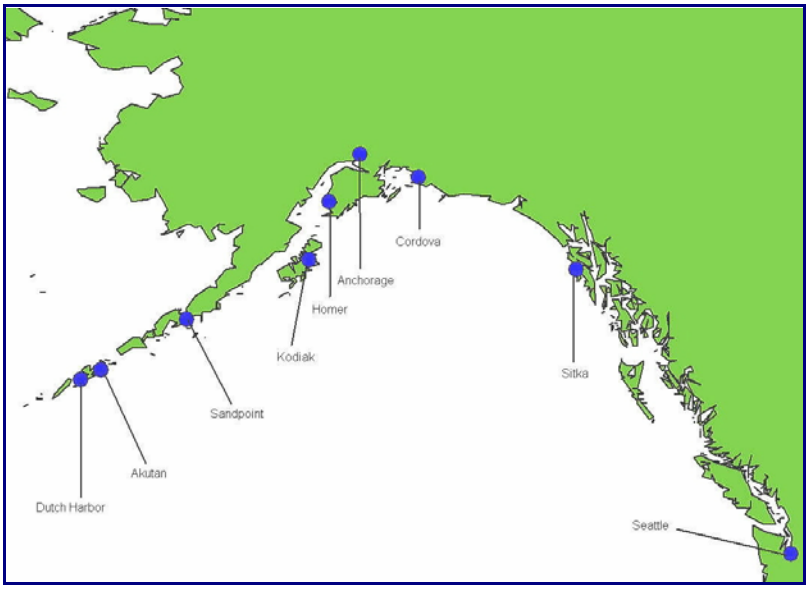

Independent Review of the North Pacific Groundfish Observer Program

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Commonly used abbreviations

ABC	Acceptable Biological Catch
ADF&G	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFMA	Australian Fisheries Management Authority
AFSC	Alaska Fisheries Science Center
AFU	Alaska Fishermen's Union
AP	Advisory Panel (of the NPFMC)
APO	Association of Professional Observers
BSAI	Bering Sea / Aleutian Islands
C/P	Catcher/Processor
CDQ	Community Development Quota
CFR	Code of Federal Regulations
CPUE	Catch Per Unit Effort
EEZ	Exclusive Economic Zone
EMIS	Enforcement Management Information system
ESA	Endangered Species Act
EU	European Union
FMP	Fishery Management Plan
GOA	Gulf of Alaska
GPS	Global Positioning System
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
IR/IU	Improved Retention/Improved Utilization
JPA	Joint Partnership Agreement
LOA	Length overall
MARPOL	International Convention for the Prevention of Pollution from Ships, or MARPOL Treaty
MMPA	Marine Mammal Protection Act
MSCDQ	Multispecies Community Development Quota
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organization
NMFS	National Marine Fisheries Service
NMML	National Marine Mammal Laboratory
NOAA	National Oceanographic & Atmospheric Administration
NORPAC	North Pacific database
NPFMC	North Pacific Fishery Management Council (the Council)
NPFOTC	North Pacific Fisheries Observer Training Center
NPGOP	North Pacific Groundfish Observer Program
OPO	Observer Program Office (AFSC, Seattle)
OTC	Official Total Catch
OY	Optimum Yield
PRR	Product Recovery Rate
PSC	Prohibited Species Cap
RACE	Resource Assessment Conservation Engineering (AFSC, Seattle)
REFM	Resource Ecology & Fisheries Management (AFSC, Seattle)
SCA	Service Contract Act
SSC	Scientific and Statistical Committee (of the NPFMC)
TAC	Total Allowable Catch
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service

Executive Summary

Background

The North Pacific Groundfish Observer Program (NPGOP) collects, maintains, and distributes data for scientific, management, and regulation compliance purposes for fisheries in the 900,000 square mile Exclusive Economic Zone off the coast of Alaska. The NPGOP is administered from the Observer Program Office (OPO) at the Alaska Fisheries Science Center (AFSC).

The NPGOP was created in its current form in January 1990, with the establishment of the Alaska domestic groundfish observer program. Prior to this, observers deployed on foreign vessels had been paid for through fees collected directly from the foreign fleet. In 1990, NMFS lacked the authority to collect user fees from participants in the domestic fishery, effectively ending its ability to provide funds for, and use the federal contracting process. Consequently, the North Pacific Fisheries Management Council (the Council) devised an interim third party "pay-as-you-go" system under which vessel and processing plant owners contracted directly with private observer companies certified by NMFS, and paid for observer services as needed.

Under the NPGOP, requirement of observer coverage is based on vessel size and gear type for vessels and on the amount of groundfish delivered each month for fish processing plants. The Federal Government covers the costs associated with the administration of the program by the OPO, observer certification training and briefing, observer debriefing, and management of the observer data.

The third party pay-as-you-go system developed by the Council was regarded as an interim solution, designed to meet the needs at that time. From the outset, the Council was committed to working with Congress on a Magnuson Act amendment which would authorize collection of fees to cover observer coverage costs. Under the fee-based program concept, NMFS would contract directly for observer services, thereby eliminating the potential for conflict of interest generated by the direct contractual arrangement between the industry and the observer providers, and establishing arrangements under which observer companies would be directly accountable to NMFS for data quality.

The Magnuson Act amendment was passed in 1990 and NMFS began to develop the regulatory infrastructure necessary to support the new Observer Program and to put in place a system for collecting fees. This later became known as the North Pacific Fisheries Research Plan, or Research Plan for short. Final action to implement the Research Plan was taken in 1994. The implementation plan provided for collection of some fees in 1995 so that government funds would be available to initiate contracts with observer companies before the beginning of 1996.

During 1995, industry representatives became increasingly concerned with some aspects of the fee collection system, the complexities of the government procurement system, and the challenges associated with reaching consensus on coverage levels which would meet information needs for science, management, and compliance. Thus, in December 1995, the Council voted to repeal the Research Plan. In its place, the Council initiated development of a modified pay-as-you-go Observer Program under which a "prime contractor," operating under a Joint Partnership Agreement (JPA) would receive all industry payments for observer coverage and would, in turn, contract with observer providers. However, this too failed when the designated prime contractor, the Pacific States Marine Fisheries Commission, was unable to resolve legal and insurance problems associated with this role.

In 1996, the Council called on NMFS to develop a new fee-based program and asked staff to consider several design concepts, some of which could not be implemented under existing Magnuson-Stevens Act authority. Over the past few years, NMFS and the Council have worked together to address fundamental concerns with the design of the NPGOP, primarily associated with the third party pay-as-you-go system. In 1998, the AFSC decided to undertake a comprehensive review of the NPGOP to address these concerns prior to embarking on another major attempt to re-develop the program. This independent report, initiated in August 1999, forms part of that review process.

Review strategy

This independent review was commissioned by NMFS. While it was intended to look at the overall performance of the NPGOP, the main focus was on components under the control of NMFS, and how NMFS could best move towards achieving the goals and objectives it has set for the NPGOP (note that these goals and objectives are not yet those of the NPGOP as a whole).

Two basic approaches were used for the evaluation of the NPGOP. The first was to look at its performance relative to the Program's stated goals and objectives - has it met these in a cost effective manner, and, if not, what needs to be done to ensure that it does in the future? The second approach was to look at the program objectives, structure, implementation and performance relative to similar observer programs in the region and elsewhere in the world, making direct "peer-group" comparisons.

One of our main strategies for evaluating the Observer Program was to contact as many of the stakeholder groups as possible to solicit opinions and data on its performance. A large amount of information was provided and many opinions expressed during meetings, interviews and other contacts. It was then up to the review team to process this information in order to reach independent and objective conclusions and provide recommendations for the future of the Observer Program. Within the scope of this review it was not possible to treat every issue comprehensively. Hence, not every comment, recommendation or suggestion proposed by the stakeholders is critically reviewed. Instead we have tried to focus on what are perceived to be the major issues within the NPGOP and provide recommendations for the direction in which the program managers should take it both in the short and longer term. We considered the following five major issues:

- program goals and objectives,
- program authorities and organizational structure,
- coverage levels,
- cost distribution, and
- the observer support system.

Note, however, that there are important issues which cut across these headings. For example, problems and potential solutions associated with the Service Delivery Model have fundamental implications for the program authorities and organizational structure, the cost distribution and the observer support system. At the end of Section 3 we have also added the issue of stakeholder outreach, which we consider to be an important component of any observer program.

The main body of the report presents our discussion and recommendations. To make this report as comprehensive as possible, we have also included the "unprocessed" results of our contacts with stakeholders in an appendix (Appendix 3). None of this information should be viewed necessarily as opinions or conclusions of the review team; it is purely a presentation of information received. Nevertheless, this feedback was one of the major sources of information on which we have based our conclusions.

Other important sources of information for the review included a considerable number of papers, meeting reports, and memos relating to the NPGOP, its problems and the attempts which have been made to improve it. Also, a member of the review team attended the three week observer training course in Seattle in August/September 1999, and observed a number of observer debriefings. Finally, in view of the number of present and past observers and a desire to gain as balanced a view as possible, an extensive observer mail survey was undertaken in late 1999.

The stakeholder groups we considered are listed below:

- **National Oceanic and Atmospheric Administration (NOAA) & National Marine Fisheries Service (NMFS)**
  - NMFS Alaska Regional Office
  - NMFS Alaska Fisheries Science Center (AFSC)
  - NMFS Office of Law Enforcement, Alaska Enforcement Division
  - NOAA Office of General Counsel, Alaska Region

- **Other governmental organizations**
  - North Pacific Fishery Management Council (NPFMC)
  - International Pacific Halibut Commission (IPHC)
  - Pacific States Marine Fisheries Commission (PSMFC)
  - Alaska Department of Fish and Game (ADF&G)
  - U.S. Fish and Wildlife Service (FWS)
  - U.S. Coast Guard (USCG), 17th District
  - Sea Grant and the North Pacific Fisheries Observer Training Center (OTC)

- **Fishing Industry**
  - Industry associations
  - Multi-species Community Development Quota (MSCDQ) Group
  - Data contractors & other services

- **Observer companies**
  - Alaskan Observers, Inc.
  - Data Contractors, Inc.
  - Frank Orth & Associates
  - NWO, Inc.
  - Saltwater, Inc.
  - TechSea International

- **Observer and observer organizations**
  - Individual Observers
  - Association for Professional Observers (APO)
  - Alaska Fishermen's Union (AFU)

- **Non-governmental organizations**
  - Alaska Marine Conservation Council (AMCC)
  - Other non-governmental organizations that get involved in fishery issues in the North Pacific region were contacted (i.e. Greenpeace, Center for Marine Conservation, Pacific Seabird Group, American Bird Conservancy, Sierra Club). However, they have not been actively involved in issues related to the NPGOP, therefore, had no comments to provide.

Summary of findings

The main report is a substantial document containing a large amount of information on the NPGOP, discussion of the current issues within the Program and recommendations for its improvement. Here we present an at-a-glance overview of findings of the review in the form of a summary table. To succinctly paraphrase the report we have adopted a project planning format, which lists the Present, the Problems, the Possibilities and the Proposals:

- Present - the present conditions of the NPGOP
- Problems - problems which result from the present situation
- Possibilities - a brief look at the possible options available to address the problems
- Proposals - a summary of our recommendations for the future development of the NPGOP to address the problems, given the possibilities.

The main issues are presented under the same headings used in the main report and listed in the previous section of this executive summary. There is obviously a substantial amount of detail in the main report which could not be included in this summary, and readers are strongly advised to read the relevant sections of the main report in order to gain a more complete picture of the problems and the suggestions we have made. As an introduction to the table, below we provide an abstract which explains the overarching difficulties facing the OPO.

Present: An interim design (third party, pay-as- you-go) adopted for the NPGOP, based on constraints existing in 1989/90 remains in place, despite substantial effort to devise a replacement design acceptable to all stakeholders.

Problems: The failure of the Research Plan and JPA proposals after several years of effort, and the fact that recognized problems remained, were demoralizing to those involved in their preparation. Remedial action is now limited to short term patch-up remedies applied to the existing system, even though it is recognized by many stakeholders that fundamental change in the NPGOP's structure is required. The OPO is now struggling to respond to conflicting scientific, catch accounting and compliance needs, many of which were not envisioned when the Program was originally designed.

Possibilities: Despite these problems, the NPGOP has achieved a great deal. It is the largest single fisheries observer program in the world and has been functioning continuously in its present form for more than ten years. This achievement is a great credit to those involved in the implementation of the Program. It should not, however, be viewed as an indication that no action needs to be taken. Over time, increasing emphasis has been placed on catch accounting, and individual vessel accountability, resulting from new regulations covering bycatch and quota allocation. The problems of the interim SDM have become even more acute as this emphasis has increased and there is no doubt that significant change is required for the Program to function effectively in the future.

Proposal: This report contains a large number of recommendations for changes to the structure and administration of the NPGOP (see following table), requiring action at many levels in the Program. Implementation of these recommendations requires the development of a coordinated action plan detailing activities, with clear, short and long term objectives and milestones leading to the resolution of existing problems within the NPGOP.

Present	Problems	Possibilities	Proposal
Program goals and objectives			
Observer Program mission statement, goals and objectives drafted by the NMFS OPO in 1996, but not yet formally adopted for the NPGOP as a whole.	The logical structure of the existing draft is poor. The goals and objectives include conflicting demands and there is no clear understanding of priorities amongst all stakeholders. There is no apparent linkage between the current draft and the SDM, which comprises the activities and distribution of labor intended to achieve the objectives. Priorities for the NPGOP have been changing over time without consideration of changes required within the SDM.	If the NPGOP's goals and objectives are more clearly defined and understood, this will promote uniformity in the performance of program tasks and clarify requirements for the SDM. Awareness of the purpose of the Program should be promoted among all stakeholders. The main report presents an alternative structure for the NPGOP goals and objectives, which could form the basis for discussion amongst stakeholders, leading to formal adoption for the NPGOP as a whole.	The Program's goals and objectives should be reexamined using more structured program planning tools, such as the Logical Framework. This should be done as part of a wider consulting exercise which provides opportunity for on-going input from the stakeholder community both within and outside NMFS. e.g. using facilitated planning workshops. A draft of the goals and objectives should be offered as a "straw man" to initiate discussions at the planning workshop. The costs, benefits and environmental value of the NPGOP should be studied.

Present	Problems	Possibilities	Proposal
NPGOP Authorities and organizational structure			
Industry pays private observer companies directly for observer coverage as required.	The direct business relationships between fishing companies and observer companies create, at a minimum, the appearance or perception of a conflict of interest. The pay-as-you-go observer procurement system leaves observers and observer companies vulnerable to pressures that jeopardize the quality and credibility of the data that the Program is seeking to provide, particularly with the increased emphasis on individual vessel accountability which has taken place since the Program started. Negative incentives also exist at the individual observer level, which may add to the data quality problem. For example, in some fisheries, observers can benefit directly from under reporting bycatch of protected species, because this prolongs the open season, thereby extending the requirement for observer coverage and their days at sea.	A new SDM needs to be developed which removes the requirement for industry to make direct payments to the observer companies. There are three main types of SDMs used for fisheries observer programs: • government program; • government-contractor relationship; and • SDMs involving “third party” contracting. Six essential elements for an SDM to ensure observer program objectives are met have been identified: • arms-length from industry; • operational efficiency; • high level of integrity and perception of integrity; • provision of high quality, experienced observers; and • responsiveness to government and industry needs. The most obvious way to eliminate the potential conflict of interest and provide observers with increased backup on compliance issues would be to make all observers federal employees within a wholly government controlled observer program. This would enable NMFS to effectively deliver on its responsibilities for monitoring north Pacific groundfish. However, this would result in major disruption amongst current stakeholders, and would resurrect the problems of funding and cost equity which were the reason for the failure of the Research Plan in 1995/96.	If the option of a government program is open to the OPO, then we recommend that it is implemented as soon as possible, to enable NMFS to effectively deliver on its responsibilities for monitoring north Pacific groundfish. In the event that this is not an option, a viable alternative would be to establish direct contractual relationships between the government and the observer companies.

