region and OLE, is responsible for defining VMS standards for specific VMS applications. As a consequence, time is spent defining the protocol, equipment and costs for every VMS program. Although OLE has a national

[3]Monitoring systems are initially proposed during fishery management plan deliberations. Implementation depends on plan approval; thus many plans may be in the "proposal" phase for several months.

VMS team, it can go only so far to promote the use and consistent application of VMS. Thus, more leadership from NMFS is needed to ensure lessons are learned and best practices are shared across the NMFS regions.

In most cases, vessels pay the bulk of VMS costs, which can be substantial: the price of equipment ranges from $2,500 to $6,000; installation costs $750; and annual maintenance and communications expenses are approximately $1,750. The high cost of VMS—coupled with the industry's general aversion to such government intrusion—has generated some continuing resistance to using the technology. Exacerbating fisher reluctance is the inequitable distribution of VMS costs. Fishers are well aware that NMFS shares costs in some areas and pays them entirely in others. In Alaska, for example, fishers can obtain a $2,000 cash rebate for equipment costs, while the VMS proposal pending in the Southeast calls for the government to pay costs over $1,200. In New England, fishers pay for equipment, installation, and communications.

OLE's costs to support VMS go up as the system's use expands to additional fisheries or as a fishing fleet expands. For a single fishery, OLE's up-front system costs are approximately $40,000, and annual maintenance costs are about $11,000. As vessels are added to a system, OLE incurs additional costs and must then increase funding to cover equipment and staff expenses. OLE estimates that one VMS technician is needed for every 300 vessels equipped with the system, and one enforcement agent is needed for every 750 vessels. However, dollar for dollar, VMS is more cost-effective than traditional methods of surveillance—the system can monitor fleet activities 24 hours a day, 7 days a week at a fraction of the cost of Coast Guard at-sea air and vessel patrols. Thus, while a VMS program creates new costs and increases OLE's workload, it enables more effective use of other federal assets.

RECOMMENDATION. NMFS should develop a strategy for implementing VMS across the regions.

In response to the draft report, NOAA stated that progress has already been made with this recommendation—both the equipment infrastructure and personnel support are in place. As a next step, NMFS anticipates reviewing all of the fishery management plans to determine where VMS could best support fishery compliance efforts and then passing that information on to the councils and key stakeholders. An April 15, 2004 deadline has been set to accomplish these tasks.

Scientific use of VMS information

As VMS use has spread, scientists have realized the research value of tracking aggregate fishing activity, and at least one council (the Gulf council) has considered using a monitoring system to facilitate scientific inquiry. Monitoring for scientific purposes would likely be less expensive than monitoring for enforcement because scientists would probably not need the real-time positioning information that OLE requires. However, requiring ships to carry two sets of VMS equipment—one for enforcement and the other

for science—makes little sense, and neither the fisher nor NMFS should be expected to bear the additional costs.

RECOMMENDATION. NMFS should develop minimum scientific and enforcement standards to be used for NMFS vessel monitoring applications.

While NOAA agreed with the recommendation, it expressed concerns about scientific data collection needs potentially superseding VMS enforcement functions. NOAA stated that VMS is an important *enforcement* tool and that, where appropriate, scientific applications should be included in future VMS applications. This also assumes that scientific applications will consider existing or future enforcement applications of VMS. The OIG concern is that scientific vessel tracking applications will be considered and applied outside of the existing VMS infrastructure.

Since OLE is a relatively small enforcement office exists within a large, scientific organization, it is important that NOAA ensure that VMS enforcement requirements are not diminished. However, the data needs for protecting and managing the resources cannot be ignored. NOAA and NMFS must find a way to balance the needs of the agency to protect and manage resources while ensuring compliance with regulations that are designed to achieve the same management goals. Such cooperative efforts should also be geared to ensure that the efforts of both government and industry are not duplicative. NOAA's anticipated completion data for development of the VMS standards is October 31, 2004.

IV. OLE Should Make Optimum Use of Joint Enforcement Agreements with State Marine Enforcement Agencies

Federal funding for state enforcement of federal fishery laws is extended under joint enforcement agreements (JEA). Funding was first used for this purpose in fiscal year 1999 when Congress provided NMFS with $450,000 to support South Carolina's participation in the federal enforcement effort. Congress provided another $500,000 for that state in FY 2000; and in FY 2001, it gave NMFS $15 million to provide funding to all coastal states and territories interested in assisting with federal fisheries enforcement.[4]

NOAA and OLE were under considerable time constraints to initiate and develop a joint enforcement program and to quickly allocate funds to the states. Fiscal year 2001 appropriations, signed December 21, 2000, included the $15 million congressionally initiated funding for the cooperative enforcement program, leaving OLE with no lead-time prior to the program's inception. Thus, several problems we found with the program in the following section are attributable to the rapid pace in which the program, to OLE's credit, was implemented.

As of September 2002, 20 of 23 coastal states and the territories of Guam and American Samoa had entered into JEAs with NMFS. All of the agreements provide funding for dockside monitoring and at-sea patrols, and about one-third also include air patrols. Seventeen provide funding for enforcement equipment and vessels, and 19 fund increased outreach and education activities for recreational and commercial fishing communities, schools, and the general public. The agreements also provide funds for clerical and investigative support staff and for hiring new state marine enforcement officers.

OLE and its coastal partners prepare and sign JEAs annually. Although funds allocated under the annual agreement can be distributed and used over multiple years, most states receive and spend the money in the specific year the JEA covers. (Appendix B lists participating states, enforcement priorities, and funding details for the JEAs in place in FY 2001.[5])

Both OLE and the states believe JEAs can potentially fill some of the gaps left by shifting federal enforcement priorities. We agree. For instance, in areas where Coast Guard patrols have been reduced to allow for increased homeland security activities, coastal entities participating in JEAs picked up some of the slack. Also, as OLE has decreased dockside enforcement in favor of expanded investigative activities into seafood processing and other large-scale operations, the agency has used JEAs to help maintain a dockside presence. Along the coast from Maine to Virginia alone, OLE and the states have agreed in the JEAs to add some 19,000 surveillance hours—the equivalent of about

[4] NMFS has the authority to enter into such agreements under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1861(a)), Endangered Species Act (16 U.S.C. § 1540(e)(1)), National Marine Sanctuaries Act (16 U.S.C. § 1437(h)), Atlantic Coastal Fisheries Cooperative Management Act (16 U.S.C. § 5106(h)), Northern Pacific Halibut Act (16 U.S.C. § 7731(a)), and the Lacey Act (16 U.S.C. § 3375(a)).

[5] Since many agreements were signed late in fiscal year 2001, data was not available for fiscal year 2002 funds at the time this report was written.

seven additional full-time agents—to OLE's dockside monitoring time. This collaboration also provides OLE agents and officers with valuable intelligence, and may deter potential violations. One agent noted that he believes fishers are more apt to voluntarily comply with federal regulations when they know that state enforcement agencies are monitoring for federal violations.

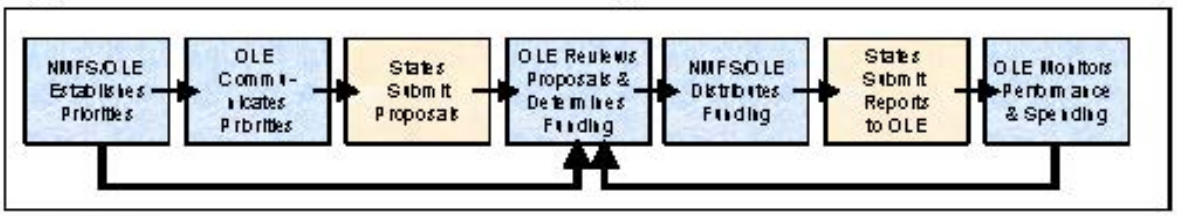
As important as joint agreements are to OLE's enforcement strategy, the JEA program is weakened by administrative and operational deficiencies that prevent states from exercising their full enforcement potential and NMFS from realizing the optimum benefits of these partnerships. Specifically, (1) the program has no clear guidance on enforcement priorities, the process for determining funding levels, or the options for disbursement; and (2) OLE verifies little of the information provided by states. OLE needs to prepare clear and specific guidance for the JEA program that sets forth program goals, priorities, and requirements; spending guidelines; agreement approval and evaluation criteria; and federal and state agency roles and responsibilities. OLE also needs to increase its verification of state-level reporting and conduct site visits to evaluate program activities.

A. NMFS/OLE needs to develop priorities and funding guidance for the JEA program

Congress's decision to provide funding for federal enforcement to all coastal states in FY 2001 jumpstarted the JEA program with little time to develop a structure or formal guidance. The only written information the states received was a sample agreement and operating plan. To develop proposals for the 1-year funding cycle that has since occurred, some states worked with the OLE special agent in charge, while others worked directly with OLE headquarters to determine the contents of the agreement, such as activities and capital purchases. Once the agreements were signed, funds were transferred—approximately $12 million to 20 JEA partners over a 14-month period (from June 2001 until August 2002).

To ensure that federal funds provided under these agreements are used properly and to best result, OLE should provide structure to the JEA program by implementing a clear, multistep process for negotiating, approving, and monitoring JEAs. Figure 3, loosely based on the methods used for awarding grants and contracts, highlights elements of such a process.

Figure 3: Recommended Elements of a Strong JEA Process



Source: OIG

Setting/communicating priorities

OLE enforcement priorities and needs differ from one division to the next, and thus the focus and goals of joint agreements differ as well in response to regional fishery priorities and conditions. For example, the fishing industry in the Northeast consists primarily of small, commercial vessels; the Southeast consists of small scale commercial and recreational fishers who, because of the mild weather, can fish throughout the year; both the Northwest and Southwest divisions are concerned with salmon recovery in addition to other fisheries; and in Alaska, large commercial fishing trawlers are an industry staple that can shape enforcement strategies. Regional enforcement needs are further shaped by such considerations as the presence of marine sanctuaries or individual fishing quotas, and by Coast Guard priorities for a particular area (for example, drug interdiction versus fisheries enforcement). Establishing regional priorities for federal fisheries enforcement is the first step in a successful JEA process.

OLE division heads are directed to meet quarterly with the NMFS regional administrator and NOAA General Counsel to discuss federal fisheries enforcement issues. However, such cooperative efforts appear to work better in some regions than in others. We heard from some OLE agents and officers and state enforcement officials that OLE did not adequately or systematically communicate NMFS goals and priorities to the states. As a result, some proposals for JEA funding may have reflected a state's choice of activities, rather than federal concerns. OLE special agents in charge sometimes attempt to convey federal priorities to the states they work with, but there is no concerted, coordinated effort involving the NMFS's regional administrator and NOAA's regional General Counsel for Enforcement and Litigation, both of whom are particularly familiar with the regulations and regional fishery management and enforcement problems, to establish and communicate regional JEA priorities. In addition, representatives from the U.S. Coast Guard and several state enforcement officials said that, at least initially, the Coast Guard did not have any involvement with the agreements, even though the level and type of activities that states conduct could impact where and how the Coast Guard allocates its resources.

Establishing federal fishery priorities continues to allow JEA partners the flexibility to assess and determine its resource needs. For example, if monitoring a marine sanctuary is identified as a top concern in a particular OLE division, the JEA partner—in preparing its request—would determine whether it needs additional staff or equipment to provide adequate oversight. Similarly, if state vessels or dockside patrols are needed to help monitor compliance with fishery management plan regulations, then those priorities should be addressed in JEA funding proposals.

Allocating funds

There is no transparent, documented process for allocating JEA funds to the states. Given regional differences and the ever-changing nature of fishery management requirements, funds should be directed where they are needed most. Current variations in state funding levels have little rational basis and underscore the importance of having a

clear and well-documented decision-making process for funds distribution. In the absence of such a process, state agencies may expect allocations to remain constant from year to year, even though federal enforcement needs in the area may change or a state's prior-year performance may have been inadequate.

OLE allocated funds in FY 2001 case by case—as agreements were signed—but has little documentation or explanation to show how it determined funding levels. Determining funding levels and signing agreements on a case by case basis may promote funding inequities: OLE may make conservative funding decisions initially to ensure it does not run out of funds, or larger awards at first, and smaller ones as funding dwindled. Either way, states that submit proposals early or late in the process may be short-changed.

OLE informed us that in the future, it will review all proposals concurrently and make funding decisions after comparing the needs and requirements of each state—an approach we endorse.

Funding guidance

The JEA is a unique funding instrument and is not subject to the regulations that govern traditional financial assistance awards (grants and cooperative agreements). Our discussions with state enforcement officials revealed uncertainty about NMFS procedures regarding JEA funding disbursement and allowable uses of funds. For example, some state officials told us that they did not know that they could spread their JEA allocations over several years—an important planning and budgeting feature, given the uncertainty of OLE funding for successive agreements—and so did not hire staff that they might have otherwise. By choosing multiyear disbursements, state agencies that need to hire staff can do so with the assurance that money to cover the added positions will be available over the course of the elected disbursement period.

However, other than the initial letter informing the state marine enforcement director about the program, the only other information provided to the state funding recipients was an agreement template with sample operations and cost estimates. Although the initial letter stated that funding could be disbursed over a 3-year period, two of the nine JEA state officials we spoke with were not aware that multiyear disbursements were an option and thus did not hire additional enforcement officers for fear that JEA funds would not be available in subsequent years.

RECOMMENDATION. Issue clear and specific guidance for the Joint Enforcement Agreement program that

(1) establishes and communicates federal fisheries enforcement priorities to the states;
(2) outlines a formal, documented approval process for allocating funds; and
(3) explains JEA funding options and uses as well as other essential program information and requirements that the recipients must meet.

Although NOAA concurred with the recommendation, it advised the OIG, in its response, that a letter was sent to the coastal state enforcement directors in February 2001 advising them of the potential to enter into a three-year agreement, that proposals must support the OLE mission, and that proposals covering high OLE priority areas would be prioritized for the receipt of funding. Specific OLE priorities were not included in the letter, although letter recipients were encouraged to contact the divisional special agent in charge to discuss the proposal. The final report reflects knowledge of the letter. However, based on the documentation we found and our discussions with OLE and state enforcement officials, we reaffirm our recommendation that additional JEA guidance and a more formal funding process are needed for this program. NMFS has agreed to follow through on its existing plans to improve the joint enforcement program guidance and anticipates that it will be in place prior to the beginning of the 2004 funding process.

Finally, the OIG recognizes that NOAA and OLE were under considerable time constraints to initiate and develop the joint enforcement program and to disburse funds to the states, thus the lack of program guidance and controls is an indication of time, not management, limitations.

B. JEA monitoring needs strengthening

OLE currently collects and reviews monthly, quarterly, and annual performance and financial information from the states. We found that the reporting requirements and OLE's review of state-submitted information appear adequate, but efforts to verify this information and evaluate program accomplishments need improvement.

Verification and monitoring by OLE divisions

OLE is responsible for ensuring that JEA funds are spent appropriately. The agreements require states to submit the following:

- *Monthly activity report*s summarizing vessel and dockside patrol hours and showing how funding is being used (e.g., the number of contacts made, citations issued, and law enforcement personnel and equipment used, defined by hours).
- *Quarterly reports* listing invoices and including copies of receipts for JEA-funded expenditures.
- *Annual report* summarizing the activities, hours, and costs incurred during the 12-month JEA period and comparing this information with the projected costs and objectives contained in the agreement.

Each month, an OLE official at headquarters reviews and updates a matrix that lists participating states and the number of hours spent per month on JEA activities (e.g., education and outreach, dockside, at-sea boardings), determines the total number of JEA hours and compares them with agreed-upon hours, and calculates the percent of hours

used versus the average monthly and daily hours needed to complete the agreement. The matrix also includes the total number of dockside contacts made, vessels boarded, and state and federal cases initiated. At the OLE division level, a staff member reviews the monthly reports for content, trends, and the state's adherence to its JEA commitments and operational plan. However, the divisions do not document their findings or share them with either headquarters or the states.

Quarterly invoice information is input into a separate matrix that lists the dollar value of direct purchases authorized in the JEA, the expenditures reported, and the percent of authorized procurement dollars spent. Annual report information is compared to OLE's monthly summaries, and discrepancies questioned.

While this analysis appears extensive, OLE does not have controls or a formal ongoing process for verifying the accuracy of information provided by the states. Many agents expressed concern about the potential for abuse. One agent's random check of a state's JEA boarding report confirmed that such abuse is in fact occurring: a vessel captain listed on the report informed the agent that he had not spoken to a state officer in months. It was later determined that the state officer falsely reported contact with a number of vessels.

GAO's *Standards for Internal Control in the Federal Government* discuss a number of internal control mechanisms that agencies should implement to assure program accountability for both financial transactions and program performance.[6] Ongoing monitoring is one type of internal control presented by GAO that would benefit the JEA program.

We believe that the OLE divisions are in the best position to verify state performance reports on an ongoing basis and thus strengthen the agency's ability to make sound funding decisions. In an ongoing monitoring program, special agents in charge would be responsible for periodically preparing and submitting a written report to headquarters on state performance. For example, such reports could include the results from a randomly selected sample of vessel captains that are asked to corroborate state reported activities and a review of invoices and subsequent on-site confirmation that JEA capital equipment and other purchases are accounted for, reasonable, and benefit the intent of the program. This written narrative could also include instances where states did not fully cooperate with OLE agents on enforcement initiatives and any other pertinent details.