Present	Problems	Possibilities	Proposal
Multiple observer companies compete on a day-to-day basis to provide observer coverage for multiple industry clients.	Day-to-day competition between observer companies may give rise to poor work conditions for observers which may be detrimental to the observers' work and have negative consequences for data quality. for example, observers have reported that vessel masters or owners have refused to take them on board, because they had previously filled out affidavits or noted violations on that vessel, and the vessel masters have sought a replacement observer. Vessels which are not subject to 100% coverage of sea days can turn away an observer and proceed with their fishing trip, opting to fulfill the coverage requirement at a later date.	The use of private observer companies in the NPGOP *per se* is not the root cause of the problem with the SDM. It is the lack of direct contractual obligations between the government and the companies, the direct industry payments, and the existence of multiple observer companies competing for business from industry clients which have lead to many of the problems with the SDM noted during this review.	To address the problem of day-to-day competition and the direct industry-observer company relationship we recommend a two-phase approach for implementation in the short term. Phase One would develop and implement a system under which the industry has no choice regarding the observer company from which it can obtain the observer service it requires. To achieve this, and allow several observer companies to still take part in the Program, we suggest that the NPGOP is subdivided into smaller units, based on a rational sub-division of the north Pacific groundfish fishery. Only one observer company would be certified to provide observer coverage in each fishery unit (although one company could be certified for more than one unit). Phase two would seek to establish direct contractual agreements between observer companies and the government. This would be a natural progression from the certification process established in phase one. Some form of agreement would be required to ensure the conditions of certification (including fixed prices charged to the industry) are met. This could be achieved through carefully drafted certification conditions (which if not met would result in de-certification), but a formal contract would be more effective. The form of the contract may or may not imply that the pay-as-you-go system would need to be replaced. A "no-cost" contract could be used to establish government control first, with the cost recovery issue being addressed separately.

Present	Problems	Possibilities	Proposal
Coverage levels			
Some vessels do not require observers. Government control over placement of observers and the quality of performance of the data collection task is limited.	Non-random placement of observers in the groundfish fleet may result in bias in stock assessment data. There are no observer data from vessels less than 60ft LOA. Vessels may behave differently when they have observers on board compared to when they do not. The observer companies have experienced difficulties in finding enough observers, for example to fulfill the demand for MSCDQ vessels.	Government control over the placement of observers needs to be strengthened. There are alternative approaches to monitoring fishing activity, which have potential to reduce the number of observers required. These include vessel monitoring systems (VMS), digital video surveillance, and the use of imaging devices with fish recognition software for automatic monitoring of species composition.	The requirement for government control over observer placement would be met either by a wholly government based observer program, or through the establishment of direct government-observer company contracts. The Council should establish coverage requirements for placement of observers on vessels less than 60ft LOA. Logbook data should be used to cross-reference with observer data and for extrapolating observer sample data to the un-observed component of the fishery. Development of a mechanism, agreeable to the OPO, observer companies, and observers, under which waivers can be granted for short extensions to the 90 day cruise limit. Alternative approaches to monitoring fishing activity (i.e. other than using observers) should be investigated.

Present	Problems	Possibilities	Proposal
Cost distribution			
Observer coverage is paid for by the industry under a pay-as-you-go system	Only those vessels with observer coverage pay for the cost of the Program, creating a cost inequity across the groundfish fleet. Many who benefit from the NPGOP pay no costs at all (i.e. the <60ft LOA vessels). Among those who do pay, some operators' observer costs comprise a disproportionately high percentage of their gross revenues, in many cases much higher than 2%.	The funding policy should: • provide financial support for current and future observer coverage needs; • ensure adequate observer coverage and data quality; • ensure equity of payment to all industry sectors; • keep costs of observer coverage reasonable; and • ensure adequate compensation for fisheries observers.	The Council needs to return to the issue of funding of the Observer Program as part of the process of changing the SDM. It may be possible to address some issues within the SDM without changing the pay-as-you-go system. Nevertheless, cost inequities will need to be addressed sooner rather than later. The Council should develop a fee system which distributes the cost of the observer program across all vessels which benefit - i.e. include the <60ft vessels targeting groundfish.
The Research Plan included a cost distribution plan based on a percentage of ex-vessel value of the catch (2%, as allowed for in the Magnuson-Stevens Act).	Under the Research Plan proposal, the observer costs to many fish processing companies would have increased substantially. Each participant paid the same fraction of the landed value of their catch, but fees were collected only from processing companies (processing companies were supposed to collect half of their fees from owners of vessels delivering to their plants).	An alternative to the pay-as-you-go payment system needs to be devised. The council has discussed a number of alternatives, including: • 2% of ex-vessel value with an absolute cap (as authorized under Magnuson-Stevens); • 2% fee with a supplemental program for monitoring programs which require direct individual vessel benefits such as the MSCDQ, AFA, and similar programs; • TAC set aside for cost recovery, as was used by ADF&G to help fund observer program expansion in the Alaska crab fisheries; • pay-as-you-go with an ancillary fee, surcharge, or voluntary industry contribution; and • full federal funding. The Council has established that its current task is to develop a model that relies on an industry fee assessment and the use of contractors for observer procurement (NPFMC 1998).	The most promising of the options discussed by the Council to date is probably the TAC set aside. Its advantages compared to the Research Plan options include the removal of the need to assess fees on vessels and processors, and elimination of the accounting and collection burden placed on processors. We also recommend that the Council consider another option: linking observer fees to fishing effort, in the form of days at sea. This would express the program costs in the same "currency" as the service provided (i.e. days). As the observer requirement changes, due to changes in the overall days spent fishing, so would the fee levied.

Present	Problems	Possibilities	Proposal
The observer support system			
Under the existing SDM there is a lack of opportunity for clear accountability and support for the observers by NMFS. Under the SDM, NMFS have developed an evaluation system for providing the OPO, observer companies, data editors and end users with a description of sampling methods, a quality rating of the data and observer performance.	The commercial pressures created by the pay-as-you-go system can have an effect on observers' working conditions, which may, in turn, affect observer morale and hence data quality. Low remuneration is cited as an important cause of the unionization of observers in the mid 1990's. The results of the observer survey indicate that job satisfaction amongst observers is low. Observer turnover is high, with approximately 45% of trained observers completing only a single cruise (OPO figures from observers trained in 1998 and 1999). Some observers consider the observer evaluation to be inconsistent and subjective. More than 20% of respondents rated it as unsatisfactory(the lowest possible rating). The evaluation system may also provide negative incentives to observers to limit information shared with the debriefer, and to "say the right thing" to receive a better score.	The OPO has already responded to the need to enhance support for observers through the establishment of the observer cadre. This is intended to: • improve communications between components of the Observer Program; • increase support for observers, particularly in the field; and • improve relations with industry through enhanced outreach. Observers can be encouraged to remain longer in the profession through better incentives and career path development; including a clearer progression from trainee observer, through various stages of experience with commensurate levels of responsibility and compensation. The training and debriefing processes and newsletters, such as the APO's *Mail Buoy* can be used to promote the concept of observing as a profession, and retention of trained observers for several years if possible.	A reformed SDM, will be the best means of achieving greater support for observers. The observer cadre is a good initiative and should be encouraged. We support it as a useful short term improvement to alleviate some of the problems created by the existing SDM, but it is likely to be also a valuable component of a reformed SDM. The OPO should develop a more objective and less confrontational evaluation system for observers which provides encouragement and fosters confidence in the support system provided by NMFS. The need for the simple 0,1,2 scoring system should be reconsidered. The OPO should solicit regular feedback from observers on the evaluation system, and allow observers the opportunity to comment on their evaluation. Observers need to be given clear guidance on their roles and priorities in the NPGOP, in an effort to create a more standardized interpretation, particularly amongst trainee observers. Some progress has been made in this regard with the revision of the NPGOP Observer Manual in 1999. The OPO should seek to enhance and broaden the observer recruitment criteria to include candidates with more practical sea-time experience; waive the requirement for a college degree for individuals who have gained requisite scientific experience elsewhere. The training program should provide better preparation and support for trainee observers in what to expect from working at sea on fishing vessels (for example through training on vessels), and, if possible, accompany all first-time observers to their first deployment (for example using experienced observers, and/or cadre personnel). The OPO should promote the use of debriefers with recent and varied sea-time experience on vessels similar to those observed by individuals they are debriefing.

1. Introduction

1.1 Background[1]

The North Pacific Groundfish Observer Program (NPGOP[2]) collects, maintains, and distributes data for scientific, management, and regulation compliance purposes for fisheries in the 900,000 square mile Exclusive Economic Zone off the coast of Alaska. This includes the Gulf of Alaska and the Eastern Bering Sea. The NPGOP is administered from the Observer Program Office (OPO) at the Alaska Fisheries Science Center (AFSC), Alaska Region National Marine Fisheries Service (NMFS). The Observer Program deploys, through private observer companies, nearly 400 certified groundfish observers each year, providing 25 to 35 thousand data collection days annually on a variety of commercial fishing vessels. The total catch of the groundfish fishery in 1998 was 1.9 million metric tonnes (retained catch 1.7 million metric tonnes), with an ex-vessel value of $385 million (Hiatt and Terry 1999). The annual cost to industry of the NPGOP is estimated to be $8-10 million, with a further $2 million in Agency costs.

The Observer Program has its origins in 1973 with the placement of observers by NMFS on foreign vessels operating off the northwest and Alaskan coasts. The foreign fleets operating in this area at that time included those from Japan, Russia, Taiwan, the Republic of Korea, and Poland. The primary goal of the observers was to record details of bycatch. They started by determining bycatch rates of Pacific halibut in groundfish catches, and verifying catch statistics in the Japanese crab fishery. Later, observers collected data on bycatch of other commercially important species including king crab, Tanner (snow) crab, and salmonids. This program was funded through fees collected from the foreign fleet.

The flatfish and pollock fisheries off Alaska remained largely foreign offshore fisheries until passage of the Magnuson Fishery Conservation and Management Act in 1976. With this Act, the U.S. declared management authority over fish resources within 200 nautical miles from its shores, known as the Exclusive Economic Zone (EEZ). Nationally, the goals of the Magnuson Act were to Americanize fisheries over time and implement fishery management plans to maintain optimum yield (OY) of the resources, while protecting or rebuilding depleted fish stocks. Additionally, the Magnuson Act established eight Regional Councils to manage the nation's fisheries. The North Pacific Fisheries Management Council (the Council) has jurisdiction over the EEZ off the coast of Alaska.

In the years following the establishment of the EEZ, the American Fisheries Promotion Act aimed to encourage investment in the resources in the north Pacific by requiring that fish quotas be given preferentially to nations which contributed heavily to the development of the U.S. fishing industry. Joint-venture fisheries, consisting of American catcher vessels delivering their catch to large foreign floating processors, allowed foreign countries to continue receiving their quota for several years, while the domestic fleet was developing. By 1991, all foreign commercial fishing within the 200 mile EEZ was terminated, leaving an entirely domestic fishery.

[1] The North Pacific Groundfish Observer Manual, 1999, and other review documents provided by the OPO were important source documents for the background material presented in this section and throughout this report.

[2] The terms “NPGOP,” “the Program” and “the Observer Program” are used synonymously within this document to refer to the overall Observer Program and all its various components (see section 2.1.2 for a summary). Where sub-components of the Program are referred to they are explained within the text. Where the term “observer program” is used in its non-capitalized form it refers either to observer programs other than the NPGOP, or to observer programs in the generic sense.

As the fisheries changed, so did the Observer Program. In January 1990, the Alaska *domestic* groundfish observer program (what is now known as the NPGOP) was established, in accordance with Amendments 13 and 18 to the groundfish management plans for the Bering Sea/Aleutian Islands and the Gulf of Alaska areas (November 1, 1989). At that time, NMFS lacked the authority to collect user fees from participants in the domestic fishery, effectively ending its ability to provide funds for, and use the federal contracting process. Consequently, the Council devised an interim third party "pay-as-you-go" system under which vessel and processing plant owners contracted directly with private observer companies[3] certified by NMFS, and paid for observer services as needed.

Under the NPGOP, requirement of observer coverage is based on vessel size and gear type for vessels and on the amount of groundfish delivered each month for fish processing plants.[4] The Federal Government covers the costs associated with the administration of the program by the OPO, observer certification training and briefing, observer debriefing, and management of the observer data.

1.2 Context and purpose of this review

1.2.1 Perceived problems with the NPGOP

Over the last decade, demands on the NPGOP and its observers have been evolving, resulting in increased responsibilities. Additional requirements placed on the program have not been handled through a systematic process, and concerns regarding program integrity, conflicts of interest, cost equity, coverage level flexibility, and maintenance of a corps of experienced, professional observers exist. The major concern is that the current infrastructure may not be providing an adequate foundation to handle the large number of individual observers (168 deployed at sea as of May 1st 2000), five observer companies, (six, as of late 1999), and 25,000-35,000 data collection days each year. Thus, data quality may be jeopardized.

This independent review of the NPGOP has been commissioned by the NMFS AFSC in the context of widespread and long term dissatisfaction with the existing structure of the NPGOP. As described in Section 1.1, the third party "pay-as-you-go" system developed by the Council in 1990 was regarded as an interim solution, designed to meet the needs at that time. From the outset, the Council was committed to working with Congress on a Magnuson Act amendment which would authorize collection of fees to cover observer coverage costs. Under the fee-based program concept, NMFS would contract directly for observer services, thereby eliminating the potential for conflict of interest generated by the direct contractual arrangement between the industry and the observer providers, and establishing arrangements under which observer companies would be directly accountable to NMFS for data quality. In 1990, the Magnuson Act was amended to authorize the Council to prepare a North Pacific Conservation Research Plan. Section 313 (b)(2)

[3] The term "observer company" is used throughout this review to describe the private companies certified by NMFS to provide observers for the vessels covered by the NPGOP. In the past, the term "contractor" has been used routinely to describe these companies in NPGOP literature. We decided to adopt the generic term observer company rather than contractor because under the current service delivery model there is no contractual agreement between NMFS and the companies. The term contractor could therefore be misleading.

[4] The term "processing plant" is used throughout this review to represent both shoreside processing plants and floating processors which come under the requirements of the NPGOP.

established the system of fees. As originally passed, the fee rate was "not to exceed" one percent of the value of the fish and shellfish harvested under the jurisdiction of the Council, including the North Pacific halibut fishery. Two years later, Congress amended Section 313(b)(2)(E) of the Magnuson Act to change the observer fee rate from "not to exceed" one percent to "not to exceed" two percent.

Following the initial Magnuson Act amendment, NMFS began to develop the regulatory infrastructure necessary to support the new Observer Program and to put in place a system for collecting fees. This process included extensive consultation with industry through the Council's Observer Oversight Committee and directly with the Council and its Advisory Panel and Scientific and Statistical Committee. The environmental assessment/regulatory impact review (EA/RIR) was revised several times in response to Council concerns (including concerns which resulted in the Magnuson Act fee collection authority being increased from 1% to 2%). In 1994, final action was taken to implement the North Pacific Fisheries Research Plan (Research Plan, Department of Commerce 1994). Under this action NMFS was to maintain the original Program through December, 1995, with implementation of the fee-based Program on January 1, 1996. The implementation plan provided for collection of some fees in 1995 so that government funds would be available to initiate contracts with observer companies before the beginning of 1996.

During 1995, industry representatives became increasingly concerned with some aspects of the design of the fee collection system, the complexities of the government procurement system, and the challenges associated with reaching consensus on coverage levels which would meet information needs for science, management, and compliance. These concerns were exacerbated when many fish processing companies realized that their observer costs would increase substantially under the Research Plan. The distribution of costs changed markedly because, under the "interim" pay-as-you-go system, each vessel or processing plant paid private observer companies directly for the observer services it required, while under the Research Plan each participant paid the same fraction of the landed value of their catch. Furthermore, Research Plan fees were collected only from processing companies (even though processing companies were supposed to collect half of their fees from owners of vessels delivering to their plants), so, in some cases, payments made by these companies were substantial.

In December 1995, the Council voted to repeal the Research Plan. In its place, the Council initiated development of a modified pay-as-you-go Observer Program under which a "prime contractor," operating under a Joint Partnership Agreement (JPA)[5] would receive all industry payments for observer coverage and would, in turn, contract with observer providers. Under this concept, the potential for conflict of interest would be eliminated but concerns regarding cost distribution and coverage were not resolved. By mid 1997, it became apparent that the designated prime contractor, Pacific States Marine Fisheries Commission, was unable to resolve legal and insurance problems and they recused themselves from the process. The Council then discontinued its support for this approach. In taking this action, they called on NMFS to develop a new fee-based program and asked staff to consider several design concepts, some of which could not be implemented under existing Magnuson-Stevens Act authority. Since that time, staff who might otherwise have been assigned to work on this issue have been fully occupied with Community Development Quota (CDQ) program development and implementation, and issues associated with the American Fisheries Act and the Marine Mammal Protection Act (MMPA) listing of Steller sea lions. Consequently, little work has been done in response to the Council's 1997 directive on Observer Program design.

[5] The JPA was a mechanism that existed under federal auspices that allowed some limited control, similar to federal contracting.

1.2.2 Current initiatives

1.2.2.1 Comprehensive review

Over the past few years, NMFS and the Council have worked together to address fundamental concerns with the design of the NPGOP. This process has been extremely difficult because of the complexity of the program, concerns regarding appropriate responsibilities for the observers, and differences in perspectives regarding program funding and observer procurement. Following the failure of the proposed JPA, NMFS and the Council have continued to seek new solutions, but are again struggling with fundamental questions concerning at least five essential elements of the program:

- program goals and objectives,
- program authorities and organizational structure,
- coverage levels,
- cost distribution, and
- the observer support system (including training, briefing, debriefing and inseason advice).

In 1998, the AFSC decided to undertake a comprehensive review of the NPGOP to address these concerns prior to embarking on another major attempt to re-develop the program. This independent report, initiated in August 1999, forms part of that review process.

1.2.2.2 Observer cadre

To resolve some of the problems of the Observer Program, OPO staff have developed the concept of an observer cadre. In essence, the concept of the cadre is to provide more support for observers by working more closely in the field with the fishing industry, observer companies, and observers themselves. This involves increasing NMFS staffing levels for the Observer Program and building a dedicated team of people with the appropriate expertise to be deployed predominantly in the fishing ports throughout Alaska.

Specific tasks, staffing plans, and costs are currently under development by OPO management staff. The most recent explanation of the mission of the cadre focuses on three main objectives:

- improved data quality and integrity;
- improved industry outreach, primarily to identify observers and the Observer Program as assets; and
- support of critical program functions.

Cadre efforts will aim to enhance observer training, improve the support system for observers, and resolve sampling and compliance problems through experienced staff acting as mentors; improve communications with observer companies and industry and conduct more outreach; and assist with evaluation efforts of observers and observer companies. The cadre would also offer additional employment opportunities and career advancement for interested observers.

The current implementation schedule is as follows:

1. Cadre positions should be advertised from about May 15 through June 15.
2. Candidate rating and interviews will follow in late June and throughout July.
3. Selections should be made, hopefully, by the end of July.
4. We are targeting August 14 for a start date.
5. Formal training for new staff should occur during August and September.
6. New cadre members should be trained and ready to do their work by September 30.

(from an article by Shannon Fitzgerald "Update on the North Pacific Groundfish Observer Cadre" in the April 2000 edition of the Mail Buoy)

1.3 Structure of this report

This report is presented in two main sections and four appendices:

The main report sections are

- the review strategy; and
- discussion and recommendations.

The four appendices are

- list of Documents Reviewed and Referenced;
- Individuals and organizations contacted;
- stakeholder feedback; and
- observer survey questionnaire.

The first of the main report sections (Section 2) describes the evaluation criteria and the methods of gathering information on which the review is based. One of our main strategies in undertaking the review was to contact as many of the stakeholder groups as possible. With such an enormous program, this was not an easy task. The stakeholder groups we considered are described in Section 2.2.1 and the workshop, meetings, interviews and other contacts are described briefly in Section 2.2.4. The feedback received from the various stakeholder groups during the course of the review is reported in Appendix 3. A large amount of information was provided and many opinions expressed during meetings, interviews and other contacts. We have attempted to be as objective as possible in presenting all of this feedback in Appendix 3. Note, however, that it is not included in the main body of the report because none of this information should be viewed necessarily as opinions or conclusions of the review team; it is purely a presentation of information received. Nevertheless, this feedback was one of the major sources of information on which we have based our discussion and recommendations, presented in Section 3 of this report.

Other sources of information for the review included a considerable number of papers, meeting reports, and memos relating to the NPGOP, its problems and the attempts which have been made to improve it. Also, a member of the review team attended the three week observer training course in Seattle in August/September 1999, and observed a number of observer debriefings. Finally, in view of the number of present and past observers and a desire to gain as balanced a view as possible, an extensive observer mail survey was undertaken in late 1999. This is described in Section 2.2.5 and the results are presented in Appendix 4.

The second major section of the report (Section 3) presents our discussion of the information received and our recommendations based on this information and our experience from other

observer programs around the world. Within the scope of this review it has not been possible to treat every issue comprehensively. Hence not every comment, recommendation or suggestion proposed by the stakeholders is critically reviewed. Instead we have tried to focus on what are perceived to be the major issues within the NPGOP and provide recommendations for the direction in which the program managers should take it both in the short and longer term. In accordance with information we have reviewed, we have considered the issues under the following five major headings:

- program goals and objectives,
- program authorities and organizational structure,
- coverage levels,
- cost distribution, and
- the observer support system.

Note, however, that there are important issues which cut across these headings. For example, problems and potential solutions associated with the SDM have fundamental implications for at least the program authorities and organizational structure, the cost distribution and the observer support system. At the end of Section 3 we have also added the issue of stakeholder outreach, which we consider to be an important component of any observer program.

Appendix 1 contains a list of documentation reviewed and referenced as part of this review. Appendix 2 provides a list of individuals and organizations contacted.

2. Review strategy

2.1 Evaluation criteria

This independent review was commissioned by NMFS. While it was intended to look at the overall performance of the NPGOP, the main focus was on components under the control of NMFS, and how NMFS could best move towards achieving the goals and objectives it has set for the NPGOP (note that these goals and objectives are not yet those of the NPGOP as a whole). We did not, for example, specifically reviewed the performance of individual observer companies, because it is NMFS' responsibility to monitor that performance through the contractor certification process and annual performance appraisals. Given the complexity of the Program and the large number of stakeholders, it was not possible for us to comment in detail on the mechanisms by which proposed changes to the NPGOP could or should be brought about. The recommendations we provide will undoubtedly require further consideration and feasibility testing before they can be implemented.

Two basic approaches were used for the evaluation of the NPGOP. The first was to look at its performance relative to the Program's stated goals and objectives - has it met these in a cost effective manner, and, if not, what needs to be done to ensure that it does in the future? The second approach was to look at the program objectives, structure, implementation and performance relative to similar observer programs in the region and elsewhere in the world, making direct "peer-group" comparisons.

2.1.1 NPGOP goals and objectives

As described in Section 1.1, the setting up of the NPGOP was authorized under Amendments 13 and 18 to the groundfish management plans for the Bering Sea/Aleutian Islands (BSAI) and the Gulf of Alaska (GOA) areas, which were approved by the Secretary of Commerce on November 1, 1989. The implementing regulations require U.S. domestic vessels and processing facilities participating in the groundfish fisheries conducted in the EEZ of the BSAI and GOA to carry or accommodate fisheries observers. The 1988 amendments to the Marine Mammal Protection Act (MMPA) also require that vessels participating in the trawl fisheries for groundfish carry observers on 20 - 35% of their fishing effort to determine the incidental take of marine mammals and the interaction between marine mammals and fishing operations. Observers deployed through the NPGOP also provide data required by the MMPA.

Although the NPGOP in its current form was implemented in 1990, the first statement of the mission and goals was drafted by NMFS in July 1996. Five goals were drafted under the mission heading "To provide information essential for management of sustainable fisheries in the North Pacific." These were:

1. *Provide catch, bycatch, and biological data necessary to support in-season monitoring and stock assessment.*

2. *Provide information to increase compliance with specific regulations.*

3. *Improve and maintain the infrastructure necessary to carry out observer functions.*

4. *Provide information necessary to support management of marine mammals and other protected species.*

5. *Provide information necessary to support other specified science and management programs.*

6. *Develop awareness of the goals, objectives and activities of NPGOP.*

NMFS has asserted that this evaluation of the NPGOP should be undertaken in light of these goals and the objectives they cover. However, during the course of the review it has become apparent that these goals have yet to be adopted as the formal mission statement of the NPGOP. This apparent absence of agreement on the basic *raison d'être* and priorities for the Observer Program demonstrates one of the great difficulties in designing and implementing a program of such size and complexity.

Given their current draft status, it was decided that the first step in the evaluation should be a review of the goals and objectives themselves, in light of discussions with stakeholders during this review and experience in other observer and fishery monitoring programs around the world. The results of this component of the evaluation are presented in Section 3.2 of this report.

2.1.2 NPGOP responsibilities

2.1.2.1 Overview

The evaluation of the performance of the NPGOP against its goals and objectives requires an understanding of the distribution of responsibilities between the major components of the Program.

Responsibilities for operation of the NPGOP are shared amongst four main components of the Program[6]:

- NMFS, including the OPO, the Alaska Regional Office and the Alaska Enforcement Division (AED);
- the North Pacific Observer Training Center (NPFOTC) of the University of Alaska Anchorage;
- the fishing industry; and
- independent observer companies, certified by NMFS.

The NMFS OPO and the NPFOTC train and brief observers. The OPO also provides other observer support services (training documents, observer gear, inseason advising, mid-cruise reviews, and debriefing), maintains field offices in Anchorage, Kodiak, and Dutch Harbor; develops and maintains information systems for scientific and operational data; and handles administrative support. The OPO also handles the certification of observer companies for providing observers. The NMFS Alaska Regional Office is responsible for fisheries management and the implementation of new programs and the Alaska Enforcement Division provides enforcement support.

The NMFS-certified observer companies hire and deploy observers into the fishery and the fishing industry is responsible for making arrangements with these companies for placement of NMFS-certified observers aboard their vessels, or at their processing facilities, and paying these companies directly for observer costs. The independent observer companies are responsible for observer recruitment, deployment, logistics, insurance/benefits and delivery of observer data to NMFS.

[6] Note that this does not include the North Pacific Fishery Management Council (the Council). The Council has no direct involvement in the active operations of the NPGOP, although it provides substantial guidance on the Program's implementation (see Fig. 2.1).

2.1.2.2 Service delivery model

Figure 2.1 illustrates the relationships between the four main components of the NPGOP listed in Section 2.1.2.1. Also shown is the input of the Council. Table 2.1 lists the main components of the NPGOP, and indicates the distribution of responsibilities amongst the four main components. This table is based on a document produced by the NMFS Alaska Fisheries Science Center in 1994: Outline of the Observer Plan. Although it has been updated based on information gathered during the course of this review, in essence, this is what constitutes the existing "pay-as-you-go" Service Delivery Model (SDM), which has been in place since 1990.

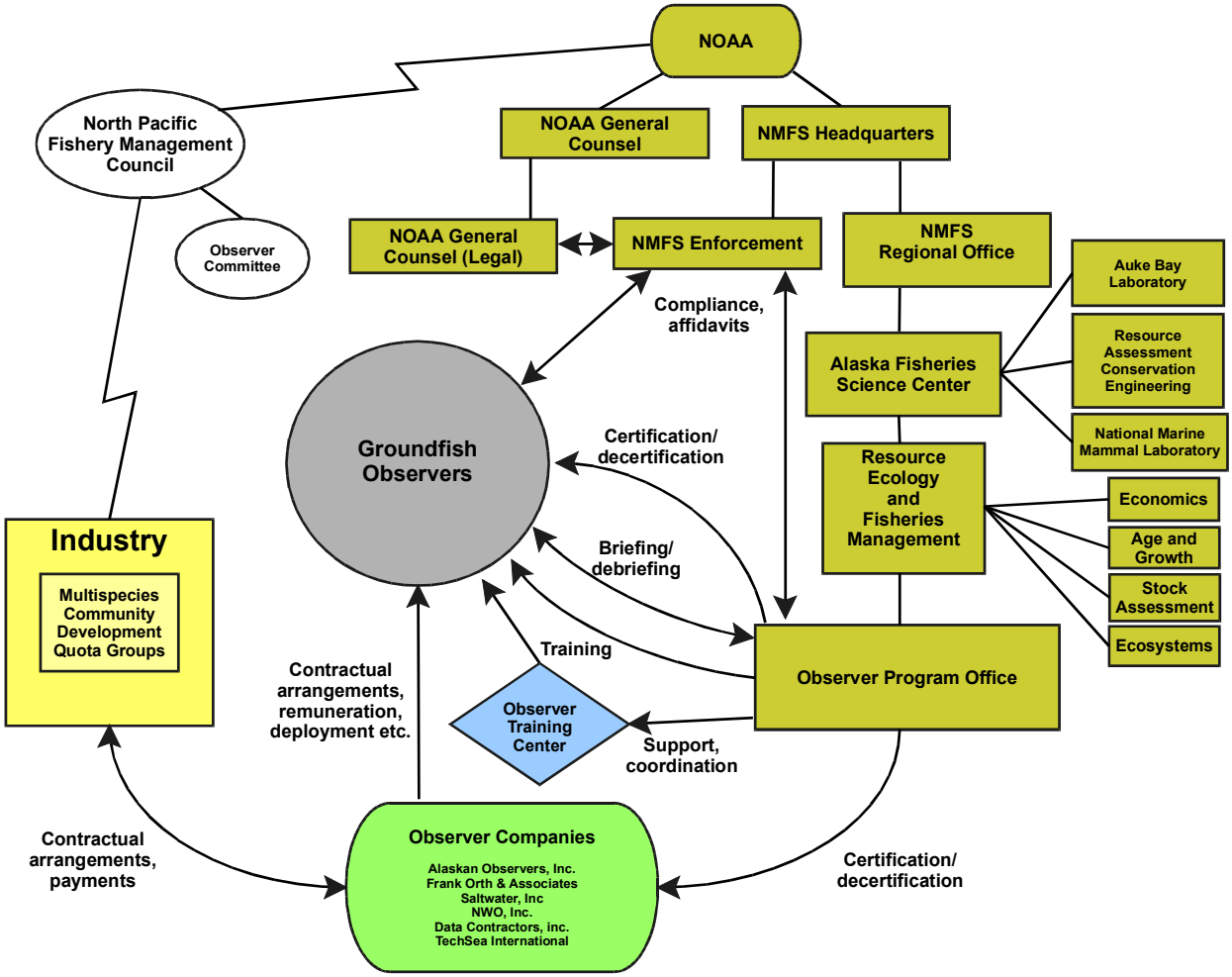


Figure 2.1 Flow chart illustrating relationships between entities in the NPGOP. Lines without arrows indicate connections between components. Lines with arrows indicate flow of information and/or activities.