In addition, when problems are detected, the special agent in charge or other designated agent should discuss them with state JEA officials, and OLE headquarters should incorporate these findings into the state's performance record for reference when annual funding determinations are made.

[6] U.S. General Accounting Office, *Standards for Internal Control in the Federal Government,* November 1999, GAO/AIMD-00-21.3.1.

RECOMMENDATION. NMFS should develop a process to verify state-reported activities and expenditures on an ongoing basis, and document its monitoring results for use in making annual funding decisions.

NOAA concurred with the recommendation and expects to be in full compliance by December 31, 2003. OLE is establishing a monitoring and control process that will include several audit and inspection functions. In addition, it has been working with its state partners on the reporting format and state use of a single standardized reporting software.

Periodic program reviews by headquarters

GAO's *Standards for Internal Control in the Federal Government* also discusses the importance of conducting separate program reviews. While the scope and frequency of the review generally depend on the risks associated with the program, such reviews are valuable for providing a long-term program assessment, and as a mechanism to validate and adjust ongoing monitoring efforts.

We believe periodic site visits to OLE divisions and JEA partners for the purpose of observing and evaluating program activities are another mechanism for ensuring proper use of federal funds. OLE management agrees that such on-site evaluation is needed to measure and verify internal program controls and program accomplishments, and the agency plans to implement this approach. Among other things, site visits should determine whether

- actual performance met planned or expected results;
- alternatives for carrying out the objectives of the agreement, that might yield desired results more effectively or at a lower cost, have been adequately considered;
- best practices across the JEA program partners exist and the extent they can be shared;
- laws and regulations applicable to the program have been complied with;
- management control systems for measuring, reporting, and monitoring a program's effectiveness are adequate; and
- performance measures of program effectiveness are valid and reliable.

In addition, other than the three states that requested funding be received over 3 years, OLE made lump-sum payments to the remaining 17 JEA partners once the agreements were approved. According to a NOAA grant official, full funding is normally provided at the start of a federally funded project or program only when such disbursement is specified in the appropriations language. However, since the transfer of funds to the states for joint enforcement efforts is authorized through the Magnuson-Stevens Fishery Conservation and Management Act and other legislation (see footnote 4), the agreement is not required to follow many of the financial and management controls that are in place

for funding traditional federal assistance programs (cooperative agreements and grants) and procurement contracts. While no wrong doing with the use of JEA funds under the up-front disbursement system came to our attention, we did not specifically review use of JEA funds. Thus, we believe that NMFS and OLE should monitor the states' use of lump sum funding to determine if there are any significant vulnerabilities that would demonstrate the need to put more funding controls, such as quarterly disbursement of funds, in place for JEAs.

RECOMMENDATION. NMFS should develop guidance for and conduct periodic, on-site program reviews to measure and verify internal program controls and program accomplishments. The evaluation findings should be shared with state JEA officials.

In its response to the draft report, NOAA concurred with the recommendation and will implement it in conjunction with establishing audit and inspection functions.

V. Fishery Enforcement Would Benefit From Increased Information Sharing and Cooperation Within NMFS and Among Federal and State agencies

Information is the backbone of enforcement—paper-based and electronic data systems can be used to detect suspicious activities and track repeat offenders. To have maximum impact, information should be made available and shared as much as possible among all parties who have a stake in fishery enforcement issues, including the various components of NMFS, federal and state agencies, and the public. We found that improvements were needed in data collection activities within NMFS and between NMFS, the Coast Guard, and state marine enforcement agencies.

A. NMFS science and enforcement data should be electronically collected, integrated, and shared across organizational lines

NMFS's science centers, fishery management councils, and OLE rely on fisheries data to carry out their respective missions. To help assess fishery stock, the centers collect data from fishers' vessel logbooks and from observers placed on board fishing vessels to gather information about catch, bycatch, discards, and marine mammal interactions. OLE agents use this data to help uncover evidence of illegal activities by fishers or the dealers to whom they sell their catch. We found that the agents do not have the capability to quickly access and analyze NMFS's fishery management data for suspected illegal activity for two reasons:

1. Methods for collecting and storing information make access difficult—data is either received by mail in hard copy and must be scanned into the database (which takes time), or is received electronically, but in a format that does not interface with OLE's computer systems.
2. Many NMFS observer program managers are resistant to sharing observer data with enforcement officials.

Improving regional data integration

The United Kingdom—though responsible for an EEZ much smaller than that of the U.S.—has a fisheries data-sharing system that allows multiple databases to interface and thus support enforcement efforts across agencies. Fishers in England and Wales are required to report their catch daily in a hardcopy logbook. Fisheries staff located at ports type the paper logbook information into a central database. Enforcement officers then access and verify the electronic logbook data by comparing it with surveillance information from Royal Navy sea and air patrols and with data from vessel monitoring systems. The fisheries database also interfaces with vessel and licensing databases, so that the officer checking the logged data can electronically verify the vessel's licensing privileges at the same time.

Unfortunately, neither NMFS nor OLE has a system for querying all relevant data records electronically. NMFS's data collection processes are inefficient and thus often hamper investigations. For example, fishers mail their logbook information to NMFS, where it is

first scanned and input into an electronic file. Seafood dealers submit their logbook information to NMFS either electronically or in hard copy. OLE then compares the catch reported in fisher logbooks against the purchase records in dealer reports—a manual process accomplished by viewing either paper copies or separate databases that cannot be compared electronically. According to one agent, NMFS data collection is incredibly antiquated: "There is no way to cross-check dealer information and vessel information other than manually."

OLE also uses VMS information to determine the accuracy of location reports in vessel logbooks, and permit information to confirm that vessels are fishing for what they are licensed to catch. We were told that although permit information is available electronically, some NMFS permit offices are behind in inputting data, so OLE agents must telephone the office for up-to-date licensing information.

Analyzing fisher data is very labor intensive, particularly when an investigation spans several years and includes different fisheries and hundreds of tons of product. Transcribing paper copies into electronic formats is error-prone; OLE officials estimate that 50 percent of transcribed paper logbooks have errors, compared with 2 percent of electronic logbooks. Even when information is available electronically, OLE cannot compare one database against others because the systems do not interface. Fisher and dealer logbook reports, VMS information, individual fishing quotas (IFQs), boarding reports, and violation information should all be collected and either stored regionally in a single database or in multiple systems that interface.

A recent initiative in the Northeast region suggests progress is being made. The region has established a working group—which includes OLE staff—to explore database integration. Specifically, the group is focusing on electronic permitting and dealer and fisher logbook reporting. Since OLE is considered a secondary user of fishery management information, the regions traditionally have not considered the enforcement value of the data, thus the inclusion of OLE in this project is promising. We commend the Northeast region for its action.

RECOMMENDATION. NMFS should establish a working group or other mechanism to develop an integrated data collection system that would meet the research, fishery management, and enforcement needs of OLE, NMFS regions, and the fishery management councils.

In its response to the draft report, NOAA stated that it concurred with the recommendation, with some reservations. It noted that the recommendation is of "monumental size and scope" and thus does not lend itself to easy or swift implementation. Given the compatibility and security issues associated with the many databases discussed in this section, NOAA believes that it is unlikely that the data functions can be totally integrated. However, NOAA agrees that they can probably be "linked and associated for some functions." NOAA's response also indicated that a

project, recently initiated by the Assistant Administrator for Fisheries, addresses a number of information technology solutions relative to fisheries information programs, including a number of the data and record systems referenced within this section, that will impact implementation. An April 15, 2005 completion data is expected.

Improving access to fishery observer data

Observer programs gather data from U.S. commercial fishing and processing vessels that operate in 20 fisheries in U.S. coastal waters, and use the information primarily for scientific purposes—managing fishery quotas and collecting data on bycatch and endangered and protected species interactions. Observer reports provide valuable details on this data as well as on gear usage and vessel location—all of which can help OLE identify violations. Observers do not actively enforce fishery regulations, but do record potential violations in their logbooks. According to NOAA officials, the Magnuson-Stevens Fishery Conservation and Management Act allows OLE full access to the data observers collect—a fact we found that some agents were unaware of. [7]

Several agents who were aware of their right to access observer data told us that one NMFS regional program manager denied them access to observers' trip logs and notes. NMFS headquarters officials stated that they have no policy prohibiting OLE access to observer data, and NMFS regional officials explained that the program manager who blocked the agents' access believed that data collected for research purposes should not be used to enforce fisheries regulations—a viewpoint reportedly shared by most observer program personnel, with the exception of those in Alaska. The reluctance to share this information with law enforcement is based on the belief that such collaboration would taint the program as a compliance effort rather than a scientific pursuit. In some countries, this dual role is the norm. Observers in Canada, for example, are responsible for law enforcement first and scientific data collection second. However, in the U.S., both fishers and scientists believe that giving observers an explicit enforcement role would influence fisher behavior (e.g., fishers might avoid their usual fishing grounds or change gear when an observer is on board in order to be in compliance) and thus bias the information collected.

OLE's Alaska division has developed a working relationship with the observer program that we believe is applicable to other areas. To foster cooperation, OLE assigned two agents to the observer program and collocated them in the observer program office. The agents train observers to detect fisheries violations and participate in their debriefings following a vessel fishing trip.

OLE officials report that this arrangement has built trust between the observers and OLE special agents. As one agent stated, "There is an incredibly important role for observers in the compliance arena and an even greater need for improving the working relationship between observer programs and enforcement nationwide. I view this area as one which needs a great deal of emphasis on a national level in the near future."

[7] Sections 402(b)(1)(A) and 311(b)(1)(A)(v).

The Alaska observer program reported more than 900 violations to OLE in the past 4 years. The overwhelming majority of these were resolved by giving the fisher a simple verbal warning or written reminder about applicable regulations. We believe such cooperation is essential to protecting marine resources by diminishing instances of illegal fishing behavior. NMFS should explore the practicality of replicating the Alaskan effort elsewhere.

NMFS should ensure that, in addition to meeting its scientific and fishery management data collection goals, it recognizes and supports the enforcement objectives of OLE, making sure the agency has full access to all pertinent fisheries information. It should be recognized that the OIG may be addressing this issue further as part of its upcoming review of the Fishery Observer Program.

RECOMMENDATIONS. NMFS should work with observer program officials to develop a policy statement or directive that specifies (a) the fisheries observers' role in monitoring and compliance (b) how observer information will be made available to OLE, and (c) appropriate use of observer data by OLE agents.

Where feasible, NMFS should collocate OLE staff with observer program staff to foster closer, more productive working relationships. (Also see other collocation recommendation on page 33.)

In response to the draft report, NOAA concurred with the need for a policy or guideline that details the fisheries observers' role in monitoring and compliance and reiterates its position that observer data is available for use by OLE. NOAA also discussed the longstanding national and international philosophies that often differ on shared enforcement and observer responsibilities versus separate responsibilities. OLE believes that the perceived conflict of interest between the two responsibilities can be resolved with improved observer training and better communication with the fishermen. NOAA anticipates an April 15, 2004, completion date.

NOAA also agreed that it would be beneficial to collocate OLE staff with observer program staff, where feasible, and that it would foster closer, more productive working relationships. OLE indicated that this is an on-going process.

B. Intergovernmental information sharing would benefit enforcement efforts

Most data on boardings, repeat violations, and other fisheries matters collected by NMFS, the Coast Guard, and state enforcement agencies is currently not shared across agency lines, largely because of incompatible information technology systems and statutory limitations. NMFS and the Coast Guard have initiated discussions regarding mutual access, but whether or when such access will occur is uncertain. In the meantime, OLE officials report that they are compiling JEA state information into a new database that will be accessible by all OLE divisions and possibly the Coast Guard.

Federal interagency information sharing

Section 402(b) of the Magnuson-Stevens Fishery Conservation and Management Act permits OLE to share information at the federal level. Both OLE and the Coast Guard are interested in sharing information but currently cannot because their systems do not interface. Thus, NMFS lacks full access to important Coast Guard data from sea and air patrols, and the Coast Guard lacks full access to NMFS information on violation histories.

The Coast Guard identified the need to share fisheries enforcement information with OLE and the states in its 1999 fisheries enforcement strategic plan, noting that these agencies should have access to its database. However, a Coast Guard official informed us that such access has yet to be extended because of "various technical issues due to the dissimilar nature and age of the systems/architecture."

Federal–state information sharing

Information sharing across state and federal agency lines is more problematic because the Magnuson Act limits the circumstances under which most enforcement information may be shared with nonfederal agencies. Specifically, information submitted to the Secretary by any person in compliance with the act may only be disclosed to state employees pursuant to a court order or an agreement. Thus, OLE could establish procedures for sharing enforcement information on a state-by-state basis in the JEA. However, because any such agreement must include provisions that prevent public disclosure of the identity or business of any person, state use of shared information can only be for *federal* law enforcement purposes. Consequently, NOAA has proposed a statutory amendment to the Magnuson Act that will allow states operating under a JEA to use shared data for state investigative and prosecutorial purposes.

OLE, the Coast Guard, and the states must make effective information sharing a priority, to ensure a coordinated enforcement effort that maximizes the use of enforcement resources and minimizes unnecessary intrusions on law-abiding fishers. For example, because boarding information is not shared, a state could potentially stop a vessel one day, and the Coast Guard stop it the next. At a minimum, NMFS' s Enforcement Management Information System (EMIS) database, which tracks vessels' violations history, and the Coast Guard's Marine Information for Safety and Law Enforcement (MISLE), which compiles boarding information, should either be mutually accessible or should interface with each other and with state systems, where appropriate and consistent with state and federal laws.

The practicality of collocating OLE agents and officers with their federal and state counterparts should also be explored.[8] We believe collocation promotes an

[8] According to the OLE agents who responded to our survey, eight OLE offices are collocated with the state enforcement offices in Alaska, American Samoa, Maryland, New Jersey (2 locations), New York, South Carolina, and Virginia. Three OLE offices are collocated with the U.S. Coast Guard.

understanding of the priorities, missions, and regulatory mandates of each agency involved in enforcement; facilitates data sharing; and fosters cooperative interagency working relationships.

RECOMMENDATIONS. NMFS should work with the Coast Guard and coastal state marine enforcement agencies to explore options for better sharing enforcement information among OLE, the Coast Guard, and JEA partners.

NMFS should collocate, where feasible, OLE agents with NMFS regional observer programs, Coast Guard, and JEA partners to foster closer, more productive working relationships.

In its response to the draft report, NOAA concurred with the recommendation and stated that the key steps are to identify the information that should be shared and the information that can already be shared in accordance with existing law and policy. The next steps will involve seeking changes that will open barriers to sharing that information, and overcoming technical and data base barriers. An April 15, 2004, completion date for implementation of this recommendation has been established.

NOAA concurs with the recommendation to collocate, where feasible and opportunities permit, with the U.S. Coast Guard and the JEA partners.

RECOMMENDATIONS

We recommend that the Assistant Administrator for Fisheries take the necessary actions to do the following:

1. Prepare guidance that will help the councils formulate more enforceable measures (see page 9).

2. To strengthen the role of the law enforcement committees and advisory panels, (a) develop and implement NMFS guidance that helps ensure that these bodies have clearly defined roles, meet regularly, and give proper focus to enforcement issues, and (b) seek greater OLE involvement on the committees and adequately represent enforcement matters at council meetings (see page 13).

3. Develop a strategy for implementing VMS across the regions (see page 16).

4. Develop minimum scientific and enforcement standards to be used for NMFS vessel monitoring applications (see page 16).

5. Issue clear and specific guidance for the Joint Enforcement Agreement Program (see page 20) that

   a. establishes and communicates federal fisheries enforcement priorities to the states (see page 22);
   b. outlines a formal, documented approval process for allocating funds (see page 22);
   c. explains JEA funding options and uses as well as other essential program information and requirements that the recipients must meet (see page 23).

6. Develop a process to verify state-reported activities and expenditures, and document its monitoring results for use in making annual funding decisions (see page 24).

7. Develop guidance for conducting periodic, on-site program reviews to measure and verify internal program controls and program accomplishments. The evaluation findings should be shared with state JEA officials (see page 26).

8. Establish a working group or other mechanism to develop an integrated fishery management data collection system that would meet the research, fishery management, and enforcement needs of the various NMFS components and the councils (see page 28).

9. NMFS should work with observer program officials to develop a policy statement or directive that specifies (a) the fisheries observers' role in monitoring and

compliance (b) how observer information will be made available to OLE, and (c) appropriate use of observer data by OLE agents (see page 30).

10. Work with the Coast Guard and coastal state marine enforcement agencies to explore options for better sharing enforcement information among OLE, the Coast Guard, and JEA partners (see page 31).

11. Collocate, where feasible, OLE agents with NMFS regional observer programs, the Coast Guard, and JEA partners to foster closer, more productive working relationships (see pages 30 and 31).

APPENDIXES

APPENDIX A

Fishery Management Measures: Practical Advice for Developing Enforceable Measures

Closed seasons, which limit fishing during specific times of the year, is a useful prohibition when there are no exemptions to allow fishing on certain days or in certain areas, and adjacent state waters are either closed or have been taken into account. If adjacent state waters remain open during a federal closed season, enforceability becomes harder because you cannot determine where the product was actually caught unless you are on the scene when it was caught.

Closed areas are most effective if they are closed to all vessels, are of sufficient size, constitute a clearly defined shape with straight lines, and employ exact latitude/longitude specifications. If vessels are allowed to transit through the closed area, they should be required to stow fishing gear and transit through the area in designated lanes. Designated lanes allow for better remote monitoring and enable air and sea patrols to target their resources on those vessels deviating from the transit lanes.