Table 2.1 NPGOP Service Delivery Model

Observer Program Component	Responsible Entity	Comments
Program administration	NMFS Observer Program Office (OPO)	Includes: • establishment of general program policy; • specification of observer duties, sampling methods and data formats; • observer qualifications; • annual appraisal of observer company performance; and • management of OPO personnel and budgets.
	The North Pacific Fishery Management Council/ NMFS Alaska Regional Office	• specification of levels of required observer coverage; and • development and implementation of fishery regulations pertaining to observer work, accommodations and placement aboard vessels.
Observer training and certification	NMFS OPO and NPFOTC	Observers who meet the basic educational and experience qualifications established by NMFS and hired by observer companies to be placed aboard domestic vessels are required to successfully complete a 3 week training certification conducted by NMFS or the NPFOTC prior to being placed aboard a vessel. Individuals who have successfully completed a domestic groundfish observer deployment within 18 months administered by the Alaska Fisheries Science Center (AFSC) may only require attendance at a 1 or 4 day briefing.
Observer company certification	NMFS OPO	Observer companies desiring to provide observer services to industry should be certified by NMFS so that industry and NMFS are assured that the companies do not have either a financial or personal conflicts of interest with fishing vessel or processing facility owners, and understand their responsibilities under the Program. NMFS has developed a set of responsibilities which must be met at a minimum by each observer company.
Observer recruitment and hiring	Observer Companies	Observers recruited by observer companies must obtain the required NMFS certification through attendance and successful completion of the NMFS or NPFOTC certification training or previous satisfactory completion of an observer deployment and attendance at a re-certification briefing.
Observers' remuneration, benefits package and personnel services	Observer Companies	Required benefits include basic worker's compensation and P & I insurance to cover and protect observers injured in the performance of their duties.

Observer Program Component	Responsible Entity	Comments
Deployment logistics	Observer Companies	Observer companies are required to fulfill all requirements to place and maintain the observers aboard the fishing vessels or at the site of the processing facility. This includes all travel arrangements, hotels and per diem, and any other services required to place the observers aboard the vessels or at the processing facility, including provision of replacement or back-up observers in the event an observer has to be removed from a vessel or processing facility for any reason. Observer companies must inform NMFS of current observer deployments and deployment plans, and arrange and coordinate observer debriefings with NMFS at specified locations.
Observer communi-cations	Observer Companies	Observer companies must ensure that all observer inseason catch messages and other required transmissions between the observer and NMFS are delivered to NMFS within a time specified by the Regional Director.
Delivery of observer data/reports/ specimens	Observer Companies	Observer companies must ensure that all data, reports and specimens collected by observers are delivered directly to NMFS within 5 working days of the completion of each observer trip.
Observer gear supply	NMFS OPO	All sampling and safety gear is supplied by NMFS, including immersion suit and life vest. Items not provided by NMFS include wet weather gear and sleeping bags (NMFS provides no personal gear of any kind).
Observer gear management	Observer Companies	Observer companies must ensure that all gear and equipment issued to their observers by NMFS is returned to NMFS within 5 days of the completion of the observers field deployment.
Observer briefing	NMFS OPO	See “observer training and certification” above.
Observer debriefing	NMFS OPO	The debriefing process aims to: • maintain quality control of the data collected by observers; • collect information on the fishery which is not somehow contained in the standard data collections; • identify problems and solutions to problems encountered by observers during their deployments; and • evaluate observer work performance and provide guidance on improved performance. Observers are debriefed so that the data can become available for entry, editing and use in a timely fashion.
Coordination of observer coverage and logistics	NMFS OPO and Alaska Enforcement Division	NMFS monitors coverage levels and the placement of observers aboard vessels and at processing facilities to ensure coverage requirements are met and to ensure that required data are received from observers.
Data management	NMFS OPO	NMFS is responsible for the entry, editing, quality and data base management of data collected by observers. Observers now enter ATLAS data on board vessels; bird data are managed by US Fish and Wildlife Service; and halibut otolith data are handled by the International Pacific Halibut Commission.

Observer Program Component	Responsible Entity	Comments
Meeting the observer coverage requirement	Industry	Any vessel owner or processing facility owner who is required to carry an observer will be responsible for obtaining a NMFS certified observer from the certified observer company of his/her choice. Vessels or processing facilities required to have NMFS certified observer coverage but do not have an observer will be subject to enforcement action. This requirement places the burden on industry and the observer companies to ensure they meet the observer coverage requirement.
Recovery of costs	Observer Companies	The observer company is responsible for collecting fees for observer coverage directly from the vessel or facility owner.
Maintenance of safe conditions on board the vessel	Industry	A vessel operator must maintain safe conditions on the vessel for the protection of the observer during the time the observer is on board the vessel, by adhering to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel and by keeping on board the vessel: (a) adequate fire fighting equipment; (b) one or more life rafts capable of holding all persons on board; and (c) any other equipment required by regulations pertaining to safe operation of the vessel.

2.1.3 Comparison with other fishery observer programs

An important part of the purpose of having the NPGOP reviewed independently by an organization with experience in other observer programs was to enable cross comparisons to be made between the program structure, implementation and performance of the NPGOP and observer programs elsewhere within and outside the USA. Table 2.2 lists a number of other observer programs which were used to make this comparison, providing very brief details of how they operate.

2.1.3.1 Fishery observer programs within the USA

- ***Alaska Department of Fish and Game (ADF&G) shellfish observer programs***

In 1989 the Alaska Board of Fisheries authorized ADF&G to implement a mandatory for at-sea crab catcher processors. This was in response to concerns that the comparatively high catch rates of these vessels was due to the illegal retention and processing of sub-adult crab. Within a year of the program's implementation, the catch rate of the catcher processor fleet dropped to the same level as the non-processing vessels. Since the late 1980s, the program has been expanded to include several other shellfish fisheries with varying coverage levels.

As with the NPGOP, the responsibilities of this program are shared. ADF&G is responsible for establishing observer and observer company qualifications, certification and decertification, conflict of interest standards, and observer sampling procedures. ADF&G is also charged with review of observer training programs, observer testing, briefings and debriefings, analysis of observer data and reporting. The NPFOTC trains observers in cooperation with ADF&G. Observers collect data that are both used within the season and compiled at the end of each contract. Observer

companies hire and deploy observers; provide all logistic support (food, lodging, transportation, sampling equipment and insurance); salary/benefits; and secure contracts directly with the vessels. The responsibility of the fishing industry is to procure and pay for observer coverage through a certified observer company, and provide the observer with food and accommodations while on board, information on the catch, and the opportunity to sample the catch according to department requirements. The Alaska Department of Public Safety, Fish & Wildlife Protection Division, investigates observer's documentation of violations.

Despite its remarkable success, there are problems confronting the ADF&G shellfish observer program which bear similarities to those of the NPGOP. The ADF&G is attempting to rectify these problems through changes in the regulations of the Alaska Board of Fisheries (Boyle, 1999). It is proposed that as of July 1, 2000, there will be a small cadre of state funded observers which will operate in some of the crab fisheries, while other crab fisheries will still utilize observer companies. Although details of how to determine coverage needs are still being worked out, this proposal was developed by an Oversight Committee which included processors and fishing vessel owners. Funding for the state observers came from a test crab fishery operated by the state in 1999.

- ***The Pacific Drift Gillnet Fishery***

The Pacific Drift Gillnet Fishery targeting swordfish and thresher shark is classified under Section 18 of the Marine Mammal Protection Act (MMPA) as a Category I fishery. Category I designates fisheries with frequent, serious injuries and mortalities of marine mammals incidental to commercial fishing. The NMFS Southwest Region is responsible for monitoring the California/Oregon drift gillnet fishery. An observer program has been established for this fishery in order to:

- obtain statistically reliable estimates of incidental mammal mortality and serious injury;
- determine the reliability of reports of incidental mortality and injury under Sec. 229.6; and
- identify changes in fishing methods or technology that may increase or decrease incidental mortality and serious injury.

For the Pacific Drift Gillnet Fishery, the first of these objectives is achieved through the placement of observers aboard vessels to cover at least 20% of the fishing effort. Among other tasks, observers:

- record incidental mortality and injury, and bycatch of other non-target species;
- record numbers of marine mammals sighted; and
- perform other scientific investigations, which may include, but are not limited to, sampling and photographing incidental mortalities and serious injuries.

In 1996 the program was competitively contracted out (under standard Federal Acquisition Regulations (FAR) procedures) as part of an effort to downsize the Federal workforce as required by the National Performance Review. Observer training is conducted in conjunction with the Southwest Fisheries Science Center - La Jolla Laboratory, Los Angeles Natural History Museum, NMFS enforcement, U.S. Coast Guard, and the fishing industry. To date, 106 individuals of biological technician grade (i.e. observers) have been hired and 793 trips completed. In 1997, there were 25 observers observing the drift gillnet feet. Trips typically last 6 to 20 days. The Southwest Fisheries Science Center receives observer data to calculate estimates of incidental take rates of marine mammals in preparation of Annual Stock Assessments Reports.

NMFS is responsible for overall funding and administration of the program including observer training (two, 2-week sessions, plus one, 1-week briefing were conducted for a total of 25 observers in 1997), initial debriefing, and data management. NMFS also evaluates observer

company performance under the direct contractual agreement. This is done by NMFS technical staff, working with NOAA contracting officers.

Vessel owners and operators are responsible for contacting the single designated observer company to make arrangements for placement of NMFS trained observers aboard their vessels. The observer company is responsible for observer recruitment, monitoring vessel activity, maintaining required observer coverage levels (20%), observer deployment, logistics, insurance/benefits, and delivery of observer data to NMFS. Through a cooperative agreement with the California Department of Fish and Game, total annual fishing effort is calculated for use in estimating total marine mammal mortality (Price 1999).

2.1.3.2 Fishery observer programs outside the USA

- ***British Columbia domestic trawl fleet targeting groundfish***

Canadian West Coast ministerial policy created compulsory observer coverage levels for nearly all fishing trips by the domestic groundfish trawl fleet in 1996. This decision recognized the critical importance of observers' independent estimates of catch for the management of the Individual Vessel Quota (IVQ) system, which was to be implemented in 1997.

The main objective of this program is an accurate accounting of total catch (including discards) on a vessel area and species specific basis and an accurate estimation of species composition, including 'particular species' which are designated as non-retention species (prohibited species).

Observer duties include:

- estimating total catch;
- determining the proportion of each of 29 species caught within each of 55 management subareas (every vessel being allotted an individual quota on an area by area basis);
- differentiating between marketable and unmarketable fish (and estimating the 'highgrading' of the former);
- monitoring and determining the condition of caught and released prohibited species;
- estimating species mortality based on a formula involving towing time and the condition and size of the fish;
- conducting biological sampling of targeted and bycaught species; and
- monitoring vessel compliance with area, operations and gear restrictions.

The groundfish observer program has an annual cost of $2.3 million (CDN), which is cost-shared between industry and the Canadian Government. This cost represents 5,500 annual observed sea days aboard a fleet of about 90 vessels landing 45,000 t annually. In the Pacific Region observer program, the Canadian Department of Fisheries and Oceans (DFO) retains responsibility for defining the program requirements and objectives, identifying a single supplier following an open competitive process and overseeing that contractor's program delivery. The contractor is responsible for hiring, training, supervising, briefing/debriefing, entering and ensuring quality control of data, delivering the data product, and recovering industry's portion of program costs through billing. Contracts are annual with two one-year renewal options (Ackerman 1999).

- ***The Australian Fisheries Management Authority (AFMA) observer program***

The AFMA observer program was initiated with the establishment of the 200-mile Australian Fishing Zone (AFZ) in 1979 and has involved coverage of most foreign fishing activity in the zone since then. The primary purpose of the observer program is to establish accurate and reliable

fisheries catch and effort data for the management of Australia's fisheries, and high seas fisheries under international agreements. This is achieved through the monitoring of the operations of fishing vessels in the AFZ and the collection of biological and technical information for improved management and understanding of the marine environment.

Observers collect a wide range of accurate and reliable information, which may include technical details of fishing vessels, gear and operations; biological data on fish and other components of catches, and background data on the interaction of seabirds and marine mammals with fishing gear. The observers' most significant tasks are validating vessel logbook data and collecting scientific information.

Observers on domestic and foreign vessels may serve in Antarctic, sub-Antarctic and tropical waters. In the case of Sub-Antarctic fisheries, each vessel carries two observers - one the designated AFMA observer, employed directly by the Australian Government, and the other a "Data Collection Officer" provided directly to the industry by one of the AFMA accredited private suppliers. Accredited status carries very stringent requirements on data accuracy and methodology, and outputs are closely scrutinized. The responsibilities of the Data Collection Officer and the AFMA observer are clearly delineated.

Pre-cruise briefings are sometimes held for longer cruises or if there are changes in any of the procedures. These briefings include scientists, managers, industry, AFMA observer, and Data Collection Officer. After the cruise, the AFMA manager meets briefly with the AFMA observer and the Data Collection Officer to review the cruise and any problems, then a full cruise debriefing ensues including all the stakeholders and the vessel captain. These debriefings have been described as very frank and open, particularly if participants have been involved in them before, and have been helpful to eliminate any issues from causing future or lingering problems.

The cost of both observers is covered by the industry, but due to the different employment arrangements, the manner in which the cost is recovered is different. At the conclusion of the observer trip AFMA sends the company an invoice for the cost of providing the AFMA observer including fares, salaries, and administration/overheads. If the bill is not settled, then AFMA ceases to provide observers and the vessel cannot return to the fishing grounds to fish.

The cost of suppling the Data Collection Officers is paid directly to the contracting company by the industry. If they fail in their obligations or if there are any improper dealings then the contracting company is "de-accredited" and the fishing company permanently loses its access to the fishery.

In the 1998/99 Sub-Antarctic season the cost of observers and data collection officers was estimated to be approximately 1% of the value of the fishery. In 1999, in response to concerns from the industry over costs, AFMA requested tenders from potential private contractors interested in taking over the running of the observer program. Following the tendering process AFMA decided not to issue a contract and retained the program wholly within the government sector.

- ***The EU/NAFO observer program***

The Northwest Atlantic Fisheries Organization (NAFO) Regulatory Area covers the western and southern margins of the Grand Banks outside of Canada's national 200-mile EEZ. Fishing in this area is managed by international agreement between the member nations of NAFO. The NAFO Convention requires a designated observer to be placed on every vessel operating in these waters. Fishing methods observed include groundfish trawl, pair trawl and side trawl.

The observers of the EU/NAFO scheme are responsible for:

- recording all fishing activities of the vessel on which they are deployed;
- position verification of the vessel when engaged in fishing activities;
- analysis of total catch weight and composition on a haul-by-haul basis;
- monitoring of the level of discards, bycatch and catches of undersized fish; and
- undertaking biological sampling of the catch if required, including the recording of fish length, weight, sex and age (through the collection of the otoliths).

Since 1995, the observer program has been contracted out by the European Commission (E.C.) to a single observer contracting company. All observer requirements are mediated through the Commission in Brussels and costs are paid directly by the Commission to the contracting company. The contractor provides a turn-key service covering:

- year 'round deployment of observers on up to about 30 EU flagged vessels at any one time in response to the requirements of the E.C.;
- entry of all data from returning observers into the E.C. observer database;
- compilation of reports and data submissions to the E.C. Directorate General (D.G.) XIV (Fisheries) at the end of each observer trip;
- preparation of an Observer Manual and conduct of training and briefing/debriefing of observers;
- ensuring all observers are qualified through a certified Sea Survival course and a full medical fitness examination; and
- providing all observers with scientific and safety equipment, and specialist safety and work clothing.