Days-at-Sea, a measure used only by the New England council, works best in conjunction with a vessel monitoring system that automatically tallies the number of days spent fishing.

Gear restricted areas and gear regulations should restrict "possession" of gear. Restricting the "use" of gear (i.e., fishers are allowed to carry the gear on board but not use it) limits the method of enforcement to at-sea boarding while the gear is deployed and may necessitate hauling gear on-board, impractical for both the fisher and the Coast Guard.

Individual Fishing Quotas (IFQs) work best if appropriate consideration has been given to how catch quota will be tallied. Heavy dock-side accounting for allowable catch is needed, which is not considered the role of enforcement by many (i.e., it may be more appropriate for the regional administrator to manage a program that would, for example, require all quota fishers to off-load and weigh catch at specific locations).

Prohibiting bycatch by limiting the amount or percent landed is extremely difficult to enforce at-sea because of the problems inherent in estimating an accurate percentage in multi-thousand or -ton load of fish. Dockside enforcement is possible because the product is weighed and compared on shore. Prohibiting retention is an easier measure to enforce both dockside and at-sea.

Permits are effective tools that are easy to monitor, as long as there are no exceptions allowing possession of certain species. In addition to vessel permits, permits for vessel

captains are useful to track captains who may continue to illegally fish, but on a different boat.

Prohibited species measures are most effective when they allow no exemptions as to how or where fish are taken.

Reporting and record keeping can be useful to compare information against each other for the purpose of identifying potential fraud. Requirements for timely data submission help detect possible unlawful activity.

Bag/possession limits and trip limits are time-consuming to enforce. Dock-side monitoring and investigative work are the only effective means for enforcing fish trip limits.

Size restrictions are easier to enforce when fish are required to remain intact (in other words, the fish may not be cleaned, filleted, or otherwise processed).

Vessel Monitoring Systems should have regulations that prohibit tampering/interfering with the operation of the system, transmit real-time data (so that violators can be apprehended at the time the violation is occurring), and have two-way communication capabilities to warn vessels that they are entering a closed area and need to turn around.

APPENDIX B

NOAA Joint Enforcement Agreements With States/Territories Fiscal Year 2001

Participating State/Territory and Priorities Listed in Agreement	NOAA Funding Amount ($000s)	Dockside patrols	At-sea patrols	Air patrols	Vessels /Equip-ment	Outreach/ Education
Alaska – King, tanner, and dungeness crab, groundfish, halibut individual fishing quota (IFQ), herring, lingcod, bottom fish, rock fish, salmon	$1,000	✔	✔	✔	✔	✔
Alabama – Red snapper, highly migratory species, turtle excluder devices, and bycatch reduction device	486	✔	✔		✔	✔
California – Groundfish, salmon, steelhead, Living Marine Resources	1,000	✔	✔	✔	✔	✔
Connecticut – Groundfish, multi-species, scallops, lobster, striped bass, highly migratory species, tuna	200	✔	✔	✔	✔	
Florida – Mackerel complex, snapper grouper-complex, and pelagic species, the Endangered Species Act, and turtle excluder devices	1,250	✔	✔		✔	✔
Georgia – Snapper, grouper, red drum, shrimp, golden crab, coral, pelagic species, turtle excluder devices and Gray's Reef National Marine Sanctuary	350	✔	✔	✔	✔	✔
Hawaii[9]	1,000					
Louisiana – Red snapper, highly migratory species, Lacey Act, charter & recreational off-loadings	2,000	✔	✔			✔
Massachusetts – Northeast multi-species, Atlantic sea scallop, squid, mackerel, butterfish black sea bass, bluefish, spiny dogfish	1,295	✔	✔			✔
Maryland – Scallops, monkfish, summer flounder, black sea bass, dogfish, striped bass, horseshoe crab, bluefish, tuna, billfish and shark	100	✔	✔		✔	✔
Maine – Atlantic tuna, mackerel, Atlantic coast red drum, Atlantic bluefish, Atlantic swordfish, Atlantic highly migratory species, squid	400	✔	✔	✔	✔	✔

[9] Agreement is still being negotiated with Hawaii.

Participating State/Territory and Priorities Listed in Agreement	NOAA Funding Amount ($000s)	Dockside patrols	At-sea patrols	Air patrols	Vessels /Equip-ment	Outreach/ Education
Mississippi – Reef fish complex, commercial shrimp, including turtle excluder devices and bycatch reduction devices and highly migratory species	416	✔	✔	✔	✔	✔
New Hampshire – American eel, American shad, alewives, bluefin tuna, bluefish, crabs, goosefish, groundfish	100	✔	✔			✔
New Jersey – Summer flounder, scallops, Northeast multi-species, bluefish, monkfish, dogfish, sea bass, lobster, scup, sharks, tuna	500	✔	✔		✔	✔
New York – Commercial harvesting of species subject to trip limits under Magnuson Act, and other Magnuson Act species landed in NY	400	✔	✔		✔	✔
Oregon – Groundfish fishery, commercial salmon, ESA patrols	100	✔	✔		✔	✔
Rhode Island – Northeast multispecies, Atlantic sea scallop, squid, mackerel, butterfish, black sea bass, bluefish, spiny dogfish	400	✔	✔		✔	✔
South Carolina – Mackerel complex, snapper-grouper complex, red drum, pelagic species, and turtle excluder devices	1,000	✔	✔		✔	✔
Texas – Reef fish, pelagic and migratory species	1,000	✔	✔	✔	✔	✔
Virginia – Scallop, striped bass, squid, summer flounder, black sea bass, dogfish, surf clam and ocean quahog	600	✔	✔	✔	✔	✔
Washington – Groundfish, IFQ, salmon, anadromous fish stocks	900	✔	✔		✔	✔
American Samoa[10]	150					
Guam[11]						
Total	**$14,647**					

Source: Fiscal Year 2001 Joint Enforcement Agreements

[10] Agreement is being reviewed by Commerce Office of General Counsel.
[11] Agreement to begin in FY 2002; no funding will be provided in FY 2001.

APPENDIX C

List of Acronyms

COPPS	Community Oriented Policing and Problem Solving
EEZ	Exclusive Economic Zone
EMIS	Enforcement Management Information System
FWS	U.S. Fish and Wildlife Service
GPRA	Government Performance and Results Act of 1993
JEA	Joint Enforcement Agreement
MISLE	Marine Information for Safety and Law Enforcement
NOAA	National Oceanographic and Atmospheric Administration
NMFS	National Marine Fisheries Service
OLE	Office for Law Enforcement
VMS	Vessel Monitoring System

APPENDIX D

NOAA Response to OIG Draft Report

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
CHIEF FINANCIAL OFFICER/CHIEF ADMINISTRATIVE OFFICER

MAR 31 2003

MEMORANDUM FOR: Jill Gross
Assistant Inspector General for Inspections
And Program Evaluations

FROM: Sonya G. Stewart

SUBJECT: Response to the Office of Inspector General (OIG) Draft Inspection Report: NMFS Should Take a Number of Actions to Strengthen Fisheries Enforcement
Report No. IPE-151154

The National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to respond to your draft inspection report. We fully concur with 11 of the recommendations and have provided an action plan for each.

Attachment

Printed on Recycled Paper

NOAA Comments on the Draft Inspection Report entitled "NMFS Should Take a Number of Actions to Strengthen Fisheries Enforcement" (IPE-15154/February 2003)

NOAA appreciates the opportunity to comment on the DOC Office of Inspector General (OIG) report, "NMFS Should Take a Number of Actions to Strengthen Fisheries Enforcement" (IPE-15154), and recommendations made there in. NOAA commends the OIG on this well written report.

SPECIFIC COMMENTS

On page i, in the first sentence of the second paragraph of the Executive Summary, NOAA suggests modifying the end of that sentence to read as follows ". . . in what is now known as the U.S. Exclusive Economic Zone (EZZ)." As currently written, the sentence might be interpreted to suggest that the Magnuson-Stevens Act created the EEZ. While the Magnuson-Stevens Act did establish a 200 mile fishery conservation zone in 1976, the EZZ was not created until 1983 by Presidential Proclamation #5030.

Relative to the section entitled "OLE Operations" (page 6 and continuing on to page 7, third paragraph), the report incorrectly states that Joint Enforcement Agreements (JEA) include "tribes". The legislation providing the $15 million in funding for cooperative enforcement designates the funding for "coastal states", which does not include the tribes. Though the OLE works with the tribes and sees the tribes as partners in fisheries enforcement, they are not eligible for this funding.

In section I, page 10, requiring fishing gear to be stowed when transiting through closed areas still requires at-sea or at-air enforcement strategies to confirm the gear is stowed. We suggest that specific transit lanes be delineated and that all transiting must occur within the transit lanes. This would provide us the opportunity to remotely monitor transiting and we will only need to direct sea or air assets when the vessel deviates from the transit lanes.

In section II, page 12, in the paragraph titled "Multiagency Involvement," NOAA suggests that the words "...general counsel's. . ." in the beginning of the last sentence be capitalized.

In section III, page 15, the table for Vessel Monitoring System Programs references "Limited Entry Groundfish" and shows it in the "Southwest Division". It should reflect that it is in the Northwest Enforcement Division as well. A change in the entry to "Southwest/Northwest" would accurately reflect the coverage. In fact, the groundfish fishery is a west coast matter and the VMS system covers vessels in both Divisions from California, Oregon and Washington and the VMS operations for ground fish are being run by the Northwest Division.

On page 16, the text says; "NMFS should develop minimum scientific and enforcement standards to be used for NMFS vessel monitoring applications." Our concern is by defining minimum

standards, enforcement needs may be diminished in order to accommodate scientific requirements. We suggest a recommendation that recognizes VMS as an important enforcement tool (this is what it was designed for) that could be utilized to support scientific research. NMFS should consider, and include where appropriate, scientific capabilities in the future expansion of the VMS program. Notwithstanding this statement, the VMS program can not be altered in support of scientific applications at the cost of enforcement capabilities. In other words, we simply are concerned that the standards should not be restricted to "minimum" standards.

In section IV, page 17, the report details a number of observations relative to the Joint Enforcement Agreements and the Cooperative Enforcement program with the states. The program is in the developmental stages even though it is funded and operational. Therefore, it is open to a number of program improvements. At the outset of the OIG review, the OLE pointed out to the OIG that the program was in its initial year of funding and operations and was initiated with no lead time prior to program inception. There are a number of improvements and measures that have yet to be developed. Section A. on page 18 eludes to this fact, however, I recommend and respectfully request that this point be made more definitively at the outset of section IV. This would assist the reader in their review of the report with the respect to and in perspective of its overall context. Without the benefit of this perspective the reader may be left with a critical impression of the program and its responsible development. Many persons familiar with the program, and its progress under the circumstances, are complimentary of the progress made and management of the program thus far. Though we understand and concur with the recommendations, we believe that the program has been developed and managed to date in a more responsible and thorough manner than may be taken from the report as it now stands.

In section IV, page 18, in the first paragraph, first sentence, the report states that "administrative and operation deficiencies . . . prevent the states from exercising their full enforcement potential" under the JEA program. While NOAA does not disagree with this statement, it feels that another important impediment to realizing the full potential of the JEA program was omitted. That is the statutory barrier that precludes the sharing of data, with states, that will be publicly disclosed. As all enforcement actions that are prosecuted lead to public disclosure, the sharing of data collected under the Magnuson-Stevens Act with the states for enforcement purposes is currently prohibited by statute. NOAA has proposed a statutory amendment, that has been cleared by DOC, that would allow states that participate in the JEA program access to and the ability to publicly disclose data collected under the Magnuson-Stevens Act for enforcement purposes. NOAA suggests that the OIG include among the two listed "deficiencies," the statutory barrier as well. This can be accomplished by modifying the above-referenced sentence to read as follows: " . . .the JEA program is weakened by statutory barriers, and administrative and operational deficiencies . . ."

In section IV, page 18, in the sub-heading titled " Setting/communicating priorities," NOAA does not agree with the characterization of the Southeast region as being ". . . dominated by recreational fishers . . ." The Southeast region has a large number of vessels participating in many different commercial fisheries managed by NOAA. To state that enforcement priorities for the

region are dominated by recreational fishers is simply not accurate. NOAA suggests the following language to more accurately reflect the state of the fisheries in the Southeast region: ". . . the Southeast consists of small scale commercial and recreational fishers who, because of the mild weather can fish throughout the year; . . ."

In section IV, page 19, in the first sentence of the second paragraph, NOAA suggests that the words ". . . general counsel . . ." be capitalized. Also, in the fourth sentence, NOAA suggests that the words ". . . general counsel . . . enforcement . . . litigation . . ." be capitalized.

In section IV, page 19, in the second paragraph, the report makes two statements that do not accurately reflect the status of party involvement in establishing fishery enforcement priorities. In the first sentence, the report states that only "some" OLE division heads meet with the NMFS Regional Administrator (RA) and NOAA General Counsel (GC) at least once a year to develop enforcement priorities. In fact, every OLE division head is directed to meet with the RA and GC on a quarterly basis to discuss regional enforcement priorities. NOAA suggests correcting the first sentence of this paragraph to accurately reflect the number of regional enforcement priority meetings. In the last sentence, the report states that the Coast Guard is not "informed of (or involved in establishing) federal fishery enforcement priorities for the regions. . ." This statement is not completely accurate. In all regions, NOAA makes efforts to communicate fishery enforcement priorities to the appropriate Coast Guard District as soon as they are identified, and in the Northeast and Southeast regions the appropriate Coast Guard Districts are invited to participate in the quarterly enforcement priority meeting with OLE, GC, and the RA. NOAA recognizes that there are always opportunities for improved communication, however, as written, the last sentence of this paragraph implies a larger problem than actually exists.

In section IV A, pages 19 and 20, under " Allocating Funds" and "Funding guidance" the report indicates "little documentation or explanation to show how it determined funding levels".... and "However, OLE provided no instruction to state funding recipients about this option or other aspects of the JEA program funds".... Apparently, some misinformation or misunderstanding has occurred with regard to these points and in fact every state was advised of the potential to enter into a 3 year agreement. The states were informed both verbally and in writing that funding distribution would be based on federal fisheries priorities. A letter that went out to every state on February 16, 2001, that specifically addressed all three of these areas (copy attached). The Division Special Agents in Charge were specifically charged with developing agreements that met our priorities and which complimented the state mission wherever possible. A review of the targets of the JEA agreements in each Division (as shown in the table in the Draft on pages 33 and 34) reflect the fisheries enforcement priorities of the states, the NOAA Fisheries Regional Administrators, and Enforcement. In some cases the SAC even sent out lists of federal fisheries priorities to the states. Though the criteria for the allocation of the funding were not numerically weighted or somehow specifically valued qualifiers, the federal enforcement priorities, viability of the proposals, and credibility of the potential for ongoing operations were all considered in the process.

Section IV, page 23, of the report addresses "lump sum payments" and concludes that "OLE should monitor the states' use of lump sum funding to determine if there are significant vulnerabilities..." We concur with this concern in that such payments may provide for less opportunity for controls in the event of any abuse of the intended and agreed upon expenditure and operations. One primary reason for the use of this distribution approach is that the funding is going exclusively to another governmental entity, a state, and not to a quasi governmental or non governmental agency. There is a presumption that state legislative controls and monetary obligations for the management of such funds are structured and managed within a system that is unlikely to result in abusive or inappropriate use of the funding. Also, some state budgetary processes have a requirement that new budget initiatives be fully funded, particularly where it relates to hiring. Further reason for this approach is to provide for the funding of significant purchases, such as the purchase of vessels, aircraft, multiple numbers of vehicles, or similar large capital purchases. Notwithstanding these comments, the OLE recognizes the need to be diligent in monitoring and inspecting the use and expenditure of such funds. We anticipate that the states will have the intent and desire to be ongoing participants in this program and any abuse or misuse of such funding will undoubtedly be met with an invocation of state and federal reviews of the action and with either reduced allocations in future requests and even the potential to be excluded from future participation.

In section V, page 25, in the last sentence of the second paragraph, the report states that OLE can compare NMFS data with OLE violation-tracking data to determine whether a vessel is a repeat offender. This statement is not accurate. OLE's EMIS system is the only system used to track and determine whether vessels and/or individuals are repeat offenders of U.S. fisheries laws. In fact, it would not be possible to make such a determination by comparing any NMFS data to an OLE system. NOAA suggest deleting the reference regarding comparison of NMFS data in this sentence.

In section V, page 25, third paragraph - last line: We are concerned over the report language of how one might collect and store enforcement information. The draft report language states that "all be collected and either stored regionally in a single database or in multiple systems that interface." We have evaluated a number of storage solutions including those recommended. Some have been negated due to the evidentiary challenges that could be raised as a result thereof. We would request your modification of the language to only recommend interface capability.