2.1.3.3 Comparison overview

The tables on the following pages present an at-a-glance comparison of the essential elements of the NPGOP and the observer programs described above. Information on the US and Canadian programs was extracted from the 1999 Proceedings of the First Biennial Canada/U.S. Observer Program Workshop. Information on the other two programs was compiled independently. The intention is to present examples from within the USA and around the world of different approaches to the design and management of observer programs with multiple aims.

The observer program missions involve a mixture of collection of biological fisheries data, documentation of incidental catches of marine mammals and seabirds and monitoring of compliance with fisheries regulations. The purpose of one of the programs, the EU/NAFO program, has been solely the verification of compliance with conservation and enforcement measures. All of the programs listed are mandatory, which is considered to be an essential element of any effective monitoring program. Perhaps one of the major differences between the example observer programs and the NPGOP is that the purpose of the latter has been shifting in emphasis over time. For example, the ADF&G shellfish observer program and the EU/NAFO program were originally designed to address compliance concerns and this is where the focus of these programs remains. By contrast, the compliance function of the NPGOP has increased over time, without an associated change in the structure of the Program.

Funding of the programs, a particularly important issue in the NPGOP, is either wholly governmental (e.g. the Pacific drift gillnet and EU/NAFO programs), a mixture of government and industry funding (e.g. the NPGOP, ADF&G shellfish program and British Columbia domestic groundfish) or wholly industry funded (e.g. the AFMA observer program, in which costs are covered through a mixture of direct payments by the industry and cost recovery). Similarly, the contractual arrangements vary.

In the case of the NPGOP and the ADF&G shellfish observer program, there is no direct contract between the observer companies who provide observers and the state or federal government. By contrast, in the Pacific drift gillnet program, a single observer company is selected through the federal competitive bidding process, leading to a contractual agreement between the selected company and the Department of Commerce. Through this contract, NMFS, as the client, is able to directly oversee the performance of the company through its contractual obligations, rather than through the passing of regulations (see Section 3.3 for further discussion of this issue).

Coverage levels in the six programs vary. For larger vessels such as those in the NPGOP (>125ft), British Columbia, Australian Sub-Antarctic and EU/NAFO fisheries the coverage is uniformly 100% of vessel sea days. This has become viewed as an important feature of observer programs where data integrity and verification of compliance with management measures are important issues. For smaller vessels such as the 60 to 124ft boats in the NPGOP and the drift gillnetters operating off the coasts of California and Oregon, the coverage target is less, ranging from 20% to 30% of vessel sea days.

TABLE 2.2	NORTH PACIFIC & BERING SEA GROUNDFISH, TRAWL & FIXED GEAR FISHERY	BERING SEA KING CRAB AND TANNER CRAB POT FISHERIES	PACIFIC DRIFT GILLNET FISHERY	BRITISH COLUMBIA DOMESTIC TRAWL GROUNDFISH FISHERY	AUSTRALIAN SUB-ANTARCTIC FISHERIES	NORTHWEST ATLANTIC GROUNDFISH FISHERIES
Observer Program Mandate and Authority						
Mission of the program	Collect data on catch and bycatch quantity, composition, and biological characteristics, document fishery interactions with marine mammals and seabirds, monitor compliance with federal fisheries regulations.	Collecting essential biological and fishery management data including quantifying species composition, bycatch, harvests, biological and legal crab carapace size distributions, the reproductive status of female crab, and monitor regulation compliance.	To document the incidental take of marine mammals, sea turtles, seabirds, target and non-target fish species. To collect selected biological specimens.	Observers are required to monitor compliance of the fishing vessel to area(s) or operations, gear restrictions and other fishery regulations. Observers provide independent estimates of retained and discarded catch for quota management purposes. Observers are also required to collect biological samples of target and bycatch species for the science objectives of the program.	To establish accurate and reliable fisheries catch and effort data for the management of Australia's fisheries, and high seas fisheries under international agreements.	The main objective of NAFO is to contribute to the optimum utilisation, rational management and conservation of fishery resources in the Northwest Atlantic. The primary role of the observer is to monitor the compliance of EU flagged vessels with the NAFO Conservation and Enforcement Measures, reporting any violation of NAFO regulations to the EU Inspectors.
Fishery management	US Federal	Alaska State	US Federal	Canadian Federal	Australian Federal	NAFO / European Commission / high seas
Authority to place observers	Magnuson-Stevens Fishery Conservation and Management Act (amendments to the Gulf of Alaska Groundfish and Bering Sea/Aleutian Islands Groundfish Fishery Management Plans); Marine Mammal Protection Act; Endangered Species Act.	Magnuson-Stevens Fishery Conservation and Management Act (Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crab); Alaska Statutes - 16.05.05 and 16.05.251; Alaska Board of Fisheries; Alaska Administrative Code - 5 AAC 39.141 and 5 AAC 39.645.	Marine Mammal Protection Act (MMPA), Endangered Species Act.	Section 46 Fishery (General) Regulations.	Commonwealth Fisheries Management Act, 1991; Commonwealth Fisheries Administration Act 1991.	European Commission, Council Regulation No. 3069/95, 21st December 1995
Voluntary or mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Funding sources	Direct observer costs - industry funded; NMFS operational costs - govt. funded	Direct observer costs - industry funded; ADF&G operational costs - State general fund, Observer training practicums - test-fish authority	Government (NMFS) funded	Co-Funded by Industry and Government	Industry funded	European Commission funded
Program duration	1973 to present. Originally monitored foreign and joint venture fishing, 100% domestic since 1991	1988 to present	July 1990 to present	At sea observer monitoring on domestic trawl vessels has been compulsory since 1996. Components of the fishery are exempt from observers (e.g., hake/pollock).	1979 to present; Sub-Antarctic fishery 1997 to present	1995 to present
Annual program costs	Costs to industry $8-10 million(U.S.); Agency costs $2 million (U.S.)	Industry costs: $1.2 - $1.7 million (U.S.) (est.); ADF&G: $215,000 (U.S.) Observer Program administration; Data entry and analysis $225,000 (U.S.), Observer training practicum - $30,000 (U.S.)	Agency costs $650,000 (U.S.)	$2,300,000 (CDN)	Sub-Antarctic program, approximately $400,000 (Aus.)	Approximately $1 to 1.5 million (U.S.)

TABLE 2.2	NORTH PACIFIC & BERING SEA GROUNDFISH, TRAWL & FIXED GEAR FISHERY	BERING SEA KING CRAB AND TANNER CRAB POT FISHERIES	PACIFIC DRIFT GILLNET FISHERY	BRITISH COLUMBIA DOMESTIC TRAWL GROUNDFISH FISHERY	AUSTRALIAN SUB-ANTARCTIC FISHERIES	NORTHWEST ATLANTIC GROUNDFISH FISHERIES
Fishery Description						
Target species	All major groundfish species harvested in U.S. Federal waters of the Gulf of Alaska and Bering Sea/Aleutian Islands	Red and blue king crab and tanner and snow crab, *C bairdi* and *C. opilio*. ADF&G also puts observers on brown king crab and Korean hair crab catcher vessels	Swordfish and thresher shark (common, bigeye)	About 20 groundfish species including rockfish, flatfish, and other roundfish	Patagonian toothfish and mackerel icefish	Greenland halibut
Other commercially landed species	None	None	Mako shark, opah, louvar, and tunas (albacore, yellowfin, bluefin)	Halibut and salmon	none	Cod, redfish American plaice, yellowtail flounder, witch flounder, capelin, squid
Bycatch	Bycatch of halibut, salmon, king and Tanner crab, marine mammals (several species), and seabirds (several species) occurs and is designated as prohibited or protected species bycatch. Bycatch of groundfish also occurs in the groundfish fisheries.	Female and sublegal male crab of the target species, non-targeted crab, Pacific cod, sculpin and snails	Blue shark, pelagic stingray, striped marlin, and molas; Incidental take: Cetaceans: Sperm whale, short-finned pilot whale, Minke whale, long-beaked common dolphin, short-beaked common dolphin, Risso's dolphin, Dall's porpoise, Pacific white-sided dolphin, northern right whale dolphin, Cuvier's and Baird's beaked whales, and Mesoplodon beaked whales. Pinnipeds: California sea lion and northern elephant seals. Sea turtles: Leatherback and loggerheads	Halibut and salmon are small component of catch	Skates and rays, groundfish	
Fleet size	350 vessels and 20 shore plants	280+	Mammal Authorization Certificates are held by 130 vessels, approximately 110 are active.	About 70 trawlers (50-150 ft in length)	Two trawlers	Approximately 50 offshore trawlers
Season of operation	Year-round (closures subject to target and bycatch quota limits)	September 15 through spring (fisheries are closed by regulatory date or by Emergency Order (EO) when GHL is reached)	The fishery is closed within 200 miles of the coast of California and Oregon from February I to April 30. From May I to August 14 the closure changes to 75 miles offshore. Most fishing occurs between 1August 15 and January 31, when closure restrictions are lifted. The majority of fishing effort takes place from October through December.	Year-round	Year-round	Year-round

TABLE 2.2	NORTH PACIFIC & BERING SEA GROUNDFISH, TRAWL & FIXED GEAR FISHERY	BERING SEA KING CRAB AND TANNER CRAB POT FISHERIES	PACIFIC DRIFT GILLNET FISHERY	BRITISH COLUMBIA DOMESTIC TRAWL GROUNDFISH FISHERY	AUSTRALIAN SUB-ANTARCTIC FISHERIES	NORTHWEST ATLANTIC GROUNDFISH FISHERIES
Total annual catch of target species	Total Groundfish = 2 million t (pollock =1.2 million t, Pacific cod = 326,000 t, yellow fin sole = 181,000 t)	Average: red king crab: Pribilof fishery - 1.2 million pounds; Bristol Bay fishery 4.2 million pounds. blue king crab: Pribilof fishery - 0.6 million pounds; St. Matthew fishery 3.6 million pounds *C. bairdi* - 4.5 million pounds (however, no fishery in 1997) *C. opilio* - 102 million pounds	Avg. annual catch of target species: Swordfish, 1.5 million pounds. Thresher shark (common, bigeye) 395,400 pounds. Mako shark, 178,300 pounds	About 45,000 tonnes	Less than 5,000 tonnes	About 200,000 tonnes
Total number of fishing days per year	Unknown	13,500 est.	Estimated 3,400 sets (equivalent to days fished) in 1996.	About 5,500 (sea days).	Approximately 250	Approximately 7,000
Observer Coverage						
Observer coverage days	25,000 - 35,000 (1999: 25,616)	1997: 1,923	1997: 421 observed sets	About 5,500	Approximately 250	Approximately 7,000
Unit and definition of fishing effort for purpose of estimating coverage	Fishing day = a day in which fishing gear is retrieved and groundfish retained. Processing day = a day in which groundfish is received or processed.	All catcher/processor and floating processor vessels that process king or Tanner crab at-sea. Observed vessels, 1997 - 16 catcher/processor and 11 floating processor vessels.	Drift gillnet vessels in this fleet make a single net-pull (e.g., set) each day, thus each day that a vessel makes a set is a sampling unit.	A sea day is defined as time, rounded to the nearest two hour interval, that a vessel is at sea (i.e., not at the dock). This includes time spent steaming to, from and between fishing grounds, time doing repairs or waiting for weather at sea, time deploying or retrieving gear or time spent searching for fish.	All days at sea	All days at sea
Fraction of fishing activity observed	Vessels 125 ft. or longer -- 100% coverage of fishing days. Vessels 60 - 124 ft. = 30% coverage of fishing days. Shore plants processing >1,000 t/mo. = 100% coverage of processing days. Shore plants processing >500 t/mo. = 30% coverage of processing days. No coverage of vessels under 60ft.	0-14%	During 1996, there were 421 observed sets, representing 12.4% of the total fishing effort. In 1997 the coverage level was 26%. Coverage target is 20% of sea days, which was achieved in 1999.	100% of fishing days	100% of fishing days	100% of fishing days

2.2 Information gathering

One of our main strategies for evaluating the Observer Program was to contact as many of the stakeholder groups as possible to solicit opinions and data on its performance. A large amount of information was provided and many opinions expressed during meetings, interviews and other contacts. The stakeholder groups we considered are described in Section 2.2.1 and the processes through which we made contact are described briefly in Section 2.2.4. A complete list of individuals contacted is provided in Appendix 2. A considerable number of papers, meeting reports and internal memos relating to the Observer Program were also made available for the review. These described many of the problems the NPGOP faces, and the attempts which have been made to address them. Documents used in the review are listed in Appendix 1.

In view of the large number of present and past observers and a desire to gain as balanced a view as possible, a comprehensive observer mail survey was undertaken in late 1999. This is described in Section 2.2.5 and the results are presented in Appendix 4. Additionally, a member of the review team attended the three week observer training course in Seattle in August/September 1999.

Key issues raised by the review responses are discussed in Section 3 - discussion and recommendations.

2.2.1 Stakeholders

Table 2.3 describes the various stakeholder groups that are involved in the NPGOP. Each entity, is briefly described. Note that this section does not attempt to outline the many other responsibilities that these entities may have outside of the NPGOP.

Table 2.3 Description of stakeholders in the NPGOP

1. National Oceanic and Atmospheric Administration (NOAA) & National Marine Fisheries Service (NMFS)	
NMFS Alaska Regional Office	Based in Juneau, AK. Primary mission is the protection, conservation, and management of marine resources in the EEZ off Alaska (the Gulf of Alaska and Bering Sea/Aleutian Islands), primarily under the authority of the Magnuson-Stevens Fishery Conservation and Management Act, as well as the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Lacey Act, and Fish and Wildlife Coordination Act. Works with the North Pacific Fishery Management Council to develop Fishery Management Plans (FMPs); assists in the preparation of Operations Plans, Monitoring Reports, and Stock Assessment and Fishery Evaluation (SAFE) Reports; interacts directly with public and private interest groups and industry; lead NMFS office dealing with litigation. Day to day management by the Sustainable Fisheries Division of the numerous discreet fisheries in the groundfish complex requires observer data on a continual basis. Division responsibilities include: within season management, quota management, determining fishery closures, maintaining catch statistics, announcing status of areas open by fishery and bycatch statistics, managing the MSCDQ program and AFA guidelines, and coordinating with efforts of the Office of Enforcement, NOAA General Counsel, State of Alaska, and other relevant agencies.