In section V, page 27, in the first paragraph, the report recommends that NMFS work with the observer program to develop a policy guidelines or directive which specifies ". . . (b) whether and how observer information should be made available to OLE; and (c) appropriate use of observer data by OLE agents." This recommendation implies that the issue of "whether" observer data should be made available to OLE is discretionary. The Magnuson-Stevens Act clearly provides that observer data collected by NOAA is available for access and use by OLE for monitoring/law enforcement purposes. NOAA does, however, agree that a policy statement or directive reiterating this long-standing practice would be useful for the fisheries management and enforcement personnel of NMFS. NOAA suggests rewording this recommendation as follows:

"NMFS should develop a policy statement or directive that details the fisheries observers' role in monitoring and compliance, and reiterates that observer data is available for use by OLE. Where feasible, NMFS should collocate OLE staff with observer program staff to foster closer, more productive working relationships." If adopted, the suggested language should be changed in this response on page 9, in the paragraph titled Recommendation 9.

In section V, page 27, in the paragraph subtitled "Federal-state information sharing," the report discusses the statutory barrier to sharing certain data with the states. Recognizing the statutory limitation, NOAA's Magnuson-Stevens Act reauthorization proposal includes eliminating the statutory barriers that currently bar use and disclosure of Magnuson-Stevens Act data to states for state use. No agreement can remove this restriction. This limitation prevents the states from investigating and prosecuting cases based on information collected under the Magnuson-Stevens Act. Currently, the states can have access to Magnuson-Stevens Act data if they are operating as federally deputized personnel, and use of that data is for federal investigative and prosecutorial purposes. NOAA suggests modifying this paragraph to reflect that a federally deputized state officer can currently access Magnuson-Stevens Act data as long as the data is only used for federal investigative and prosecutorial purposes. It should also be noted in your final report, that NOAA has proposed a statutory amendment which would allow states operating under a JEA to use Magnuson-Stevens Act data for state investigative and prosecutorial purposes.

On page 28, in the first paragraph - last sentence: The language in the report suggests that "At a minimum ... EMIS ....MISLE... should either be mutually accessible or should interface with each other and with state systems for the benefit of law enforcement agencies at all levels." Although we do not disagree with the recommendation, or the underlying intent of the language, there are a number of legal (state and federal) prohibitions which need to be explored and resolved prior to this occurring. Additionally, there will be instances where a portion of the information should not be accessible. A modification of this sentence to acknowledge "where appropriate" and "after meeting all legal requirements at both the state and federal level" would be sufficient to meet our concerns.

On page 31, under Appendix A, in the paragraph titled "Closed seasons," NOAA suggests the following additional language be added to the end of the sentence: ", and adjacent state waters are either closed or have been taken into account. If adjacent state waters remain open during a federal closed season, enforceability becomes harder because you can not determine where the product was actually caught unless you are on scene when it was caught.

On page 31, under Appendix A, in the paragraph titled "Closed areas," NOAA suggests inserting "are of a sufficient size," between ". . .closed to all vessels," and "constitute a clearly defined shape . . ." in the first sentence. The smaller the closed area, the harder it becomes to enforce. As such, this should also be a consideration.

On page 31, under Appendix A, in the paragraph titled "Prohibiting bycatch," the report states that using percentages of allowable catch to determine the allowable bycatch is hard to enforce.

This is a bit over simplified. In fact, bycatch as a percentage of allowable catch is very easy to enforce using dockside enforcement because the product is weighed and compared. NOAA acknowledges that problems exist if you try to make such a determination at-sea based on volume to weight estimates. NOAA suggests that this statement be qualified based on the enforcement platform – e.g. at-sea vs. dockside.

On page 32, under Appendix A, in the paragraph titled "Bag/possession limits and trip limits," NOAA suggests deleting the words " . . .for large volumes of fish." This qualification is not necessary. All trip/bag limit regulations are time consuming to enforce, regardless of the volume of fish.

On page 32, under Appendix A, in the paragraph titled "Vessel Monitoring Systems," NOAA suggests that the language stating that VMS should "be tamper proof" be changed to "have regulations that prohibit tampering/interfering with the operation of the system, . . ." Making a computer-based system that relies on satellite transmissions "tamper proof" is not a possibility.

NOAA Response to OIG Recommendations

The OIG states, "We recommend that the Assistant Administrator for Fisheries take the necessary actions to do the following:

Recommendation 1: Prepare guidance that will help the councils formulate more enforceable measures.

NOAA Response:
We concur. The NOAA Office for Law Enforcement has drafted and disseminated several such documents to some of the councils. The United States Coast Guard has incorporated them into guidance and utilized them to make presentations on the topic as well. We will produce and distribute such documents to each council and will tailor the guidance as appropriate to the fisheries of the specific region.

Target Date for Completion:
This endeavor will involve a collective and cooperative effort with participation from each OLE Division. It will also require input by our enforcement partners and other stake holders. We anticipate that this task will be completed by December 1, 2003.

Recommendation 2: To strengthen the role of the law enforcement committees and advisory panels, (a) develop and implement NMFS guidance that helps ensure that these bodies have clearly defined roles, meet regularly, and give proper focus to enforcement issues, and (b) seek greater OLE involvement on the committees and adequately represent enforcement matters at the council meetings.

NOAA Response:
We concur. Some of the eight fisheries councils already have such measures in place. We will assure that each Regional Administrator and each OLE Special Agent in Charge communicates this need to the councils to assure that the recommendation is adopted by the councils. The Councils, their Chairs and their Executive Directors are key to this process and will therefore need to concur and participate as requested for this recommendation to be viable.

Target Date for Completion:
Given the need for Council adoption, changes, and appointments, this endeavor could take in excess of one year to resolve. We anticipate that this will be complete as of April 15, 2004.

Recommendation 3: Develop a strategy for implementing VMS across the regions.

NOAA Response:
To some degree this strategy is in place and progressing. The equipment infrastructure and personnel support for this measure is already in place. The next level of this initiative will be to complete a review of all of the Fisheries Management Plans to determine which fisheries compliance efforts would be best supported through the use of VMS. Recommendations will then need to be passed on from Fisheries to the Councils.

Target Date for Completion:
This initiative will also involve the participation of the councils as well as some of our enforcement partners and stake holders. We anticipate that this initiative may also require at least a year to resolve. We anticipate that this initiative will be complete by April 15, 2004.

Recommendation 4: Develop minimum scientific and enforcement standards to be used for NMFS vessel monitoring applications.

NOAA Response:
We concur. VMS has been and is primarily in place as an enforcement tool. Use of VMS for the collection of scientific data as a collateral function is a responsible and practical goal. Both functions are fisheries management responsibilities and it "makes sense" to assure that redundant expenses are not incurred in our efforts to manage the fisheries. It also is important for us to use every reasonable available tool at our disposal to improve the extent and credibility of the scientific data with which we make our decisions. We must, however, not supersede the enforcement function of VMS by imposing technical or operational parameters that diminish the primary function.

Target Date for Completion:
This task involves numerous persons who should participate including fishermen, scientists, managers, council members, and enforcement entities. We anticipate that it will take at least 18

months to do an adequate job in meeting this recommendation. Anticipated completion date is October 31, 2004.

Recommendation 5: Issue clear and specific guidance for the Joint Enforcement Agreement Program that

a. establishes and communicates federal fisheries enforcement priorities to the states;

b. outlines a formal, documented approval process for allocating funds;

c. explains JEA funding options and uses as well as other essential program information and requirements that the recipients must meet.

NOAA Response:
We concur. This recommendation confirms existing plans by the Office for Law Enforcement to improve and expand upon existing guidance on this program.

Target Date for Completion:
It will be helpful to have this guidance in place prior to beginning the process for the distribution of 2004 funding. We anticipate that we can and will comply with this recommendation by September 30, 2003.

Recommendation 6: Develop a process to verify state-reported activities and expenditures, and document its monitoring results for use in making annual funding decisions.

NOAA Response:
We concur. This process will involve the establishment of several audit and inspections functions in addition to resolving basic reporting formats. The OLE currently has been able to engage many of the states in the use of a single standardized reporting software. This system provides uniform, clear and comprehensive data on the activities of the states pursuant to the Joint Enforcement Agreements. This will facilitate a much more functional and viable basis from which we will conduct activity and expenditure reviews.

Target Date for Completion:
We have been working and negotiating with our state partners relative to such reporting. We also anticipate staffing one to two positions to fulfill this function. Compliance with this recommendation will be completed by December 31, 2003.

Recommendation 7: Develop guidance for conducting periodic, on-site program reviews to measure and verify internal program controls and program accomplishments. The evaluation findings should be shared with state JEA officials.

NOAA Response:

We concur. This task will be done in coordination with those of Recommendation 6.

Target Date for Completion:
The implementation of this function should be complete and operational by December 31, 2003.

Recommendation 8: Establish a working group or other mechanism to develop an integrated fishery management data collection system that would meet the research, fishery management, and enforcement needs of the various NMFS components and the councils.

NOAA Response:
We concur, however, with reservations. This recommendation is of monumental size and scope. There are other compatibility and security issues associated with many of the data bases referenced in this recommendation. It is unlikely that these data functions can be totally integrated, they probably can be linked and associated for some functions. Dr. William T. Hogarth, Assistant Administrator for Fisheries, initiated a project earlier this year that is intended to address a number of information technology solutions relative to fisheries information programs that include a significant number of the information or record systems referenced within this recommendation.

Target Date for Completion:
We suggest a completion date of two years, at April 15, 2005.

Recommendation 9: Develop policy guidelines and a directive that specify the fisheries observers' role in monitoring and compliance, whether and how observer information should be made available to OLE, and the appropriate use of observer data by OLE agents.

Where feasible, NMFS should collocate OLE staff with observer program staff to foster closer, more productive working relationships.

NOAA Response:
We concur with the need for a policy or guideline that details the fisheries observers' role in monitoring and compliance, and reiterates that observer data is available for use by OLE. There are longstanding philosophies relative to this concept. We have found that the same logic or philosophy exists on this subject both nationally and internationally. There is a wide spread, and in many cases, deep seated belief that the roles of observers should not be "mixed" between science and enforcement. The foundation for this belief is that the collection of scientific information will be tainted and even interfered with if the fishermen and vessel operators believe that the observers are there for enforcement purposes, or even that their data will be used for enforcement purposes. We do, however, believe that with proper observer training and communication with fishermen, this perceived conflict of interest can be resolved.

The recommendation of co-location of OLE and observer staff to foster a closer working

relationship, is functional and operational in a number of areas. NOAA agrees that strengthing these relationships where they currently exist, and encouraging them where they do not currently exist would be beneficial.

Target Date for Completion:
Because of the history and reluctance in using observer data in enforcement, and the necessity of legal input the creation of the recommended policy will require considerable development and implementation time. We anticipate a completion date of April 15, 2004.

Where feasible, the collocation of OLE and observer personnel will continue, and further collocations will be encouraged.

Recommendation 10: Work with the Coast Guard and coastal state marine enforcement agencies to explore options for better sharing enforcement information among OLE, the Coast Guard, and JEA partners.

NMFS should collocate, where feasible, OLE agents with NMFS regional observer programs, Coast Guard, and JEA partners to foster closer, more productive working relationships.

NOAA Response:
We concur. The key steps in this endeavor will be to identify the information that should be shared and the information that can already be shared by law and policy. The next steps will involve resolving changes that will open barriers to sharing that information. There will also be the practical matter of technical exchanges and data base management.

NOAA agrees that the co-location of OLE, observer personnel, Coast Guard and JEA partners to foster a closer working relationship would be beneficial, and should be encouraged where feasible.

Target Date for Completion:
This initiative involves numerous entities, a number of laws and numerous policies and practices. It will take a considerable period of time to work through the various levels involved, identify viable targets, prioritize them and then effect changes. We anticipate a completion date of April 15, 2004.

Where feasible, the collocation of OLE, observer personnel, Coast Guard and JEA partners will be encouraged.

Recommendation 11: Collocate, where feasible, OLE agents with NMFS regional observer programs, the Coast Guard, and JEA partners to foster closer, more productive working relationships.

NOAA Response:
We concur. We do not view this recommendation as an aggressive and strongly proactive

approach. It makes sense to co-locate personnel where possible and appropriate. However, there are many other factors that influence the location of offices. This recommendation will have to be addressed on the basis of "as opportunities permit".

Target Date for Completion:
The primary action item to achieve compliance with this recommendation will be to take a look at and develop a list of those existing offices and positions that currently comply with or conform to this recommendation. We will then need review those positions and offices that may be appropriate to co-locate as recommended, then to seek opportunities to make such assignments. We anticipate completing these steps by December 31, 2003.

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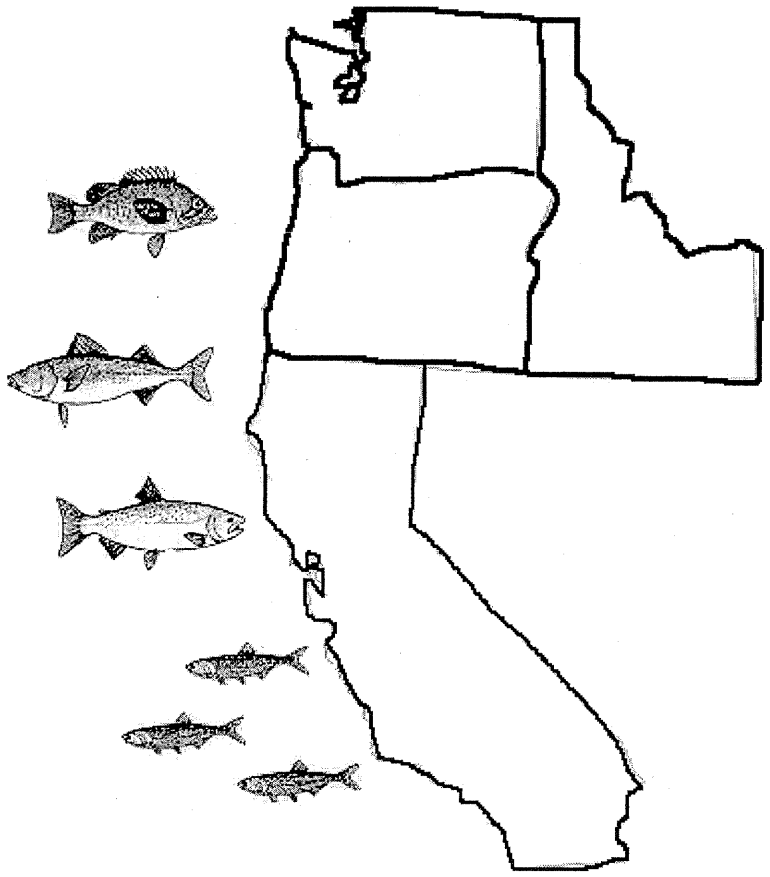

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UPDATE ON COMMUNICATION ENHANCEMENT EFFORTS

Situation: At the April 2003 meeting, Ms. Flaxen Conway, an Oregon Sea Grant extension agent, presented the findings of a study on communication in fisheries management to the Council. In response, the Council directed a small group of Council and National Marine Fisheries Service staff, in cooperation with Oregon Sea Grant staff, to develop a communications plan. The attached document represents an update on activities to date, presents draft terms of reference for the communications group, and provides some additional background on communications challenges and efforts. The communications group is expected to meet during the summer and present a draft communications plan in the fall of 2003.

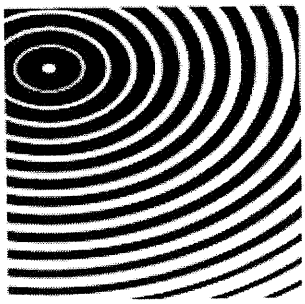
Council Action:

1. Information only.

Reference Materials:

1. "Investing in Trust: Update on the Council Communication Enhancement Process" (Attached).

PFMC
06/04/03



Investing in Trust: Update on The Council Communication Enhancement Process

Introduction

This "communication packet" follows up on the presentation on communications given by Flaxen Conway at the April 2003 Council meeting, at which the Council directed a small group of agency staff to develop a communication plan. This represents the first step in that process.

The packet includes two parts. First, it explains current problems in communication between fisheries management and constituent groups. Second, it describes the terms of reference under which a process for enhancing communication will take place. The goal of this effort is to create an action plan and strategy to create "best practices" for communication in fisheries management.

This effort uses a "concentric rings" analogy in its approach. Because of recent research on communication between fisheries managers and the commercial fishing community, and because the commercial fishing community is experiencing a crisis related to groundfish fisheries, we focus first on communication issues related to commercial fisheries and fisheries management. This is the core of the concentric ring. However, we recognize that there are other important constituent groups that also require effective communication. These include recreational fisheries, conservation groups, the general public, the media, and educators. As with expanding concentric rings, all of these groups will feel a ripple effect as communication infrastructure and methods improve. As resources become available, these groups will also take their turn at the center of the ring.

History

This effort was inspired by the publication *An Investment in Trust: Communication in the Commercial Fishing and Fisheries Management Communities*, which is based on a study of communications conducted by Jennifer Gilden and Flaxen Conway for Oregon Sea Grant (2002). *An Investment in Trust* describes current communication issues and challenges, and presents a series of recommendations for improving communication in fisheries management.

The current project is being spearheaded by a small group of partners representing Oregon Sea Grant, the Pacific Fishery Management Council (Council), and the National

Marine Fisheries Service (NMFS). This group met on October 4 2002 via telephone to discuss the communication issues facing the Council and the possible strategies to address those issues. Since then, this group has met on November 22 2002, December 5 2002, January 9 2003, March 3 2003, and March 27 2003. On April 11, 2003, Flaxen Conway presented the findings of *An Investment in Trust* to the Council, resulting in the Council's direction to develop a communications plan, noted above.

Definitions

Throughout these documents we use the terms "fisheries management community" and "fishing community." By "management" we mean the various fisheries management agencies (including, but not limited to National Marine Fisheries Service, the Pacific Fishery Management Council, state fish and wildlife departments, and the Pacific States Marine Fisheries Commission), staff, scientists, Council members, Council advisory body members, and other policymakers. By "fishing community" we mean fishing families, fishing family businesses, fishermen and women, fishermen's wives groups, industry support groups, processors, and service/suppliers.

Problem Statement: Communication Related to Fisheries Management

Many people in the fisheries management and fishing communities feel that communication between the groups needs to be improved. However, improving communication will require effort from both the fishing and management communities. It is neither fair nor realistic to expect one community to single-handedly solve current communication problems.

As noted above, challenges to communication, and some potential solutions, were gathered and described in *An Investment in Trust*, which was based on interviews with members of the fishing and fisheries management communities. Chronic and acute crises in fisheries have exacerbated communication problems. Both managers and fishing community members are under stress, increasing their need for clear communication while decreasing their ability to communicate clearly.

The difference between formal and informal communication should be noted. Formal communication is the result of procedural mandates, and includes efforts such as environmental impact statements, *Federal Register* notices, public hearings, Council meetings and advisory body meetings. Informal communication includes efforts such as educational outreach materials, websites and newsletters (which do not have Federal mandates), informal meetings and workshops, and person-to-person communication. Both types of communication are suited to particular purposes, and both have pros and cons.

Factors within both the fisheries management community and the fishing community that exacerbate, or are symptoms of, communication problems include the following. (It should be noted that these are generalizations; not all members of either community share these traits.)

- Complex nature of information that must be communicated
- Tendency of the media to simplify and polarize issues
- Distrust and lack of respect for other communities
- Lack of clarity about agency roles regarding informal communication
- Varying levels of awareness about the importance of communication
- Varying levels of personal motivation to communicate
- Fluctuating levels of outreach effort
- Cultural and personal differences that muddle communication

Factors within just the fishing community that exacerbate, or are symptoms of, communication problems include the following:

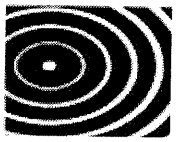
- Confusion about what federal and state agencies do
- Perception that managers and scientists are not accessible, and/or are not interested in listening
- Beliefs that management wants to or shut down the fishing industry
- Need to feel that concerns have been heard, even when management decisions don't fulfill hopes or expectations
- Competition and lack of cohesion, making it difficult to disseminate information or speak with a unified voice
- Economic and social stress, reducing people's capacity or willingness to communicate
- Involvement in management limited to a small, core group of people, while most are disengaged

Factors within the fisheries management community that exacerbate, or are symptoms of, communication problems include the following:

- Overwork and lack of funding, leading to a reactive rather than proactive system
- Low prioritization of informal (person-to-person) communication
- Federal mandates limit the available options, resulting in the impression that managers are not listening or reacting to fishing community concerns
- Formal Federal communication are not highly successful in reaching average fishing community members
- *Federal Register* notification requirements reduce flexibility in communicating

While improved communication will not solve all fisheries-related problems, it can lead to a clearer and better understood management process, more effective involvement in management, and increased trust – thereby improving relationships among all communities and improving decisions made by fisheries managers. It should be noted

that while this effort focuses on communication with the commercial fishing industry, improved communication will also benefit relations with other important constituent groups (mentioned above) as well.



Terms of Reference for Council Communication Enhancement Process

Composition (Who is involved)

As of May 2003, those involved in this process are: Jennifer Gilden, and Renee Dorval (PFMC), Marija Vojkovich (CDFG), Steve Copps, Janet Sears, and Steve Freese (NMFS-NW), and Ginny Goblirsch and Flaxen Conway (Oregon Sea Grant Extension).

As outlined in the goals stated below, this is an open process. Improving communication and creating trust will require the involvement of many people, including Council and advisory body members, agency staff, representatives of stakeholder groups, and members of the public. Involvement will need to take place at many levels, from providing suggestions for improving communications to actively creating and implementing the action plan.

Principal Responsibility

The principal responsibility of this group is to carry out the terms of reference for this process, the purpose of which is to help the Council family understand the communication enhancement process, and to ultimately enhance communication.

Goals of the process

The goal of enhancing communication through this effort is for all people involved in the Council process to:

- clearly understand how the fisheries management process works
- understand how to effectively involve themselves in the process
- be able to express their views clearly, and in a timely way, within the process
- feel that their views have been heard and respected

We recognize that it will take considerable time for these goals to be realized.

Objectives

The objectives for reaching these goals are to:

- Use the recommendations set out in *An Investment in Trust* as a springboard for improving communication efforts
- Develop a flexible, organic communications action plan that describes specific ways to improve communication
- Involve advisory body members in developing the action plan
    - Propose choosing lead person from each advisory body to be the liaison between the communications group and the advisory committee
    - For each Council meeting, develop place holder on each advisory committee agenda to have regular updates regarding communication
- Address communication on the following levels:
    - actions that can be undertaken on an individual level (by Council staff, Council members, advisory body members, and NMFS staff)
    - actions that can be undertaken by the Council (and NMFS) as a whole
    - actions that can be undertaken by advisory bodies
- Conduct the work in a transparent and inclusive manner
- Update the Council consistently on the progress of these efforts

References

Gilden, Jennifer D., and Flaxen D.L. Conway. 2002. *An Investment in Trust: Communication in the Commercial Fishing and Fisheries Management Communities.* Corvallis, Oregon: Oregon Sea Grant publication ORESU-G-01-004.

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Don McIsaac: Pacific Fishery Management Council respond to criticism of regional fisheries management

06/16/03

DON McISAAC

R ecently, several reports criticizing U.S. fisheries management practices have come before the public eye. The Pew Oceans Commission, the Marine Fish Conservation Network and a recent study in the publication Nature criticize fisheries management practices but fail to acknowledge the work being done to address widely recognized problems. The Pacific Fishery Management Council, one of eight regional councils established by Congress, manages fisheries in federal waters off Washington, Oregon and California. We would like to respond to the criticisms and highlight for the public a few positive examples. Our response focuses on the Pew report, which was released this month.

The Pew Commission calls for systemic change to U.S. ocean governance, shifting the objective of U.S. marine fishery policy to ecosystem protection. This goal reflects a societal shift toward a broader perspective of management that recognizes the complex relationship between species and their environments. The Pacific Council recognizes and agrees on the importance of ecosystem management and will work with Congress, National Marine Fisheries Service (NMFS) and others to incorporate ecosystem concepts into fisheries
nagement.

The Pew report repeatedly emphasizes public lands, public resources and the public trust, but only once does it mention public representation in management. The report notes, "Participation by the broadest possible range of stakeholders -- including local government officials, fishermen and other ocean resource users, and the general public -- should occur through a robust and influential advisory process." This currently occurs within the regional fishery management council system. In fact, that's one reason councils were developed -- to provide a forum for public involvement. Public participation by fishing community members, conservationists, and the general public is an important part of the council process.

The four major West Coast fisheries managed by the Pacific Council provide examples of the effectiveness of the existing regional fishery management system.

The coastal pelagic species fishery (such as sardines) is healthy and well-managed, despite the Pew Commission's assertion that the sardine fishery is struggling to recover. Sardine management is precautionary, using an ecosystem-based harvest method that acknowledges the close relationship of sardine populations to environmental change and the value of sardines as forage for other fish, sea birds, and marine mammals. West Coast sardine fisheries are expanding due to increased abundance and coastwide availability. West coast fishermen consistently harvest fewer sardines than the conservative harvest guideline allows.

Marine salmon fishery management is a success story. Improved ocean conditions, better success in achieving spawning escapement goals, and freshwater habitat restoration have resulted in record or near-record returns for many salmon stocks, including stocks listed
ler the Endangered Species Act (ESA). In 2003, after meeting 41 different conservation objectives, we set seasons that should provide the largest number of angler trips since 1991 and the second highest commercial value since 1989. The Pacific Council strongly agrees with the Pew Commission that river and estuarine habitat is critical to the health of fish populations. Our Habitat Committee encourages adequate water flows for fish in the Klamath and other rivers, and recommends habitat protection measures to outside agencies

on dam licensing, dredging, forest practices, roadless areas, and other issues.

The Council manages more than 80 species of Pacific coast groundfish, and has responded quickly to new information about groundfish stocks. For example, in May 2002, the Council learned that three species designated as overfished -- yelloweye, bocaccio and canary rockfish -- were reproducing more slowly than previously thought. The next month, the Council adopted expansive continental shelf closures to protect these species. The restrictions went into effect in summer 2002 and continue today. The Pew report acknowledges that these measures were "the strictest regulations in the history of West Coast fishing."

The Council is also moving towards precautionary and proactive management of the West Coast highly migratory species fishery, which includes tunas and sharks. The Council recently adopted a fishery management plan which will be submitted to NMFS for approval. The plan was developed in close cooperation with representatives of conservation groups and recreational and commercial fisheries. This inclusiveness resulted in a comprehensive and precautionary plan which will also provide a template for improving international fisheries management.

Councils are mandated to balance conservation with socioeconomic considerations, and are required to base their decisions on the best available science. However, the Pacific Council agrees that improved science is needed. For West Coast groundfish in particular, a greater financial commitment is needed for more accurate science. The Pew report gives limited attention to the role of Scientific and Statistical Committees in the regional council process. The Pacific Council's SSC is one of the nation's most active and is composed of leading scientists from academia, federal, state, and tribal agencies. The SSC reviews and provides recommendations about each stock assessment used by the Pacific Council to ensure that Council decisions are informed by the best available science.

The Pew Commission recommends establishing a national system of fully protected marine reserves. The Council has created large de facto marine reserves specifically designed to protect overfished rockfish species. Examples include the 4,300-square-mile cowcod conservation areas off California, where all bottom fishing is prohibited; the large depth-based rockfish conservation areas along the continental shelf (seasonally ranging from 13,518 to 19,796 square miles) closed to trawling; and the 36,000 square miles closed to other commercial groundfish fisheries. The Council is also working closely with the Channel Islands National Marine Sanctuary in their development of marine reserves.

The Council appreciates the heightened level of attention to U.S. fisheries policy. We believe a lively and open debate on fisheries management is vital as we address our mandate to balance sustainable fishing with healthy fish stocks.

Don McIsaac is executive director of the Pacific Fishery Management Council.

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Our exhausted ocean

06/16/03

F rom the Oregon coast, the Pacific Ocean looks just as vast, powerful and limitless as ever. Those who look closer, however, see frightening evidence that ocean ecosystems, including Oregon's, are steadily collapsing.

The newly released Pew Oceans Commission Report, the first analysis in 30 years of the nation's oceans, provides compelling evidence that oceans, coasts and the web of life they support are being hammered by overfishing, harmful development and pollution.

Oregon's precious coast is suffering right along with the rest. Dr. Mark Hixon, an Oregon State University marine ecologist who has explored offshore of Oregon for many years in small submarines, said he and other researchers are witnessing the collapse of fish stocks and other sea life.

Oregon's ocean fisheries, along with those of neighboring coastal states, are plunging. Groundfish landings are down 77 percent since 1990. Fishing income in Oregon has fallen by half in just the past decade.

Scores of non-native marine species have invaded Oregon's estuaries, usually riding in on [illegible] hulls of ships. More than half of tidal wetlands have been lost to development. Some of [illegible] runoff on our public beaches is so polluted that it would close beaches in other states, but Oregon has no regular monitoring system.

Three years in the making, the Pew Commission report is a national call to action to preserve marine environments and coastal economies. But it must in particular move coastal states such as Oregon, which have a special responsibility to care for the oceans.

So far, Oregon has not lived up to its responsibility. A state justly proud of its careful land use and stewardship of forests and farms -- and its public beaches -- seems to take its environmental ethic only as far as the water's edge.

Oregon is not doing enough to protect its ocean resources. Marine experts strongly urge Oregon elected officials to establish a network of marine reserves, areas of the sea legally protected from fishing and other exploitation. Such reserves would allow fish and other sea life to grow in number and size. These mature fish will successfully spawn and replenish the fisheries.

The concept of marine reserves is rapidly taking hold across the world, but official support in Oregon has come in fits and starts. Last year, the Oregon Ocean Policy Advisory Council formally recommended the formation of marine reserves, a fine first step. But nothing has been done since. Gov. Ted Kulongoski has taken no action, and the advisory council has done nothing to advance the proposal.

There's no more time or excuses for inaction. No one challenges the essence of the Pew report: Oceans once thought to be limitless resources are being stripped of fish and other [illegible] life. Fishing fleets are suffering, coastal economies are hurting. This crisis demands [illegible] jor shifts in ocean policy, including creating marine reserves up and down all the major coastlines of this country.

From the Oregon shore, an empty sea still seems unimaginable.

Yet Hixon, the OSU marine ecologist, has seen glimpses of an ocean of nothingness from

his research submarine.

"It's truly scary," he said.

American Fisheries Society
Oregon Chapter
PO Box 722
Corvallis, OR 97339

osu.orst.edu/groups/orafs

April 3, 2003

Don McIsaac
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Dear Mr. McIsaac,

The Oregon Chapter of the American Fisheries Society has prepared a white paper supporting the use marine reserves as a conservation tool. The position paper is in response to calls from Federal and State government to develop a system of marine reserves and to test their effectiveness. The enclosed paper describes scientific information about the state of knowledge on marine reserves and makes recommendations for initial steps in using marine reserves as a conservation tool. We hope it will aid in your discussions on the topic. Chapter members are available for further consultation and discussion.

Marine reserves are receiving increased attention as a tool to meet conservation and fishery objectives. Interest in marine reserves as a conservation and fishery management tool has been stimulated by the abundant and growing information that many recreationally and commercially important fish and shellfish species have been harvested at unsustainable levels. There is also growing evidence that marine reserves can be an effective tool for conservation of species and biodiversity, serving the same purpose that national and state parks and wilderness areas do for some terrestrial species and habitat types. Decisions concerning reserve objectives must incorporate diverse social and economic values, and will require the collaboration and involvement of a wide spectrum of stakeholders, agencies with legal responsibilities and authorities, scientists, and the general public. We speak from the scientific perspective.

The Oregon Chapter of the American Fisheries Society includes over 400 fisheries and aquatic science professionals from federal, state, and tribal agencies, colleges and universities, and diverse private employers, including students and retirees. Our mission is to improve the conservation and sustainability of Oregon fishery resources and their aquatic ecosystems for long-term public benefit by advancing science, education and public discourse concerning fisheries and aquatic science and by promoting the development of fisheries professionals.

An electronic copy of the position paper may be downloaded from our website: http://oregonstate.edu/groups/orafs/. If you have questions or would like to contact other Chapter members for more information, please contact me at: 541-757-4263 EXT 229 or Mary.Buckman@orst.edu.

Sincerely,

Mary Buckman

Mary Buckman, President
Oregon Chapter American Fisheries Society

Enclosure – Marine Reserves Position Paper

POSITION PAPER ON MARINE RESERVES

OREGON CHAPTER AMERICAN FISHERIES SOCIETY

(Approved by the Executive Committee on March 19, 2003)

Marine reserves are receiving increased attention as a tool to meet conservation and fishery objectives (Murray et al. 1999, NRC 2001). Executive Order 13158, issued by President Clinton on May 26, 2000, instructs federal agencies to work together to "develop a scientifically based, comprehensive national system of marine protected areas representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources." (www.mpa.gov)[1].

In Oregon, the Ocean Policy Advisory Council (OPAC) recently recommended to Governor Kitzhaber that Oregon establish a limited system of marine reserves in the Oregon territorial sea in order to test their effectiveness (www.oregonocean.org). California also is considering marine reserves as one component in the implementation of its Marine Life Protection Act (http://www.dfg.ca.gov/mrd/mlpa/index.html). Additionally, the Pacific Fishery Management Council is considering whether marine reserves can be used as an additional tool to meet its fishery management and conservation objectives under the Magnuson-Stevens Act (www.pcouncil.org). At present, this federal effort is focusing on reserves in the Channel Islands National Marine Sanctuary near Santa Barbara, CA.

Interest in marine reserves as a conservation and fishery management tool has been stimulated by the abundant and growing information that many recreationally and commercially important fish and shellfish species have been harvested at unsustainable levels (Ralston 1998, NMFS 1999, Pauly et al. 2002). There is also an increasing body of evidence indicating that some fishing practices significantly disturb and simplify seafloor habitats important to many species, greatly modify benthic communities, and alter ecosystem processes (Auster 1998, Auster and Langton 1999, Collie et al. 1997, Dorsey and Pederson 1998, Engel and Kvitek 1998, NRC 1999, Fogarty and Murawski 1998).

There is growing evidence that marine reserves can be an effective tool for conservation of species and biodiversity, serving the same purpose that national and state parks and wilderness areas do for some terrestrial species and habitat types. Halpern (2003) has reviewed 89 separate studies of marine reserves and has shown that, on average, values for species biomass, organism size and density, and species diversity are higher in reserve areas as compared to similar areas outside the reserve, or compared to the reserve area

[1] Marine protected area (MPA) refers to an area of the ocean receiving some particular legal protection from disturbance and/or harvest. Marine reserves generally refer to no-take areas, and are a particular type of MPA.

prior to its protection. These relative differences in size, abundance, and species diversity appear quickly and are independent of reserve size. It should be noted that most reserves, and most studies of reserves, are in tropical areas. However, there are good examples of reserve benefits from closed areas in New England (Murawski et al. 2000), for rockfishes in several small areas in California and Washington (Paddock 1996 as cited in NRC 2001; Palsson and Pacunski 1995) and for lingcod in British Columbia (Martell et al. 2000).