NMFS Alaska Fisheries Science Center (AFSC)	Based in Seattle, WA. Responsible for fisheries research in coastal waters off Alaska and the U.S. west coast, including the North Pacific Ocean and the eastern Bering Sea. Conducts field and laboratory research to support the conservation and management of the fishery resources of the region. Responsibilities are divided into four major program areas: Resource Ecology & Fisheries Management (REFM), Resource Assessment, Conservation, & Engineering (RACE), the National Marine Mammal Laboratory (NMML), and the Auke Bay Laboratory (ABL). The OPO is in the REFM division. Other sections or groups dependent upon the observer data provided by the NPGOP and the research for which it is used includes:
Observer Program Office (OPO)	Coordinates the Observer Program activities from Seattle, WA, with the assistance of three satellite offices in Anchorage, Kodiak, and Dutch Harbor. In conjunction with the Alaska Regional Office, develops observer protocols when required by new regulations or management needs. Changes have occurred in the Observer Program each year, resulting in an extremely dynamic program. Office responsibilities are divided into two major areas, although responsibilities and duties overlap: Information Services and Program Administration • Program administration • Inseason and systems support • Support & development • Database maintenance Observer Support Services • Training and debriefing • Compliance and technical support • Multispecies Community Development Quota (MSCDQ) • Field Offices and observer field support The goals and activities of a third component, the observer cadre, are currently under development (see Section 1.2.2.2).
Stock Assessment Group, REFM	Conducts status of stocks and multispecies assessments, age and growth studies, and groundfish assessments. Require general biological information on target and non-target fish species such as length frequencies, age composition, maturity, and otoliths.
Resource Ecology & Ecosystem Modeling, REFM	Receives stomach contents and gonads to analyze for predator-prey relationships.
National Marine Mammal Laboratory	Conducts cetacean assessments, and other research for the protection of marine mammals. Receives reports of all incidental take of marine mammals, marine mammal sightings, and marine mammal specimens.
NMFS Office of Law Enforcement, Alaska Enforcement Division	Primary mission is the protection, conservation and management of the fishery resources within the 200 mile EEZ (see Regional Office, above). Supports Regional Office and OPO efforts by ensuring the integrity of data collected by fishery observers through investigation of reports of sampling bias, observer harassment, and other fishery violations that are reported by observers. Two agents in the Anchorage office work as liaisons directly with the NPGOP. Alaska Division has nine offices throughout Alaska -- a regional office, located in Juneau, and eight field offices in Anchorage, Dutch Harbor, Homer, Ketchikan, Kodiak, Petersburg, Seward, and Sitka. Their efforts are assisted by the U.S. Coast Guard.

NOAA Office of General Counsel, Alaska Region	Advisory body to NMFS, providing guidance on fisheries legislation, such as the Magnuson-Stevens Act, Lacey Act, Marine Mammal Protection Act, Endangered Species Act, and other pertinent regulations. Attempts to ensure that regulations are explicitly written so that they may be legally enforced through courts of law. Actively prosecutes violations of fisheries legislation. Responsible for compiling and preparing the Administrative Record for use in litigation and handles implementation of Emergency Rules. Is represented on the North Pacific Fishery Management Council where they provide clarification on various legal issues, specifically with the Magnuson-Stevens. Following investigation by the Office of Law Enforcement, affidavits from fishery observers which have sufficient evidence are forwarded to NOAA General Counsel for prosecution. Interact with individual observers as necessary while investigating and prosecuting cases.
2. Other governmental organizations	
North Pacific Fishery Management Council (NPFMC)	One of eight regional Councils with authority to manage the nation's fishery resources in the EEZ; jurisdiction is for the Gulf of Alaska and the Bering Sea/Aleutian Island waters. Recognizing the importance of maintaining the data gathering efforts of the foreign vessel observer program, the Council established the domestic NPGOP to help manage the wide variety of fisheries off the coast of Alaska. Established current service delivery model, coverage levels for the various categories of vessels and fish processing plants, and implementation of special sampling or compliance programs (e.g. vessel incentive program or VIP, and increased retention/increased utilization or IR/IU). Has an **Advisory Panel** and **Scientific and Statistical Committee**. As needed, other committees are established to work on certain fishery issues. In 1992, Observer Oversight Committee was established to provide input and review proposals for the Research Plan being developed by NMFS. Committee has been reconstituted several times since. Due to the American Fisheries Act (AFA), management of the MSCDQ program, and their related NPGOP issues, a new **Observer Program Committee** was formed in December 1999 and held Its first meeting in March 2000.
International Pacific Halibut Commission (IPHC)	A key user of the data generated by the NPGOP, and relies on its timely delivery and accuracy. Originally called the International Fisheries Commission, established in 1923 by convention between Canada and the United States. Mandate is to study and preserve stocks of Pacific halibut (*Hippoglossus stenolepis*) within the territorial waters of both nations. Meets annually to review all regulatory proposals, including those made by scientific staff and industry; Recommendations made by Commission must receive approval by the two governments before they can enter into effect and be enforced.[7]
Pacific States Marine Fisheries Commission (PSMFC)	Authorized by Congress in 1947, one of three interstate commissions dedicated to resolving fishery issues (headquartered in Gladstone, Oregon). Comprised of the states of California, Oregon, Washington, Idaho, and Alaska. Addresses issues that fall outside state or regional management council jurisdiction. Does not have regulatory or management authority but works for coastwide consensus of state and federal authorities. Director of PSFMC also has a seat on the NPFMC. Regularly serves as a primary contractor on grants, projects, and contracts for states and other organizations, by providing administrative support. Under this scenario, PSFMC was involved with NMFS in the proposed Joint Partnership Agreement (JPA), a model developed as a proposed SDM for the NPGOP.

[7] International Pacific Halibut Commission. 1998. Annual Report, 1997. 80 p.

Alaska Department of Fish and Game (ADF&G)	State agency responsible for managing marine resources within the state's jurisdiction, including state fisheries and all crab fisheries, through agreement with NMFS. The crab fishery has an observer program similar to the NPGOP. It was to be incorporated within the provisions of the proposed Research Plan, with an objective to provide for more cooperation and coordination between the two programs[8], however, this did not come to pass. ADF&G has identified some problems in the crab observer program and set aside part of the crab TAC to auction and raise funds for a test fishery (red king crab) using state-paid observers to go into effect July 1, 2000.[9]
U.S. Fish and Wildlife Service (FWS)	Responsible for the protection and management of migratory birds and endangered species. Develops management plans (along with the NMFS) that limits or reduces interactions between sea birds and fishing activities. Since the onset of the domestic NPGOP, observers have recorded the incidental take of seabirds (as "unidentified birds"). Training and monitoring was expanded in 1993; observers record the numbers and weights of each species taken, note other interactions, and immediately notify the OPO (which notifies FWS) if short-tailed albatross are taken as bycatch. In 1999, duties expanded further; observers record the frequency of use and types of seabird deterrent measures used by each fishing vessel.
U.S. Coast Guard (USCG), 17th District	Assists NMFS Office of Law Enforcement in enforcement of fisheries regulations and observer safety issues. Responsible for enforcing fisheries management plans, international treaty obligations, vessel safety and other regulations at sea. They routinely board fishing vessels to meet these obligations and verify that the vessel has proper observer coverage, is maintaining their logbook, is not fishing in restricted areas, has a safety decal and proper safety equipment, etc. During FY 1997, more than 1,570 fisheries boardings were conducted off Alaska.[10] USCG personnel assigned to enforcement operations and vessel safety in the 17th District area are trained at the North Pacific Regional Fisheries Training Center in Kodiak. During boardings, personnel seek out the observer to determine if they have been able to perform their tasks successfully, or if there has been any interference. In the event that a serious problem arises for an observer aboard a fishing vessel, a mechanism is in place for the observer to alert the OPO which notifies the Coast Guard to deal with the issue as a top priority; this may include finding the vessel, removing the observer, and bringing them back to shore (a very rare event).
Sea Grant and the North Pacific Fisheries Observer Training Center (NPFOTC)	Sea Grant is a partnership between universities in coastal and Great Lakes states and NOAA that began in 1966 through Congress' National Sea Grant College Program Act. In Alaska, the Sea Grant College Program is maintained under the University of Alaska (UA). The NPFOTC, under the Alaska Sea Grant Program, is located at UA in Anchorage and is funded through a grant from NMFS. It began training fisheries observers in October 1991. Since then, more than 1,000 observers have been trained or briefed at the facility. The facility has three trainers who teach a variety of courses, several specifically for the NPGOP. These include the three week training programs for new observers; MSCDQ training (five days); and one and four day briefings. Examples of other programs include training observers for the crab fishery (operated by ADF&G) and the Cook Inlet Marine Mammal Pilot program (for Protected Resources Management Div., NMFS). NPGOP training materials are developed in conjunction with NMFS, and are the same as those used by the NMFS trainers at the OPO. In 1999, the NPFOTC trained or briefed 388 observers, equivalent to 53% of all observers trained or briefed.[11]

[8] Elements of the North Pacific Fisheries Research Plan as approved and submitted by the NPFMC, June 1995.

[9] Personal communication (Feb. 2000) with Larry Boyle, ADF&G.

[10] USCG 17th District web site, http://www.uscg/mil/d17/brf.htm.

[11] From OPO database records for 1999.

3. Fishing Industry	
Industry and associations: • **Alaska Draggers Association** • **Alaskan Leader Fisheries** • **Alaska Ocean Seafood** • **Alaska Trawl Fishing** • **At-Sea Processors** • **Clipper Seafoods** • **Daily Fish, Inc.** • **Fishermen's Finest** • **Fishing Vessel Owner's Association** • **Fishery Industrial Technology Center** • **Groundfish Forum** • **Kodiak Fish Company** • **Pacific Seafood Processors Association** • **Unalaska Native Fish Association** • **United Fishermen's Marketing Association, Inc.** • **Yukon Delta Fishermen**	A variety of vessel sizes and gear types are utilized by the fishing industry involved in commercial groundfish fisheries off Alaska in the GOA and BSAI. Vessels are described as catcher vessels, catcher/processors (C/P), and motherships. Gear that is used is either trawl, hook and line (longline), pots, or jig/troll, and vessels are further defined as fishing inshore or offshore. The industry also includes processing plants. All vessels fishing for groundfish over 60' LOA are required to carry an observer at least 30% of the days they fish per quarter (in quarters where groundfish are harvested for more than 3 days). If the vessel is larger than 124' LOA, observers are required every day (except on pot vessels which are always 30%). If a processing plant processes 1000 mt tons or more during a calendar month, an observer must be present each day it receives or processes groundfish during that month; if it processes 500 mt to 1,000 mt, an observer must be present at least 30% of the days it receives or processes groundfish during that month. Additionally, if a C/P vessel is operating in a CDQ fishery (see below), then 100% of its fishing effort is monitored, requiring two observers on board. Likewise, under the AFA, two observers are required on C/Ps and at some processing plants. In 1999, 362 vessels required observer coverage.[12] Additionally, 20 individual processing plants required observer coverage. The NPGOP operates as a pay-as-you-go program, therefore all observer coverage is paid for directly by industry to observer companies (see below). This approximates $8 - 10 million per year for industry, and does not cover costs of OPO management of the program. The fishing industry is organized into a number of associations, based either on vessel and gear type or by location. The organizations listed to the left provided feedback for this review. All individual fishers and fishing industry representatives that provided feedback are listed in Appendix 2.
Multi-species Community Development Quota (MSCDQ) Program • **Norton Sound Economic Development Corporation** • **Yukon Delta Fisheries Development Association** • **Coastal Villages Region Fund** • **Central Bering Sea Fishermen's Association** • **Bristol Bay Economic Development Corporation** • **Aleutian Pribilof Island Community Development Association**	Established by the NPFMC in 1991. Provides eligible communities in western Alaska an opportunity to receive a portion, or fixed percentage, of all commercial fish species caught in the Bering Sea to use to start or support "commercial seafood business activities that will result in ongoing, regionally based, fisheries-related economies along western Alaska."[13] Program initially only involved the pollock fishery; it expanded in 1998 to include additional species as well. This harvesting privilege of 10% of the total pollock quota, and 7.5% for other species, is awarded competitively to 65 communities organized into six corporations (CDQ groups) based on regional and cultural affiliations, each governed by a board of directors (see list to left) Each CDQ group must develop a three year Community Development Plan application which describes their business plan, proposed projects (i.e. loans to fishermen, vessel purchases, small business ventures, training, infrastructure development, and fisheries retention activities[14]), and amount of quota being requested for each fishery. They may fish for the quota directly or may authorize other vessels/corporations to fish on their behalf. The Plans are submitted to the State of Alaska, which oversees the program and awards the portions of quotas. Final approval of allocations is obtained from NMFS and the Secretary of the Department of Commerce. Currently, due to strict requirement to monitor specific quotas by CDQ group, each C/P vessel fishing under an MSCDQ quota must have motion compensated flow scales, two observers aboard to monitor 100% of fishing effort, and a sampling station. Coverage requirements differ slightly for other categories. Observers also are required to have a minimum of 60 days prior experience and additional training.

[12] From OPO database records for 1999.

[13] *The CDQ Program* brochure developed by the State of Alaska, Department of Community & Regional Affairs, Juneau, Alaska.

[14] Ibid.

Data contractors & other services • **Alaska Groundfish Data Bank** • **Fisheries Information Services** • **Ocean Logic** • **Sea State**	A number of external businesses provide data, research, lobbying, and other services for the fishing industry and CDQ groups. Particularly, the data contractors are primary users of the data gathered daily by observers and entered into the NMFS databases. Vessel specific fisheries data are accessed with a security code through a website provided by NMFS. Data are essentially available on a daily basis.
4. Observers and observer organizations	
Observer companies • **Alaskan Observers, Inc.** • **Data Contractors, Inc.** • **Frank Orth & Associates** • **NWO, Inc.** • **Saltwater, Inc.** • **TechSea International**	Under the current SDM, observers are provided directly to industry clients by NMFS-certified observer companies. No contractual agreement exists between these companies and NMFS, however observer companies must meet certain criteria to qualify and be certified for the NPGOP. Once certified, it is the responsibility of the observer company to recruit potential observers; ensure they are trained either by NMFS or the NPFOTC and NMFS certified; logistically place observers on the vessels for which they have contracts and handle all travel arrangements; ensure the observer reports for debriefing; and monitor that individual observers do not exceed contract or cruise restrictions (no more than 90 days without debriefing, no more than four vessels per contract, etc.). Different strategies may be used, but recruitment of observers is generally through posting information at numerous universities and colleges in the U.S. and in Canada; placing advertisements in trade, national, or college magazines; via web sites; and word of mouth. Potential observers must meet NMFS criteria to qualify. Interviews are usually conducted over the telephone. In recent years, five companies have been providing observers; a new observer company (TechSea International) was certified by NMFS in late 1999.
Individual Observers	Men and women come primarily from across the U.S. and Canada to work as fishery observers in the North Pacific. They are recruited by observer companies, required to be college graduates, have science training, and successfully complete the three-week observer training before they are certified as observers. Observers are hired for 90 day periods (called a contract or cruise), placed on vessels or at processing facilities; employ random sampling techniques; collect a variety of quantitative and biological data on the species of fish caught; and record interactions and sightings of marine mammals and birds, haul data, gear performance, etc.. Observer's salary, insurance, some transportation costs and *per diems* are paid by the observer company. Wages range between $110 and $165 a day depending on experience; some MSCDQ observers make $250/day.
Association for Professional Observers (APO)	Formed as a non profit advocacy group for professional, certified observers working in Alaska, and the North Pacific region. Volunteer observers began the organization during the summer of 1995 primarily to address observer concerns and improve working conditions. Issues of concern included pay levels, vessel safety, insurance, grievance procedures, and impacts of regulatory amendments on observers duties. After attempts to resolve issues (i.e. the Research Plan and JPA) were exhausted without a satisfactory resolution, the APO contacted unions seeking assistance; their efforts were supported by the Alaska Fishermen's Union (see below). Representatives of the APO present observers' views and concerns to the NPFMC as members of the Council's Advisory Panel (appointment ended at end of 1999) and the Observer Committee. They maintain a web page and use newsletters to keep members informed of activities and updates. The APO newsletter is also used by NMFS as a means of distributing information to observers.