Much of the interest in marine reserves is driven by fishery management concerns and objectives to rebuild depleted stocks as rapidly as possible. Off the West Coast, nine species of groundfish are now legally classified as 'overfished' (www.pcouncil.org/groundfish/sfrebuild.html) and there is appreciable interest in whether marine reserves can contribute to more rapid recovery of these species and yield measurable fishery benefits at the same time. In New England, closures of significant portions of Georges Bank have led to greatly increased scallop abundance and average size, such that the New England Fishery Management Council has allowed some tightly controlled fishing on this increased scallop biomass (Murawski et al. 2000). This is one example of direct fishery benefits from closed areas.[2] Increases in the density and average size of fishes in reserve areas have been well documented and suggest that reserves can make a positive contribution to fishery management objectives (Halpern 2003, Murawski et al 2000, PISCO 2002). Generally, larger fishes produce many more progeny than smaller individuals, so we would expect that the per-capita reproductive potential of fishes and other organisms in reserve areas to be higher compared to areas outside the reserve. We would also expect there to be a spillover effect of fishes leaving the reserve area and becoming available to harvest outside the reserve (Roberts et al. 2001). The increased frequency of trophy size fishes captured in recreational fisheries outside the reserve near Cape Canaveral, Florida shows that spillover effects can occur. Although many groundfish on the Oregon coast are relatively sedentary, most undertake spawning migrations or move between habitats during their life history (Love et al. 2002); we expect spillover would be likely for many of our West Coast species.

Ocean processes strongly influence the population dynamics and geographic distribution of marine organisms, as well as physical habitat characteristics. Halpern's review shows that measurable differences can be found even in small reserves. In practice, the appropriate size, number and location of reserves will depend on reserve objectives, as well as local social, economic, legal and environmental factors. Some objectives may be met with a single small reserve while others may require larger reserves and/or a network of reserves. Quantifying the expected contribution of a possible reserve, or a possible set of reserves, to a particular conservation or fishery objective is beyond our ability as fishery scientists and ecologists to predict at this point. In part, this will depend on the relative magnitude of size and density differences for each species found inside and

---

[2] Marine reserves are generally thought of areas permanently closed to harvesting. The New England scallop example reflects the more traditional tool of rotated closed areas. In this sense, rotated closed areas may be seen as analogous to allowing fields to lie fallow in an agricultural context.

outside the reserve. Further, stock rebuilding of many species such as rockfishes will be dependent on highly variable recruitment events that are driven by ocean conditions. Most species show many years of recruitment failure punctuated by infrequent years of good recruitment when large numbers of progeny survive. Marine reserves contribute to increased numbers of progeny, and well-sited reserves may help increase progeny survival, but the complexity of ocean ecosystems off the West Coast and elsewhere means we cannot quantify the expected contributions. Therefore, reference sites will need to be monitored in order to account for oceanographic and climactic changes such as the Pacific decadal oscillations (PDO). It will be very important that the objectives established for reserves reflect an appropriate time-scale for expected results. For fisheries management, this will include the population dynamics and life-span of focal species. It must also include similar considerations for biological and physical processes that create or modify habitat features that we would expect focal species to respond to.

Decisions concerning reserve objectives must incorporate diverse social and economic values, and will require the collaboration and involvement of a wide spectrum of stakeholders, agencies with legal responsibilities and authorities, scientists, and the general public. There is probably a large degree of flexibility in how any chosen reserve objective can be met, translating to a wide spectrum of possible reserve designs with respect to number, size and location. Marine scientists can provide background information and help document reserve performance, but society as a whole will have to decide how knowledge will be applied, and how we will proceed when there remain unresolved questions. It is extremely important that the scientific/management objectives for implementation of a reserve be explicitly stated, and stated in such a manner that they can be evaluated as to the effectiveness of the reserve in meeting those objectives.

In conclusion, there has been a marked decline in population size of many harvested species off the West Coast, and research shows that marine reserves lead to increases in the abundance, size, and reproductive potential of focal species as well as species diversity within the reserve. Reserves also protect, and facilitate the recovery of, valuable habitat features that are important to the survival and growth of many marine species, whether or not they are sought be fishermen. Because ecological systems are not simply mechanical in nature, many questions seeking precise predictions concerning reserve performance, placement and size can only be answered through an open, adaptive and experimental approach. This should not be viewed as an argument against formation of marine reserves, but as a framework to be used in the evaluation of their efficacy. Marine reserves are one tool of many that are employed in conservation and fishery management. Society's objectives for marine reserves, and evaluation strategies, must take into account the broader context of management approaches employed where reserves may be considered.

The Oregon Chapter of the American Fisheries Society supports the OPAC recommendation for a network of marine reserves in the Oregon territorial sea, and encourages federal agencies to follow Oregon's lead and establish similar reserve areas in the federal waters off the Oregon coast. An initial focus on testing and evaluation will provide the opportunity for fishery scientists and stakeholders together to understand how

marine reserves will perform in Oregon waters. At the same time, we expect these reserves to contribute to the conservation and rebuilding of several rockfish species (Parker et al. 2000).

We also support the general recommendations for next steps put forward in the OPAC report including an inclusive process for all stakeholders and contributors to participate in:

1) defining reserve objectives and suggesting preliminary reserve sites,

2) assembly and review of available information on proposed reserve sites,

3) focused studies to establish baseline conditions for proposed sites, and

4) articulation of well-formed hypotheses that will serve as a basis for reserve evaluation.

We encourage federal and state agencies and legislatures to prioritize the funding and accomplishment of research and monitoring studies that will enable society to determine what effect reserves have, and whether the objectives society has for them are being met.

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Position Paper Preparers: Hal Weeks, Scott Heppell, Selina Heppell

Information for clarification, requested to be added to minutes of the March 2003 Pacific Fishery Management Council meeting
provided by Kate Wing, NRDC

In light of several statements made at the March 2003 Council meeting during the marine reserves presentation by Drs. Lubchenco, Fluharty & Hixon, and any misconceptions those statements may have caused, I am providing the Council with clarifying statements made by Dr. Mark Hixon and Dr. Steve Berkeley about black rockfish.

To the Curry County Pilot, 31 March 2003

VALUE OF BIG OLD FAT FISH

I am a professor of marine fish ecology at Oregon State University. A recent article by Don Allison ("MARINE RESERVE BILL WOULD SHIFT POWER" 22 March 2003) contained misinformation in a quote by Pacific Fisheries Management Council (PFMC) member Ralph Brown. Brown misrepresented my testimony before the PFMC regarding the value of big old fat fish for replenishing and sustaining marine fisheries. New research in Oregon on black rockfish (closely related to threatened widow and yellowtail rockfish) has shown that larger older female fish not only produce huge numbers of eggs compared to smaller females, but they also spawn over a longer period of the year and their babies both grow faster and survive better. Fishing removes these large valuable females, thereby reducing the ability of fish populations to endure environmental variation and intense fishing. In contrast to Brown's erroneous assertions, conserving big old fat female fish is imperative for easing the ongoing crisis in our fisheries.

Mark Hixon
Corvallis, OR

-------- Original Message --------
Subject: RE: big old fat female fish
Date: Mon, 21 Apr 2003 17:12:19 -0700
From: Steve Berkeley
To: Mark Hixon, Donald McIsaac
CC: Hans Radtke, Donald K. Hansen, Brown, Ralph, Seger, James, Coon, John, Gilden, Jennifer

I have had a few email exchanges with Ralph that were not copied to everyone on this list. After having given Ralph a bit more detail on the study and straightening out details that were lost in translation, the final email I received from Ralph asked the following question: "If you didn't have any old fish spawn, how do you conclude that old fish have better survival of spawn? It seems reasonable to conclude that middle aged (or however old you found) spawn better than juveniles, but I can't understand old fish in this case."

My reply to Ralph is copied below. I also attached a power point file containing showing the relationship between mother's age and larval growth and between mother's age and median time

to starvation. What I didn't mention to Ralph is that in our 2000 sample of mature black rockfish, we collected carcasses of 356 mature females, only two of which were older than age 17, which was the age of the oldest fish we used in our larval rearing experiments.

I guess 'old' is relative. The oldest black rockfish we had in our spawning experiments was 17 yrs old, which is relatively old and very uncommon in the stock at its current state of exploitation. Even if we are only interested in fish up to age 17, current management will not maintain a significant number of fish of this age in the population, so the conclusions will not change. Fish of this age are very rare off Oregon, and probably anywhere there is a substantial fishery. What I believe the research results indicate is that: 1. Fishing has reduced the number of old age classes in the fishery. 2. Older fish (at least to age 17) spawn earlier in the year and produce much more competent larvae. 3. Current management, even at B40, will not prevent the loss of older age classes. 4. Older age classes are likely to be important to longterm sustainable populations.

While I would agree that we did not have any truly old fish in our experiments (for black rockfish, that would be, say 20+), and that we cannot state with certainty what kind of performance we would see from larvae of females older than age 17, the relationship relating larval growth and survival against age (figures attached) suggest that both growth and survival will continue to increase with age up to an asymptote. There was no indication of a decline in performance with age. But, the point is really moot because even if there was some senescence with very old fish, it would not change the basic conclusion that older fish (of an age that essentially no longer exist in the population) contribute much more viable larvae than young fish and that prudent management should strive to maintain older fish in the population. Fishing truncates the age structure of the population and shifts the burden of reproduction to young first time spawners. The greater the fishing mortality the greater the age truncation and the higher the proportion of young, first time spawners to total spawner biomass."

I am preparing the manuscript for submission right now. Until then, I am happy to discuss these results with the SSC, the Council, or anyone else that might be interested. We are continuing this research down here in Santa Cruz, working with other species of rockfish to determine how general our results might be, but we are not far enough along to reach any conclusions.

****

Steven A. Berkeley
UCSC, Long Marine Lab
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Santa Cruz, CA 95060
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fax: 831-459-3383

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Senators
Dede Alpert, Vice Chair
Wesley Chesbro
Betty Karnette
Bruce McPherson

Assemblymembers
Hannah-Beth Jackson
Abel Maldonado

Assembly
California Legislature

JOINT COMMITTEE ON FISHERIES AND AQUACULTURE

PATTY BERG, Chair

State Capitol
P.O. Box 942849
Sacramento, CA 94249-0001
(916) 319-3823

9:00 pm
public
comment

June 16, 2003

Dr. Hans Radtke, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Via Fax: (503) 820-2299

Dear Dr. Radtke:

The Joint Committee on Fisheries and Aquaculture would like to commend the organizers of www.FishResearchWest.org for creating and posting this website to increase the amount of collaborative marine research. I would especially like to commend the Pacific Marine Conservation Council for spearheading the development of this website and all the current and future partners in the Ad-Hoc Cooperative Research Committee. The partners include the Pacific Marine Conservation Council, the Institute for Fisheries Resources, Oregon Sea Grant, Pacific States Marine Fisheries Commission, NOAA Fisheries Northwest Fisheries Science Center, University of California Sea Grant Extension Program, and the Pacific Fishery Management Council.

Promoting and easing collaborations between fishermen and scientific researchers is an extremely important endeavor that will no doubt lead to an increased body of knowledge of our fisheries resources. I am pleased to see this initiative and would like to encourage the scientific and fishing communities to use this valuable resource. The website: www.FishResearchWest.org will be an effective tool in our mutual pursuit of sustainable fisheries management.

Sincerely,

Patty Berg

Patty Berg, Chair

PB: mm

OCEANLOGIC

ceanLogic, L.L.C. • 234 Gold Street • Juneau, AK 99801 • tel: 907.586.0161 • fax: 907.586.0165

May 27, 2003

Mr. Hans Radtke, Chairman
Pacific Fisheries Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Chairman and Members of the Council:

I would like to take this opportunity to introduce you to OceanLogic's fisheries management software for fishermen and fisheries managers: the *Electronic LogBook for Trawl Catcher Vessels* (*ELB*).

The *ELB* is a low cost, software-based, catch management system that collects, stores and archives vessel fishing data for compliance and analysis. The software is ideal for collecting and receiving real-time fisheries data and transmitting that data to management systems at a fraction of the time and costs of paper logbooks. Additionally, the *ELB* was specifically designed to replace the NMFS-mandated Daily Fishing Log (DFL).

The *ELB* is very flexible in the types and the amounts of information it can record. The user is given the default option to record only the required compliance minimums of Set and Haul back positions (including Target Species, Estimated Weight and Depths), or record additional information on species composition, average fish weight, sex ratios, quota management plans and much more. The *ELB* encourages good data collection through its CatchPlotter display, providing fishermen an incentive to record accurate and detailed information of the fishery.

Included with the *Electronic LogBook* is a vessel position and tracking system that records and archives the vessel's position data at frequent and regular intervals. As a result, these data have a higher resolution and accuracy than most vessel monitoring systems.

The *Electronic LogBook* has been extensively field-tested and has gained a large acceptance in the catcher vessel trawl fleet of the North Pacific. The National Marine Fisheries Service/Alaska Region (NMFS/AKR) has an active, working database for the *ELB* and the agency is currently receiving data from harvesters in the Bering Sea and Gulf of Alaska. We hope you will take a few moments and thumb through the additional material provided in this packet detailing further information on OceanLogic's *Electronic LogBook.*

We would be pleased to provide a more in-depth presentation at a future PFMC meeting. If you would like more information or have any questions or comments please don't hesitate to contact us.

Sincerely,

Lawrence P. Cotter, CEO
OceanLogic L.L.C.
lpcotter@oceanlogic.com

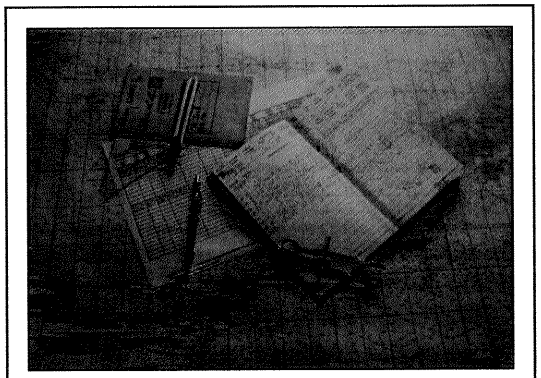
OCEANLOGIC

Electronic Logbooks

Commercial fisheries around the world are under increasing pressure to provide real-time catch information to federal, state and private fishery managers. In-season management, post-season analysis and special interests lawsuits are all putting an increased demand on accurate and timely fisheries data.

The data path from fisherman to paper log to agency staff to computer costs valuable time and precious staff and financial resources.

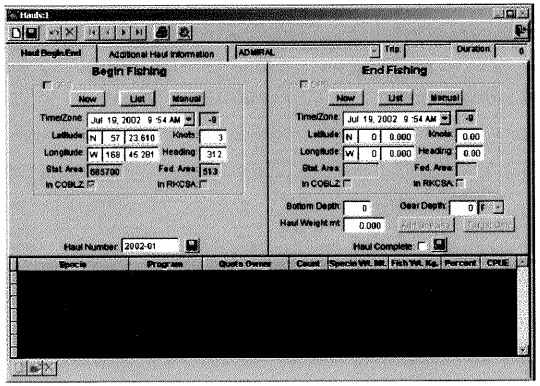
The old ways of collecting information cannot keep up with demands of today's fishing informational needs. Fortunately, they don't have too.



Paper logbooks come in all shapes and sizes, but so do the types of errors that you can make. Typos, transcription errors and bad handwriting all contribute to bad data.

Specifically designed for use in the federal and state fisheries, OceanLogic's Electronic LogBook® (ELB) is an easy to use, highly versatile piece of software equipment that is easily ported to other regions of the country.

The *ELB* is a low cost, software-based, catch management system that collects, stores and archives a vessel's fishing data for compliance and analysis.



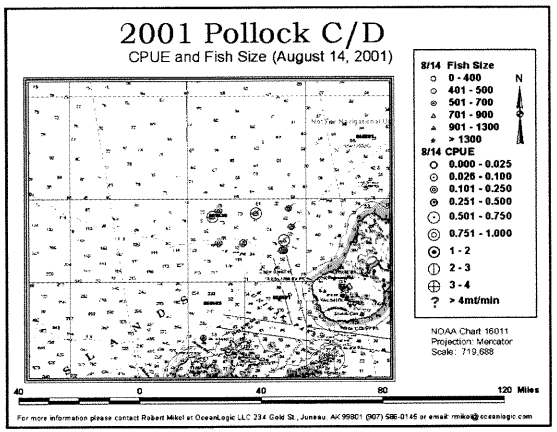
OceanLogic's electronic logbook operates off of a vessel's computer and GPS. It accurately records a vessel's fishing events with a single keystroke. It calculates federal and state fishing areas and generates accurate delivery and trip reports so the fisherman does not have to.

The *ELB* is scalable in the amounts and types of information it can record. The user can breeze through the required minimum data collection for compliance, or record additional information for more detailed record keeping. The *ELB* encourages detailed data collection with its *CatchPlotter* display.

The *CatchPlotter* displays catch information, along with vessel tracks, haul weight, CPUE, species composition, sex ratios and average fish size, providing fishermen an incentive to record accurate and detailed information of the fishery.