Alaska Fishermen's Union (AFU)	The APO sought support from the AFU to secure fair wages and better working conditions for observers. Individual elections were held by observers at each of the five observer companies; four of the five voted to unionize. Individual collective bargaining agreements have been negotiated with observer companies, either lasting one year or three years. Each bargaining agreement includes at a minimum: pay scales; commitment to hire priors; definition of deployment days; pay, meals and housing while in training/briefing/debriefing and waiting for deployment; gear allowances; and reimbursement for physicals and drug screenings.
5. Non-governmental organizations (NGOs)	
Alaska Marine Conservation Council (AMCC)	A community organization based in Anchorage that works to protect and restore the marine environment through sustainable fishing practices such as minimizing and preventing bycatch, habitat protection and local stewardship. Key guiding principles include ideas that marine resource management must be comprehensive and incorporate indigenous, scientific and experiential knowledge. AMCC also believes that coastal residents have the right to meaningful and influential participation on decisions. AMCC participates in the federal fishery management process as a member on the Advisory Panel to the North Pacific Fishery Management Council.
Other NGOs	Other non-governmental organizations that get involved in fishery issues in the North Pacific region were contacted (i.e. Greenpeace, Center for Marine Conservation, Pacific Seabird Group, Sierra Club). However, they have not been actively involved in issues related to the NPGOP, therefore, had no comments to provide.

2.2.2 Written information

Project team members gathered and reviewed reports, memoranda, training manuals, and other written information related to the NPGOP from the Program staff, the North Pacific Fishery Management Council, and workshops and conferences where information about the NPGOP has been presented. A list of all documents reviewed and/or referenced is included in Appendix 1.

2.2.3 Observer training

A member of the project team attended the three week observer training course conducted at the Alaska Fisheries Science Center in Seattle from August 23 - September 10, 1999. The purpose of this was to increase the review teams familiarization with the responsibilities and work environment of observers, rather than to critique the training which has received thorough reviews in the past. In addition to attending this training program, the review team assessed the observer manual, the satisfaction of observer trainee qualifications with recruitment requirements, and the training and information provided for the Multi-Species Community Development Quota (MSCDQ) program, the four day briefing, and the one day briefing. A meeting was also held with the director and staff responsible for the observer training that is conducted at the NPFOTC in Anchorage, AK.

2.2.4 Meetings with stakeholders

Questions were developed to gather information and conduct interviews and meetings with the various stakeholder groups involved in the NPGOP. Interviews were conducted either in person, over the telephone, in the form of a mailed survey/questionnaire, or through workshops. Over the course of four months, members of the project team traveled to Seattle, Washington (three times), Washington, DC and to Juneau, Kodiak, and Anchorage in Alaska to conduct workshops and meetings with groups and individuals. In particular, a large, pre-scheduled workshop was held

during the October meeting of the North Pacific Fishery Management Council in Seattle. The Council announced this workshop in their newsletter, so that the project team could reach as many interested individuals and organizations as possible.

This workshop was very well attended with more than 50 participants and included individual fishermen; representatives of larger fishing companies, CDQ Groups, and fishing organizations; observer companies; individual observers and representatives of the AFU and APO; staff from the OPO and Alaska Regional Office; members and staff of the Council and its committees; and representatives of data contractors and other "service" providers to the fishing industry.

Additionally, throughout the review period, interviews were conducted with individuals or groups we were not able to meet with personally, and on an 'as needed' basis to fill in any identified information gaps.

2.2.5 Observer survey

Fishery observers in the NPGOP come primarily from across the U.S. and Canada. Since they are not concentrated in one location, a mailed survey was deemed a useful tool to reach active and inactive (past) members of this stakeholder group. The mailing list was developed from an extensive register provided by OPO staff of all individuals who have observed, and was merged with lists obtained from the AFU and the APO to fill in gaps of missing or incomplete addresses. If no address was available, the individual was not part of the survey group.

Development of the mail survey was completed in early November. The design and content of survey questions was reviewed by the MRAG Americas team and outside reviewers, including several former and existing observers, members of the NMFS National Observer Program Committee, another independent scientific contractor to the NPGOP, and a local college professor. The survey contained eight sections (A-H) and a total of 73 questions, which collected information on how the individual became an observer and their prior related experience, observer training, briefing and debriefing, the observer's work history, their experience aboard vessels and shoreside, and their general work satisfaction. The survey closed with several questions on general demographics.

Surveys were mailed to 1128 active and inactive observers that had worked at some time with the NPGOP since its inception. Since some addresses were up to nine years old, many were no longer valid. Approximately 254 surveys were returned to the MRAG Americas office due to out of date addresses. From some of these, forwarding addresses were obtained, and about 40 were re-mailed. Approximately five were returned again, therefore we estimated that 909 surveys reached their target. 107 surveys were returned, equaling approximately an 11.8% return rate of the total potential number of participants.

All data and comments were entered into an Access database created specifically for this survey. The survey questionnaire and results are provided in Appendix 4. Some of the survey results are discussed in more detail in Section 3.

3.Discussion and recommendations

3.1 Overview

In this section we provide discussion and recommendations on what we consider to be the main issues facing the NPGOP:

- program goals and objectives,
- program authorities and organizational structure,
- coverage levels,
- cost distribution,
- the observer support system, and
- stakeholder outreach

Each sub-section includes discussion of the issues, followed by one or more recommendations for improvements to the NPGOP in that particular area.[15] In presenting these recommendations we have attempted to set out the basis for the development of an action plan which would address each of the main issues. This action plan should be designed to address both short and long term solutions in such a way that remedial action can begin more or less immediately in some areas (e.g. the further development of the observer cadre). Other areas (e.g. adoption of formal goals and objectives and revision of the Service Delivery Model (SDM)) will require more detailed consultation and planning as part of a longer term implementation process.

In addition to the issues discussed under these six headings, as part of the context of this review, it is important to understand some of the internal difficulties currently faced by the OPO. The current problems associated with the SDM and lack of clear programmatic goals and objectives have pervaded the OPO for a considerable time. These are exacerbated by the apparent lack of alternative options and the inability of NMFS to affect necessary changes. In the early and mid 1990's a considerable amount of time and energy was expended on the proposed Research Plan and JPA. The failure of these proposals after several years of effort, and the fact that recognized problems remained, were demoralizing to those involved in their preparation.

Since that time, remedial action has been limited to short term patch-up remedies applied to the existing system, even though it is recognized by many of the stakeholders, not just the OPO, that fundamental change in the Program's structure is required. The OPO is now struggling to respond to conflicting scientific, catch accounting and compliance needs, many of which were not envisioned when the Program was originally designed. New initiatives, such as the Congressionally mandated AFA, divert manpower and resources away from the important routine activities that are required to maintain smooth daily operations of such a large operation.

Nevertheless, against this background, the NPGOP has achieved a great deal. It is the largest single fisheries observer program in the world and has been functioning continuously in its present form for more than ten years. There are currently 168 observers deployed at sea (as of May 1st 2000). In 1999, a total of 370 individual observers completed 23,281 observer days on fishing vessels and a further 2,335 days at processing plants. The NORPAC database includes information on 2,010 individual observers. The NPGOP is functioning, therefore, despite several serious deficiencies in its design. This achievement is a great credit to those involved in the implementation of the Program. It should not, however, be viewed as an indication that no action

[15] For ease of reference these recommendations are also provided in summary form in the Executive Summary.

needs to be taken. As will be described in detail in the following sections, the priorities for data and information collected by the NPGOP have changed over time. More and more emphasis has been placed on catch accounting, and individual vessel accountability, resulting from new regulations covering bycatch and quota allocation. The problems of the interim SDM have become even more acute as this emphasis has increased and there is no doubt that significant change is required for the Program to function effectively in the future.

It is our hope that this review and the recommendations it contains will add new energy and impetus to the work needed to affect the necessary improvements in the NPGOP. The overarching aim of these recommendations is to ensure that the greatest possible benefit is achieved from the enormous amounts of time and resources expended in the collection of vital information for the management of the North Pacific groundfish fishery.

3.2 Program goals and objectives

3.2.1 Strengths and weaknesses

3.2.1.1 Current draft

The current formulation of the mission, goals and objectives of the NPGOP, as drafted by the NMFS OPO, is provided in Table 3.1. As explained in Section 2.1.1, during the course of this review it became apparent that there has been no formal agreement amongst all components of the NPGOP on what the Program's goals and objectives should be. This demonstrates one of the great difficulties in designing and implementing a program of such size and complexity and in our view has been one of the major hurdles in solving the problems which the Program currently faces.

Although these goals and objectives cover the full range of procedures and processes one might expect to see in a fisheries observer program, they are not well organized in terms of demonstrating the logical progression and linkages between activities, outputs and the ultimate contribution to the higher order objective of the program (i.e. sustainably managed fisheries). There is also no apparent linkage between the objectives and the SDM, which comprises the activities and distribution of labor intended to achieve them.

The objectives, as drafted, comprise a mixture of activities at different levels without a clear hierarchy. They also include items which rather than being objectives, are actually perceived threats to the satisfactory achievement of project deliverables. For example minimizing the level of observer harassment and sampling interference is listed as an objective under the goal of increasing compliance, but harassment and sampling interference would equally be a threat to providing unbiased catch, bycatch and biological data (goal 1 in the NMFS draft).

In the following sections we elaborate on the problems of conflicting and changing demands within the NPGOP, and the need to promote awareness of the purpose of the Program among all stakeholders. Following that, we provide recommendations for a process to bring about agreement on the goals and objectives of the program, and provide a preliminary suggestion for a revised logical structure which could be taken forward and used as a "straw man" to initiate the process.

Table 3.1 Mission, goals and objectives of the NPGOP, as drafted in 1996 by the NMFS OPO.

Mission	**To provide information essential for management of sustainable fisheries in the North Pacific**
Program Goals	**Objectives**
1. Provide catch, bycatch, and biological data necessary to support in-season monitoring and stock assessment	1.1 Provide timely, reliable catch information or quota monitoring and management of groundfish and prohibited species.
	1.2 Collect biological data and samples required for stock assessment analysis.
	1.3 Ensure that the quantity and quality of data collected are consistent with needs for in-season management and stock assessment.
2. Provide information to increase compliance with specific regulations	2.1 Collect information from which NMFS and the USCG can enforce regulations.
	2.2 Collect information which can be used to assess the effectiveness of management programs.
	2.3 Establish standardized compliance monitoring and reporting procedures for observers.
	2.4 Maintain effective communication and coordination on compliance issues with appropriate government agencies and industry organizations, and ensure responsiveness to compliance concerns raised by observers.
	2.5 Minimize the level of observer harassment and sampling interference.
	2.6 Enhance awareness of the impact of noncompliance on the quality of observer data.
3. Improve and maintain the infrastructure necessary to carry out observer functions	3.1 Maintain effective communication between observers, program staff, government agencies, and industry participants.
	3.2 Maintain a stable system to allow for effective recruitment, training, provision of equipment, field support, and compensation for observers.
	3.3 Secure and maintain sufficient funding and staff resources for observer program functions.
	3.4 Maintain procedures for reviewing and modifying observer recruitment, training and briefing, and debriefing criteria to meet the needs of NMFS.
4. Provide information necessary to support management of marine mammals and other protected species	4.1 Document fishery/protected species interactions.
	4.2 Provide information to support population assessments and biological studies.
	4.3 Provide information to reduce interactions.
5. Provide information necessary to support other specified science and management programs	5.1 Collect observations and samples as required for marine ecosystem research.
	5.2 Provide information and support in the development of proposed management measures.
6. Develop awareness of the goals, objectives and activities of NPGOP	6.1 Maintain and improve communications with observers, observer companies, the fishing industry, the North Pacific Fishery Management Council and its committees, and other individuals and groups interested in the program.

3.2.1.2 Conflicting and changing demands

Related to the problems of the lack of logical structure, described above, the goals and objectives include conflicting demands on the NPGOP, with no clear guidance on how these conflicts should be resolved. The most obvious of these is the balance between the two primary roles of observers - the collection of scientific and unbiased accounting data on the catch (goal 1 in the NMFS draft) and input into the control of compliance with regulations (goal 2 in the NMFS draft).

This issue has arisen in virtually every observer program around the world over the past ten years. In our experience, most observer programs have been established primarily as a means of collecting scientific data (i.e. detailed measurements of fish lengths, weights, age, sex and maturity stages etc.) to support the stock assessment process, or as a means of monitoring technical interactions between the fishing gear and protected species such as marine mammals, seabirds and turtles. Originally, the distinction between "enforcement" and "observation" was clearly made by both fishery managers and the industry, with the role of observers being held as purely scientific. The concern was that a blurring of this distinction might compromise both the scientific sampling and observation carried out by the observers and the surveillance and enforcement carried out by NMFS Enforcement Agents and the Coast Guard.

As time has passed, however, fishery managers around the world seem to have become increasingly comfortable with the idea of giving multiple functions to observers on vessels. Over the past ten years, in many observer programs, there has been an expansion in observer tasks to include functions related to compliance with regulations. In some cases, the pre-existence of an observer program has actually shaped the way in which management measures and regulations are formulated. The effective implementation of some regulations is predicated on the presence of an observer on board to monitor compliance. This shift in emphasis has occurred to such an extent that the function of some large observer programs is entirely one of catch accounting and compliance control (e.g. the program funded by the European Commission for EU vessels in NAFO waters - see Section 2.1.3.2.)

The multiple roles now afforded to the NPGOP gives rise to huge workload demands and stress levels for individual observers, for which they are often unprepared. Manpower turnover is high, both for observers and program staff, and a large proportion of the workforce may comprise individuals with a well founded scientific training, but relatively little seatime experience and little training or experience in issues of regulatory compliance and conflict resolution. While there has been a shift in observer tasks, there does not appear to have been an associated shift in recruitment practices (see Text box 3.1). Hence the individuals recruited primarily for their scientific, biological and analytical skills are now expected to conduct their work in a potentially confrontational environment where they are seen more as a spy than a scientist.

As stressed by the 1998 biennial Canada/U.S. Observer Program Workshop, while observer programs might be seen as a convenient means of fulfilling multiple tasks, *"there is a tendency to place unrealistic demands on these programs, and hence on the observers themselves. Those who design and manage observer programs must recognize the feasibility of each objective, of resource limitations, and of the need to establish unambiguous data collection priorities for observers. Periodic reviews should be conducted, followed by appropriate adjustments to program sampling designs and priorities"* (McElderry *et al* 1999).

Based on information supplied during interviews and meetings, there is a perception on the part of the fishers that uniformity in the interpretation of the goals and objectives of the NPGOP is lacking. This perception is based primarily on the fishers' interaction with the observers themselves, who are their main contact with the Observer Program. They perceive some variation in how the

observers see their role. For example, some observers apparently adopt a more pro-active role with respect to compliance than others.

Text Box 3.1
NMFS OBSERVER QUALIFICATIONS EDUCATION AND EXPERIENCE STANDARDS, January 1, 1998

A. Prospective observers must have a bachelor's degree or higher from an accredited college or university with a major in one of the natural sciences.

B. Candidates must have a minimum of 30 semester hours or equivalent in applicable biological sciences with extensive use of dichotomous keys in at least one course. Candidates must also have successfully completed at least one undergraduate course each in math and statistics (minimum of 5 semester hours total). In addition, all applicants are required to have computer skills that enable them to work Competently with standard database software and computer hardware.

C. Prospective observers are also required to successfully complete any screening test(s) administered by NMFS. These tests would measure basic math, algebra, and computer skills as well as other abilities necessary for successful job performance.

D. If a sufficient number of candidates meeting these educational prerequisites is not available, the observer contractor [company] may seek approval from NMFS to substitute individuals with either a senior standing in an acceptable major, or with an Associate of Arts (A.A.) degree in fisheries, wildlife science, or an equivalent.

E. If a sufficient number of individuals meeting the above qualifications is not available, the observer contractor [company] may seek approval from NMFS to hire individuals with other relevant experience or training.