Included with the ElectronicLogBook® is a vessel tracking system that records and archives the vessel's position data at frequent and regular intervals. As a result these data have a higher resolution and accuracy than most vessel monitoring systems.

The ELB was designed for fishermen, by fishermen, with the help of NMFS Enforcement, NMFS Sustainable Fisheries and the US Coast Guard. It is a tool for science, compliance, fishermen and their advocacy organizations.



The ELB provides a better picture of fishing activity than a paper logbook. Data collected by the ELB can be viewed within the program or can be exported for analysis in text editors, word processors, spreadsheets, databases and geographical information systems.

For more information please contact OceanLogic
234 Gold Street
Juneau, Alaska 99801
(907) 586-0145 or www.oceanlogic.com

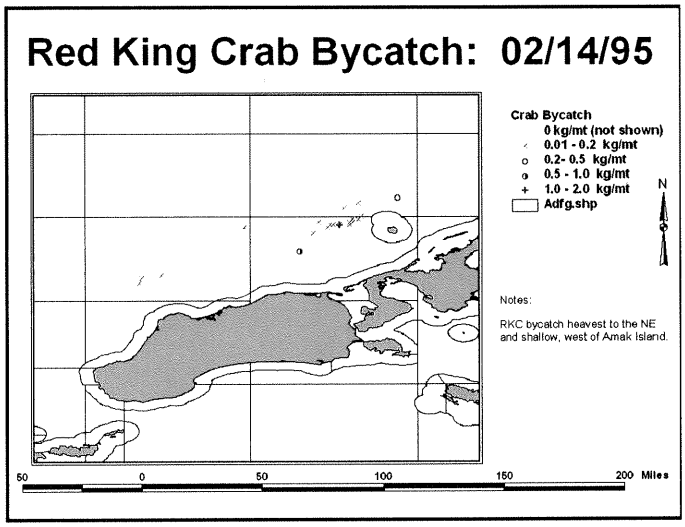
OceanLogic L.L.C. • 234 Gold Street • Juneau, Alaska 998901 • tel: 907.586.0145 • fax: 907.586.0165

The following presentation is a brief description of OceanLogic's *Electronic LogBook* project: History, Concept and Operation.

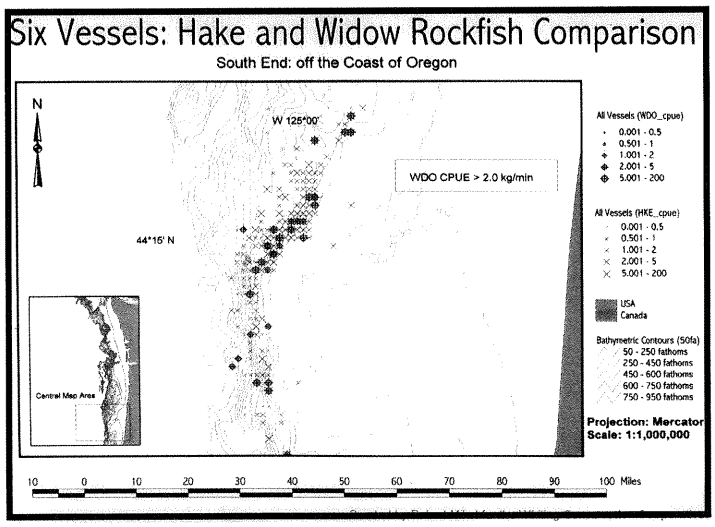
History:

Fishermen of the North Pacific have been involved in electronic data collection programs since the early to mid 1990's. That is when the North Pacific Observer Program, fisheries observers began sending daily, electronic catch and species composition reports from catcher processor vessels to the Alaska Fisheries Science Center, in Seattle, Washington.

Shortly after daily electronic reporting began, Industry sought to extract operational value from those data. At first, uses of the data were directed towards identifying bycatch hotspots and sharing those locations with the rest of the fleet. Captains were expected to avoid these areas in order to maximize target species catch without going over their bycatch limits. Immediately, bycatch reductions were achieved.



As time went on, other Industry uses of electronic observer data were explored. In 1998, the Whiting Conservation Cooperative commissioned a study to analyze observer data for the Widow Rockfish and Yellowtail bycatch problem in the West Coast Whiting fishery. As a result new techniques were developed and new practices were employed to address these problems.

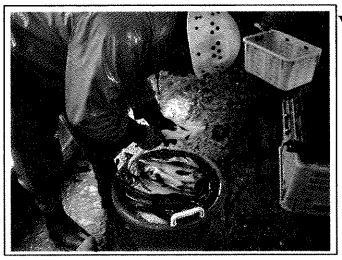


Not long after the American Fisheries Act of 1998 established harvest cooperatives, catcher vessel fishermen began exploring the value of collecting data electronically and sharing harvest these data among themselves. This was a significant

development in operational procedures, because most catcher vessels do not have paid data collectors (i.e. fisheries observers) onboard 100% of the time. This meant that they were taking on the responsibility of accurate data collection themselves.

Why would they do this?

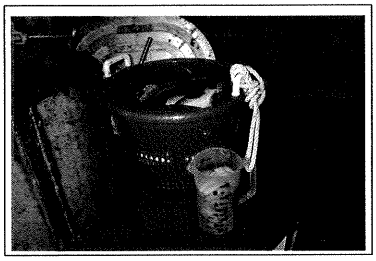
Good data: it is not only good management it is good business. Good data can avoid harvest threatening bycatch and increase target species productivity.



Vessels do not have accurate scales

Ship's crew determines average weight by number of fish in basket (average full basket weight 41kg) and sexes 200 fish per haul.

Roe percent is determined by volume, average weight per cup is 262.3 grams



Concept:

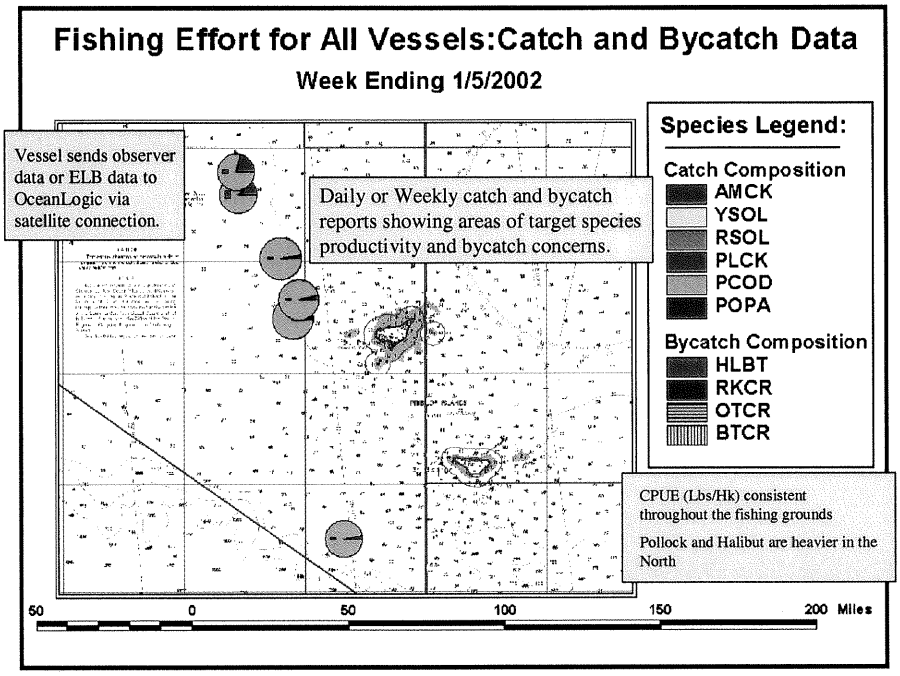
The process of developing OceanLogic's *Electronic LogBook* (ELB) started with a specific data collection project whereby the end product was a chart of a catcher fleet's fishing activity. This chart was able to show precisely where restrictive bycatch was heaviest and where target species catch was most productive. It was the first time that a catcher vessel fleet was going to try and mimic the data collection capabilities of the catcher processor fleet.

The data collection model behind the *Electronic LogBook* is a blend of the essential required data of the NMFS paper logs and from the observer data collection platform. With the exception of a few pieces of information, a vessel's marine electronics and a computer collects and records nearly all of the logbook data. Other data elements are calculated by the vessel's computer, thus reducing the number and types of errors that occur from fatigue and typos.

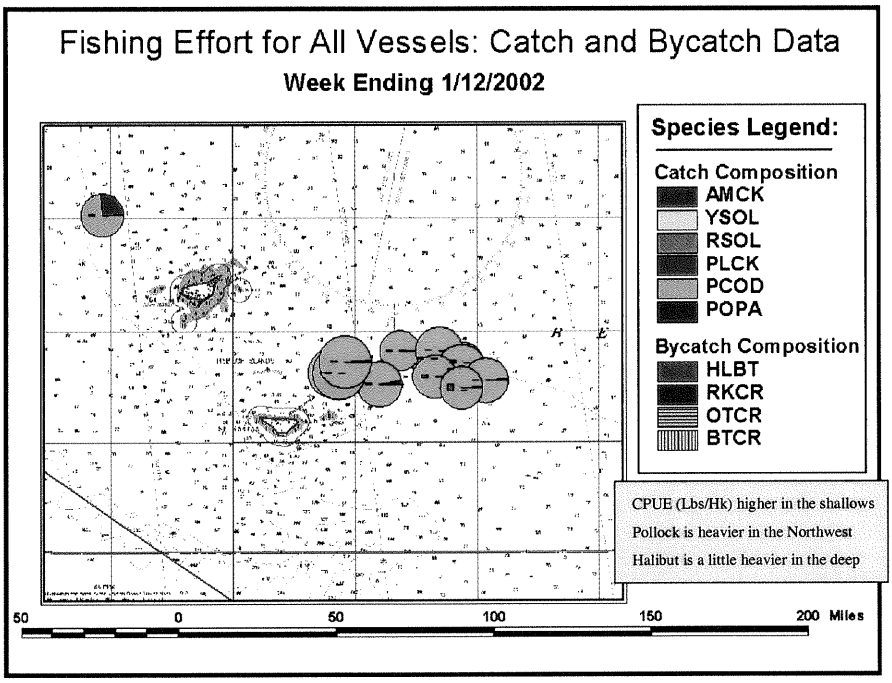
It is important that the data collection procedure is not only simple and nearly effortless but that the information derived from the system is valuable to the fisherman. This is critical. If this element of a logbook is missing, then the fisherman will have been relegated to the position of data collector for the government and not a full partner in the analysis and use of the information. In addition to collecting catch information, the *Electronic LogBook* also collects and records vessel position data at regular intervals. This data provides two functions. It shows precisely where the fish were caught and it provides an independent, redundant backup system to the ship's VMS.

As stated above, information from the ELB is available to the fishermen, immediately. This allows them to receive and share direct benefit from the data collection program. The following sequence of slides illustrates actual fishermen use of electronic data.

This first chart shows a fleet heading out to the fishing grounds at the beginning of the year.

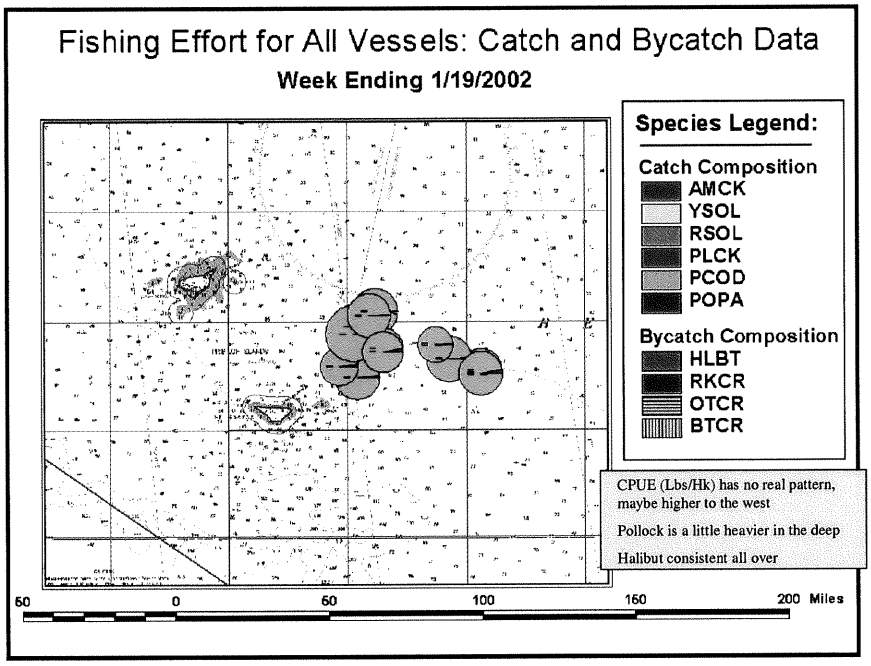


They went to a place that they were familiar with and fishing was okay, but it wasn't good. They were targeting Pacific Cod and in some places they were catching too much Pollock and too much Halibut. They sent in their fishing data, received this chart and they moved.



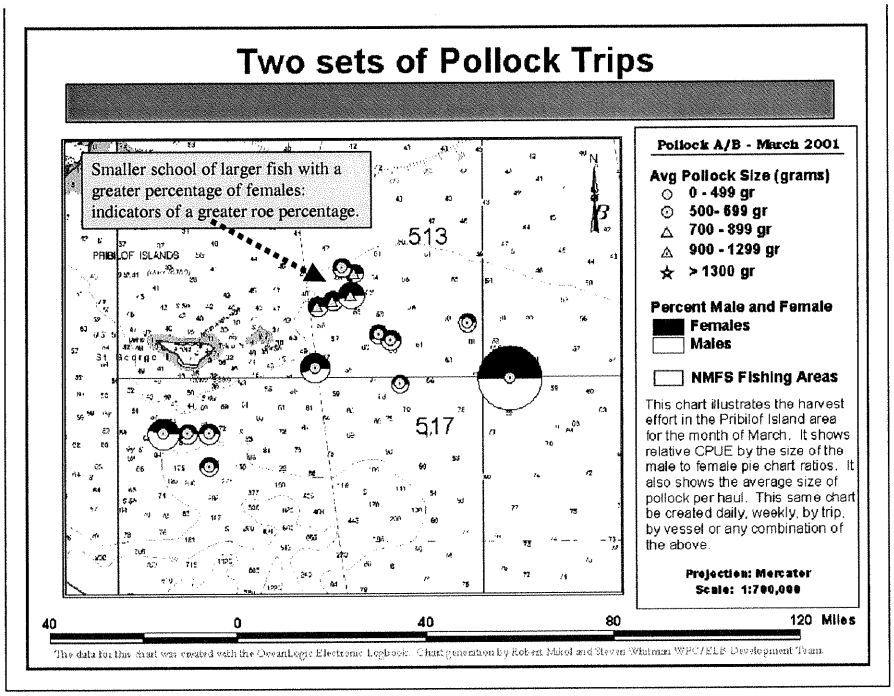
Here again there appears to be some trends in the data:
The CPUE (Catch per Unit of Effort) is higher in the shallows and mostly to the west.
Pollock and Halibut appear to be heavier in the deeper waters.

This next chart shows further refinement of the fleet's fishing activity. Target species catch is up and bycatch is minimized.



Having good data available to fishermen is very important to them. They recognize that their fishing data, your scientific data, is a very valuable business asset to them.

Here is another chart from the Pollock Roe fishery.



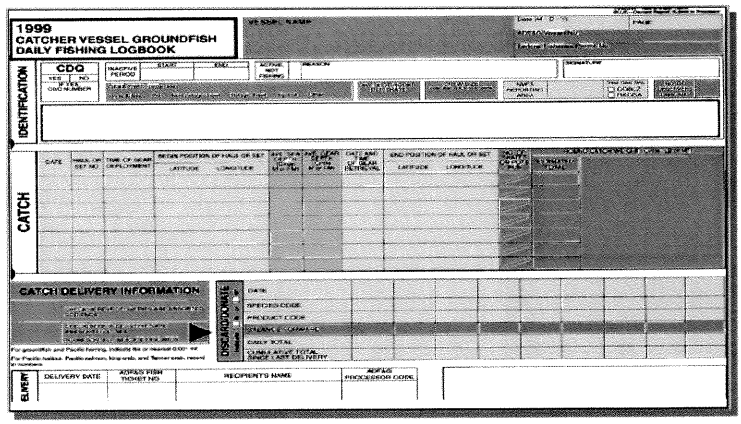
In this fishery, the percentage of roe bearing females is more important than gross tonnage landed.

Operation:
Use of the Electronic LogBook is very easy. All of the event functions such as starting a trip, starting a tow, ending a set, printing a daily report and so forth, require only a single keystroke. Data entry functions such as haul weight and species composition are sequential and intuitive, and require only a few keystrokes from the number pad.

The following sequence of slides illustrates how we set up the Electronic LogBook and how the user works their way through a trip.

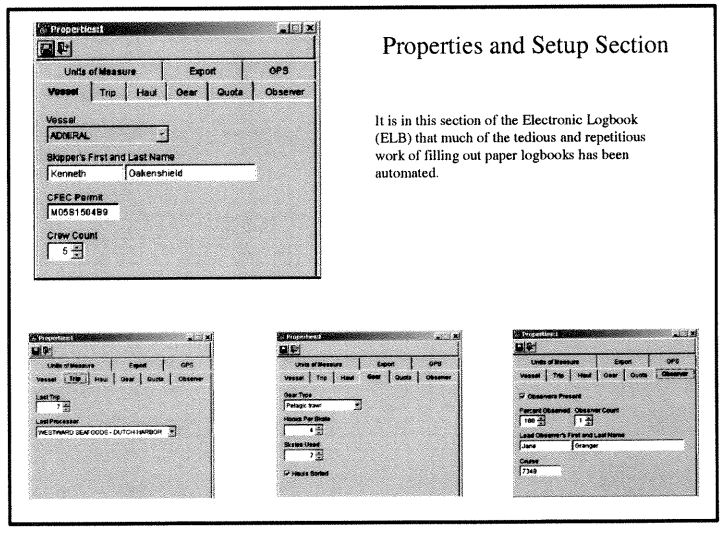
The following view illustrates the approach used to evaluate how much of the logbook could be automated with a computer and a GPS.

Green	Never Changes
Blue	May Change per Trip
Yellow	No User Interaction
Orange	Possible User Interaction Could use Sensor Input
Red	User Defined



We started out with this paper logbook and we identified the various sections that:

Never change;
Rarely change;
Require no human interaction; and
Change haul-by-haul, set-by-set.

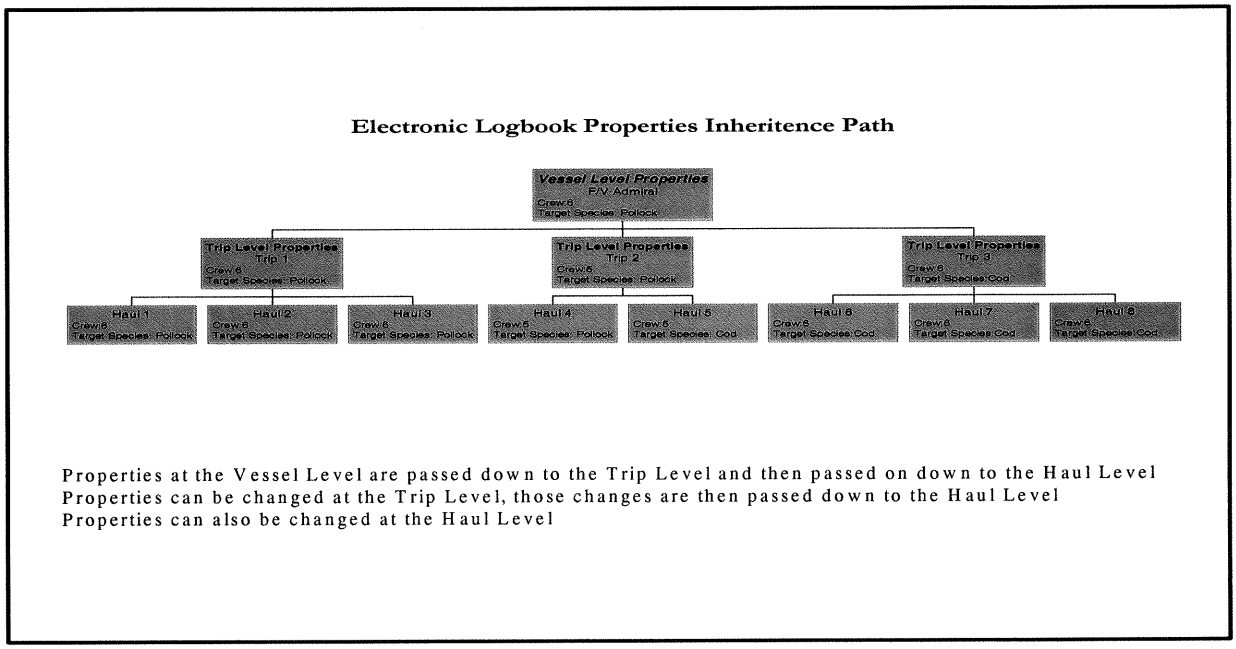


Properties and Setup Section

It is in this section of the Electronic Logbook (ELB) that much of the tedious and repetitious work of filling out paper logbooks has been automated.

We front-load the redundant data into the PROPERTIES AND SETUP section of the program.

These data elements are then passed down from the initial VESSEL setup properties – down to the TRIP properties, and then further on down to the HAUL properties.

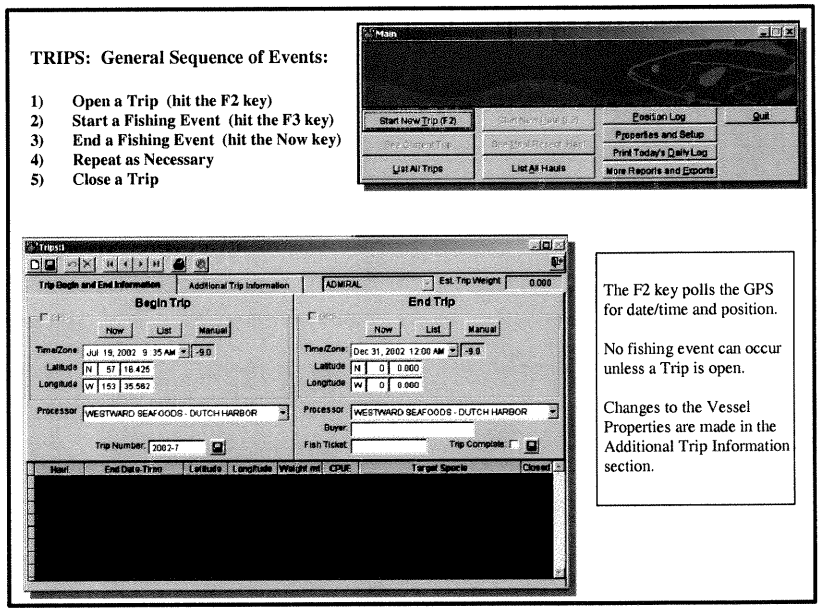


HERE'S HOW IT WORKS!

You turn on the program and it starts polling the GPS at user-defined intervals. (Our default setting is five-minute intervals.) The logbook then begins to record and archive:

- Time and Date;
- Position, in Latitude and Longitude;
- Speed;
- Heading; and
- Geo-referenced management areas.

To start a trip, the user simply hits the F2 key or the "T" key. At this point they can walk away from their computer. However, by hitting one of these keys, they have just recorded their time and position.



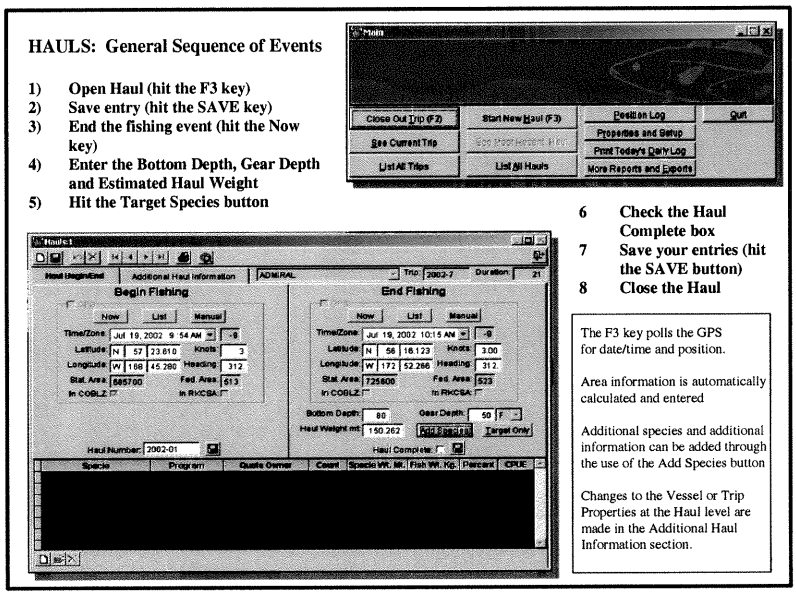
To start a haul or set, the user simply hits the F3 key or the "H". Now the software polls the GPS (as it did at the beginning of the trip) and collects the:

- Time and Date;
- Latitude and Longitude;
- Speed and Heading; and
- Geo-references the vessel's position to correct management area.

To end a haul or set, the user simply hits the Enter key.

The only fields that the user has to enter manually is the:

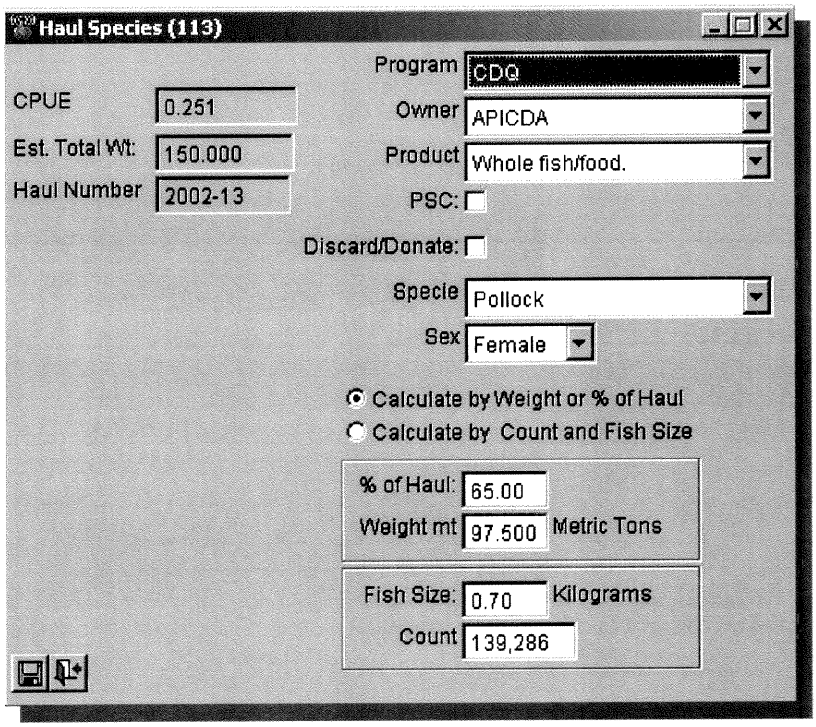
- Average bottom depth;
- Average gear depth; and
- Estimated haul weight.



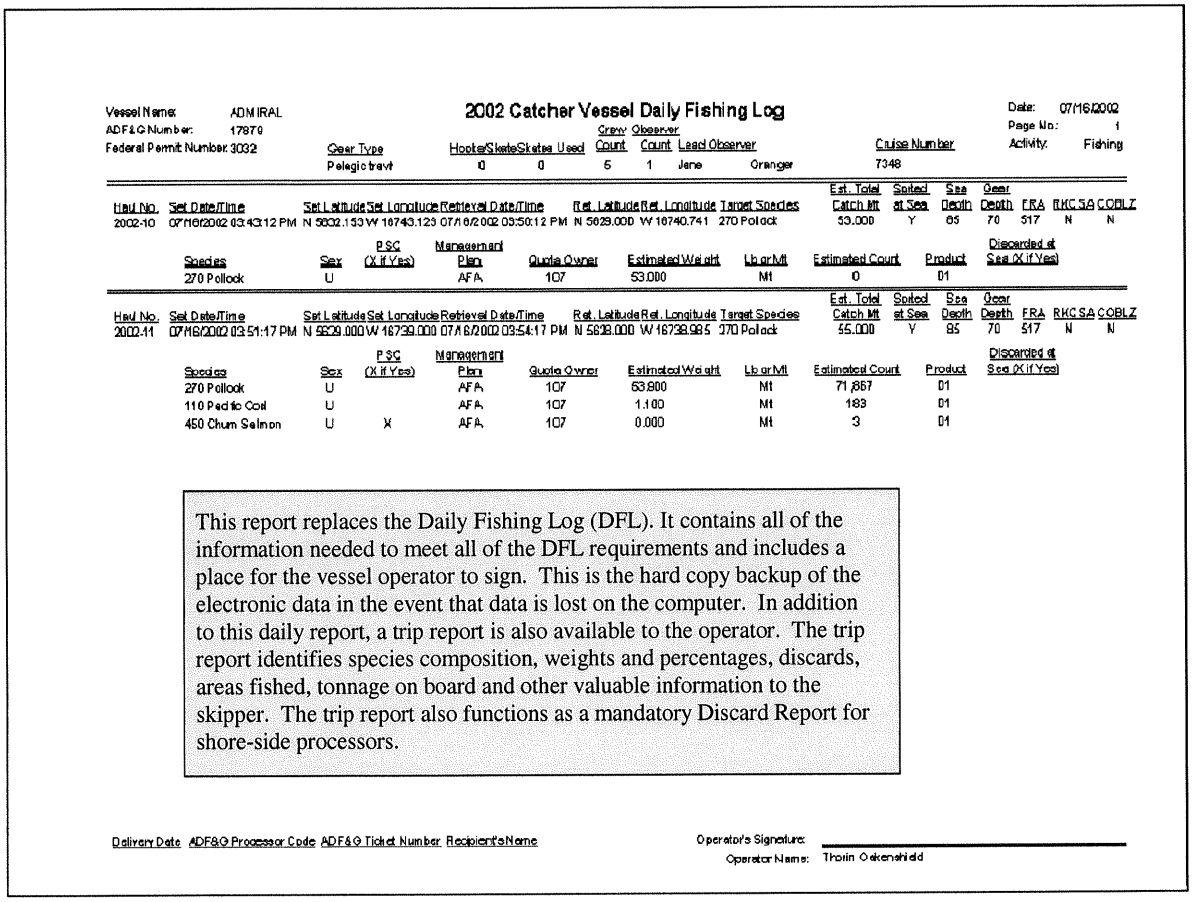
To be legally compliant, the fisherman needs only to identify the TARGET SPECIES, and that was provided earlier in the PROPERTIES AND SETUP section.

However, as we mentioned earlier, of the haul and species composition data are also very important to fishermen. What we have found is that once fishermen are comfortable with the new software, they begin recording more than just the federally required minimums. They are filling in the:

- Species composition;
- Average fish weight;
- And in some cases like the roe fisheries, they are even putting in the sex ratios.



At the end of each day, if they chose to use the *Electronic LogBook* instead of the NMFS Daily Fishing Log for compliance, they print out and sign a report of the days fishing activity.



Vessel Name: ADMIRAL
ADF&G Number: 17879
Federal Permit Number: 3032

2002 Catcher Vessel Daily Fishing Log

Date: 07/16/2002
Page No.: 1
Activity: Fishing

Gear Type	Hooks/Skate	Skates Used	Crew Count	Observer Count	Lead Observer	Cruise Number
Pelagic trawl	0	0	5	1	Jane Granger	7348

Haul No.	Set Date/Time	Set Latitude	Set Longitude	Retrieval Date/Time	Ret. Latitude	Ret. Longitude	Target Species	Est. Total Catch Mt	Spotted at Sea	Sea Depth	Gear Depth	FRA	RKC SA	COBLZ
2002-10	07/16/2002 03:43:12 PM	N 5932.153	W 16743.123	07/16/2002 05:50:12 PM	N 5929.000	W 16740.741	270 Pollock	53.000	Y	85	70	517	N	N

Species	Sex	PSC (X if Yes)	Management Plan	Quota Owner	Estimated Weight	Lb or Mt	Estimated Count	Product	Discarded at Sea (X if Yes)
270 Pollock	U		AFA	107	53.000	Mt	0	01	

Haul No.	Set Date/Time	Set Latitude	Set Longitude	Retrieval Date/Time	Ret. Latitude	Ret. Longitude	Target Species	Est. Total Catch Mt	Spotted at Sea	Sea Depth	Gear Depth	FRA	RKC SA	COBLZ
2002-11	07/16/2002 03:51:17 PM	N 5929.000	W 16739.000	07/16/2002 09:54:17 PM	N 5928.000	W 16738.985	270 Pollock	55.000	Y	85	70	517	N	N

Species	Sex	PSC (X if Yes)	Management Plan	Quota Owner	Estimated Weight	Lb or Mt	Estimated Count	Product	Discarded at Sea (X if Yes)
270 Pollock	U		AFA	107	53.900	Mt	71,867	01	
110 Pacific Cod	U		AFA	107	1.100	Mt	183	01	
450 Chum Salmon	U	X	AFA	107	0.000	Mt	3	01	

This report replaces the Daily Fishing Log (DFL). It contains all of the information needed to meet all of the DFL requirements and includes a place for the vessel operator to sign. This is the hard copy backup of the electronic data in the event that data is lost on the computer. In addition to this daily report, a trip report is also available to the operator. The trip report identifies species composition, weights and percentages, discards, areas fished, tonnage on board and other valuable information to the skipper. The trip report also functions as a mandatory Discard Report for shore-side processors.

Delivery Date | ADF&G Processor Code | ADF&G Ticket Number | Recipient's Name

Operator's Signature: _____
Operator Name: Thorin Oekenshield

A discard report for the trip is printed and signed at the end of each trip and given to the processing plant at the time of delivery. Electronic data is emailed to NMFS at the end of each trip.

Summary:

This brief presentation can only scratch the surface of how this electronic data collection program has evolved and how fishermen and managers are using the real-time data that is being collected. However, it can be said that giving fishermen electronic access to their data has made them willing partners in the data collection process. Now is a good time for fisheries managers to move forward and build on this enthusiasm for real-time data collection.

We would be pleased to provide a more in-depth presentation at a future PFMC meeting.