F. To qualify for certification, all prospective observers would undergo safety and cold water survival training that requires the prospective observers to demonstrate their ability to properly put on an immersion suit in a specified time period, enter the water, [board a life raft, exit the raft,] travel approximately 50 m to a ladder, and climb out of the water.

Source: Observer Program Office

The results of the observer mail survey conducted as part of this review confirmed that there is some variation in the way in which observers interpret their role (Figures 3.1 and 3.2), but not as much as may be perceived by fishers. Observers were asked to indicate out of four categories, what they considered to be their most important tasks while working on vessels and at shoreside processing plants, indicating the order of priority as 1, 2, 3, or 4 (see Appendix 4, question 28). The four categories were:

a. Providing in-season reports of total catch and species composition.
b. Collection of biological data (lengths, sex, otoliths, etc).
c. Sampling for bycatch of prohibited species (including mammals and birds).
d. Monitoring activities of vessels for violations of regulations.

The majority of observers (75%) responded that in-season data reporting was the most important role for observers working on vessels. This percentage dropped to 60% for observers at shoreside plants. The next most important role for vessel-based observers was considered to be

bycatch/prohibited species sampling (14% of observers gave this top priority and 50% gave it second priority), while observers at shoreside plants considered it to be collection of biological data. In both cases the least important of the four tasks was considered to be monitoring activities of vessels for violations of regulations. Seventy two percent in the case of observers on vessels, and 74% for observers at shoreside plants, gave this task a score of 4. Nevertheless, 5% of observers responded that monitoring for violations was the most important task for observers on vessels.

In a subsequent question, observers were asked to describe *in their own words* up to three tasks in order of priority on board vessels and at shoreside plants. The responses provided were essentially the same as the responses to the questions described above where observers prioritized tasks which were described for them, confirming that the categories provided were appropriate.

It is not surprising, given the size of the program and the number of observers involved, that there is some variation amongst the observers in the interpretation of the observers' role. Variation in personalities and personal goals is bound to filter through into how observers perform their tasks. In addition, the observers' role has changed over time. Since the establishment of the NPGOP in 1990, new management programs have been introduced which rely on the use of observer data to monitor compliance with regulations. These include the Vessel Incentive Program (VIP) implemented in 1991, Improved Retention/Improved Utilization (IR/IU), whole haul counts of salmon in groundfish fisheries, and monitoring of Multi-Species Community Development Quota (MSCDQ). There has therefore been a gradual shift from straightforward biological sampling and catch recording, towards compliance monitoring. Some of these programs, such as the VIP, have a very poor record of enforcement due to the time-line required to collect sufficient data, the complexity of the cases, and the consequent delays to reaching closure of litigation. Nevertheless, observers are still instructed to collect data which they believe are to be used in enforcement of regulations. This inevitably leads to uncertainty and misunderstanding on the part of the observers who are predominantly trained as biologists and have little or no experience in compliance issues prior to enrolling in the Observer Program. NMFS (through the training and debriefing programs) and the observer companies (through job interviews and descriptions) should seek to work together to promote uniformity in the specification and interpretation of observer roles and responsibilities, not only for the benefit of the observers, but also the fishing industry.

During the Council's consideration of the proposed modification of the NPGOP, known as the North Pacific Fisheries Research Plan, an effective priority list of objectives was drawn up as a contingency in the event of a funding shortfall following implementation of the Research Plan (which was never subsequently achieved - see Section 1.2.1). Had the Research Plan proposals been adopted, in the event of a shortfall, the available funds would have been utilized according to the following prioritized list of objectives (NPFWC, 1995):

1. Accommodate status of stocks assessment (i.e., collection of data on total catch, species composition, size, sex and age)
2. In-season management
3. Bycatch monitoring
4. Vessel incentive programs and regulatory compliance

There was general agreement amongst industry representatives at the Seattle meeting (see Section 2.2.4), and in smaller, group conversations that the primary goal of the NPGOP should be the collection of scientific and catch accounting data at the highest levels of accuracy and precision. There was also general acknowledgement that, although the program had started off as scientific, its catch accounting role had been increasing and this trend was likely to further increase with

demands for more individual vessel accountability in the future.[16] There was some agreement that it is important to separate the enforcement and data collection roles as much as possible, since the former may compromise the latter.

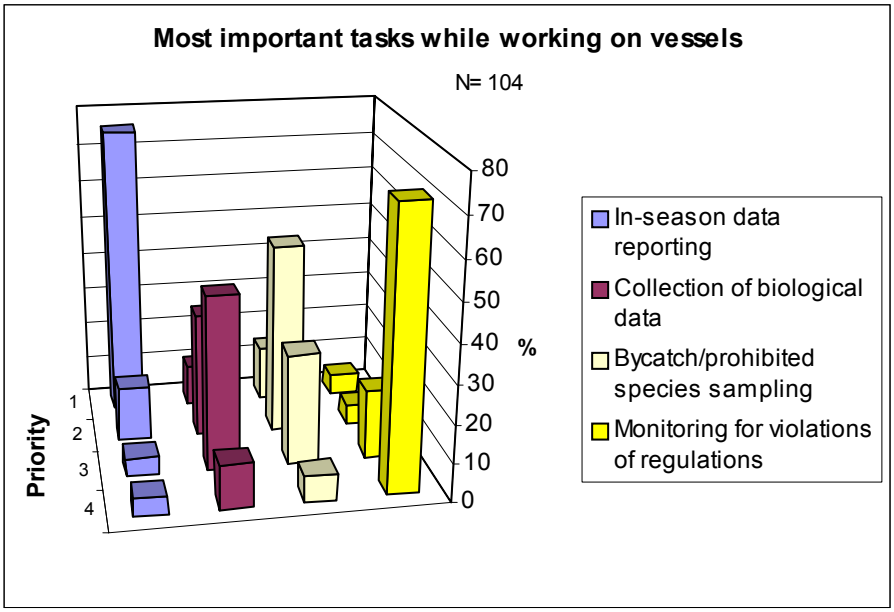


Figure 3.1 Observer responses to the question: What did you consider your most important tasks while working on vessels?

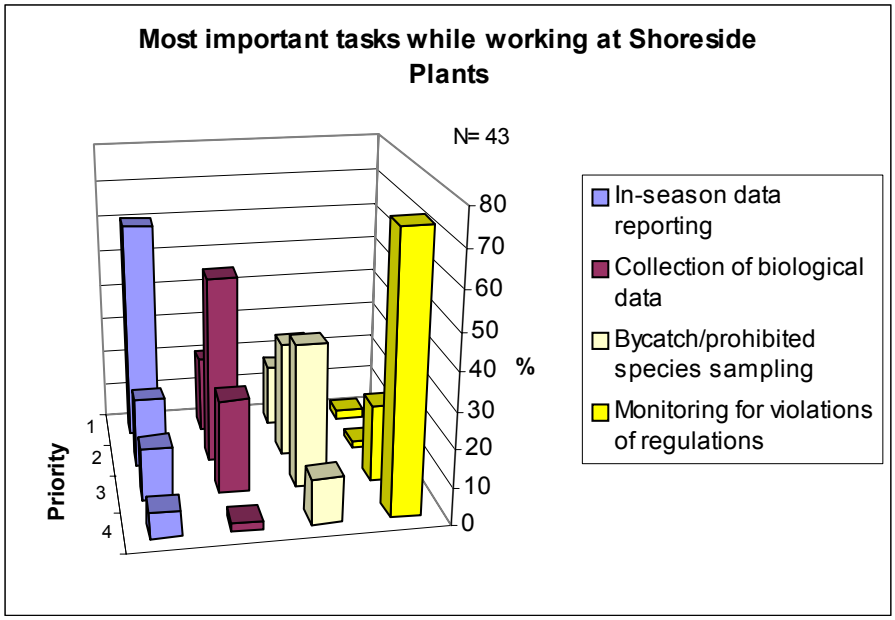


Figure 3.2 Observer responses to the question: What did you consider your most important tasks while working at shoreside processing plants?

[16] This shift in emphasis towards more individual vessel accountability has brought into clearer focus the problems created by the third party pay-as-you-go system in which the observer companies are directly responsible to industry clients. These problems are discussed in more detail in Section 3.2.

3.2.1.3 Awareness and communication

Another important issue in the development of goals and objectives is the promotion of awareness of these issues within the stakeholder community (see Section 2.2.1 for a list of stakeholders). Priorities within the list of goals needs clarification among all stakeholders. The current lack of clarity on the relative importance of different goals leads to uncertainty in the minds of the observers and fishers on vessels receiving observers. This has a tendency to exacerbate conflicts and confusion regarding observation/science needs and compliance functions, and individual vessel accountability versus fleet accountability.

The need for awareness and communication is explicitly recognized in the NMFS draft list of goals and objectives, to the extent that it is one of the stated goals of the program. While it is encouraging to see a high level of importance attached to this issue, it is not appropriate that it is listed as a program *goal*. It is part of the process leading to successful achievement of the goals, but it is not a goal in itself. It would be more appropriate to promote as a goal the opportunity of the NPGOP to enhance and promote communication and cooperation between components of the fishery sector - specifically between the fishing industry and the fishery managers. In other observer programs around the world, observers are viewed frequently as a vital link between the scientific work which supports fishery management and the operation of the fishery itself. This interaction between scientists and fishers can be extremely fruitful if it is developed in an appropriate manner, and can yield large amounts of information valuable to the assessment and management process which cannot be obtained through catch sampling alone. It also provides an opportunity to explore the common goals of management and industry - that of sustainable fisheries. This issue is taken up within the current draft objectives as Objective 2.6: *Enhance awareness of the impact of noncompliance on the quality of observer data*.

Feedback received during the information gathering stage of the review indicated that the level of awareness of the current draft goals and objectives was low, even amongst the NMFS staff involved with the NPGOP. This is partly because the goals are still being developed, but given the current draft was first produced in 1996, this is clearly an area which needs more attention.

3.2.2 Recommendations

3.2.2.1 Planning workshop and on-going review mechanism

As part of the future development of the NPGOP it is strongly recommended that the Program's goals and objectives are reexamined using more structured program planning tools, such as the Logical Framework.[17] This is especially important for such a large and complex operation as the NPGOP. This should be done as part of a wider consulting exercise which provides opportunity for input from the stakeholder community both within and outside NMFS. For example, it could involve one or more facilitated planning workshops, which would seek to reach consensus about the purpose of the NPGOP and the activities and resources needed to achieve that purpose. This process should clarify the program's structure and function and provide a means of developing a prioritization of program tasks. It would also demonstrate any conflicting demands and other critical threats to the delivery of program outputs and how these can be avoided.

Programmatic review should be an on-going process. A procedure for regular (e.g. annual) consultation and review should be established to ensure that the NPGOP remains focused on the

[17] Developed by Team Technologies Inc., 3810 Concorde Parkway, Suite 1600, Chantilly, VA 22021 USA, in collaboration with the World Bank (see also McLean 1988).

problems which need to be solved, and specifically those it is capable of solving. This should allow the OPO to respond in an ordered and planned fashion both to changes in scientific requirements and regulatory amendments outside the control of the OPO, which result, for example, from Council decisions or Congressional acts such as the AFA. While the program needs to remain flexible and responsive to changing requirements, *ad-hoc* changes and/or additions to the requirements and responsibilities of the Program should be avoided, as these have the potential for introducing conflicts which may once more compromise the integrity of the Program. With respect to NMFS itself, it is important that changes to Program goals, objectives and activities are accompanied by consensus among the Agency's stakeholder offices, with a commitment to any additional support staff and resource requirements.

3.2.2.2 Logical structure

The current draft objectives could be used as a "straw man" to initiate discussions at a planning workshop. However, in view of the problems with the current draft, discussed above, a possible alternative framework, which might provide an improved basis from which to start is outlined in Table 3.2.

This preliminary proposal has been drafted to be as generic as possible. To those involved in developing the framework further, we recommend that the purpose and objectives should be considered relative to the NPGOP as a whole. We have drafted five objectives in total, which correspond closely with the Program Goals in the existing NMFS draft. A possible development of this would be to split objective one into two separate objectives:

- provision of catch, bycatch, and biological data necessary to support stock assessment; and
- provision of unbiased estimates of total catch.

This distinction is suggested for the NPGOP in view of the unusually extensive management-based data needs of the groundfish fishery, including the AFA and MSCDQ, which account for a substantial portion of the observers' work on relevant vessels.

Moving down the hierarchy to the activities level, we envision that each of the major entities involved in the Program would have its own set of activities. These activities should mesh with those of other stakeholders, to form the SDM designed to achieve the objectives, and ultimately the purpose of the Program.

The activities currently listed in Table 3.2 are essentially those generic activities which are required to achieve the objectives and outputs listed. As the agency responsible for promoting stewardship of marine living resources, it is NMFS' responsibility to make sure that these activities are effectively undertaken. But under the current SDM, the actual performance of these activities is distributed amongst several different entities (see Section 2.1.2.2) over which the OPO has little or no direct control. In fact, this is one of the major problems currently facing the OPO (see Section 3.3 for more discussion of the issue of control).

It should become apparent that what is ultimately listed in the activities section of the framework should be the SDM. This clearly demonstrates the link between the Program's goals and objectives, and its organizational structure (to be considered in the following section). In fact, the activities listed in Table 2.1 (the existing SDM) are essentially "sub-tasks" of the activities listed in Table 3.2 and should be incorporated into the framework as it is developed.

Given that this review was commissioned by NMFS and its recommendations are provided for consideration by the Alaska Fisheries Science Center, we also suggest that some emphasis should be placed on the contribution of the Observer Program to the higher order objectives of NMFS, as specified in the NOAA Fisheries Strategic Plan (see the goal in Table 3.2). In addition, in conjunction with recommendations made with respect to the SDM in the following sections, rather than approaching the NPGOP as a single entity, the possibility of specifying program priorities for different components of the fishery should also be considered (see Section 3.3.2.4).

3.2.2.3 Costs and benefits

In parallel with this development of the goals and objectives, it is also recommended that a detailed study is undertaken of the costs, benefits and environmental value of the NPGOP. The annual direct costs of the program are estimated to be in the region of $8-10 million on the industry side and a further $2 million for NMFS. This is by far the largest single observer program in the world, and it is therefore only logical that a detailed examination of the benefits which have arisen since its inception should be undertaken. Such a study would, for example, consider in detail the effects of a substantial reduction or discontinuation of the NPGOP (i.e. “where would we be without it?”). These effects would probably include a substantial increase in the uncertainty in the stock assessment results (due to a lack of important biological information), necessitating much more conservative TACs to ensure sustainable fisheries. Other direct and indirect benefits of the NPGOP, which should be considered, include:

- essential support for the implementation of complex within-season quota management systems;
- support for ecosystem studies and ecosystem-based management (e.g. through the provision of data on small fish and under-utilized species);
- data for the protection of marine mammals and other protected species; and
- support for the enforcement effort, which reduces the need for additional fishery patrol boardings and port side inspections by fishery inspectors, and USCG officers.

Table 3.2 Alternative proposal for the framework of goals and objectives of the NPGOP

North Pacific Groundfish Observer Program	
NMFS overall goal:	Promote stewardship of living marine resources for the benefit of the nation through their science-based conservation and management and promotion of the health of their environment (NOAA Fisheries Mission, May 1997).
Purpose of the NPGOP:	To provide information essential for the management of sustainable fisheries in the North Pacific.
Objectives/Outputs of the NPGOP	**Requirements**
1. Provision of catch, bycatch, and biological data necessary to support in-season monitoring and stock assessment.	The infrastructure necessary to implement the Observer Program must be maintained, including: • effective recruitment, training, provision of equipment, field support, and compensation for observers; • sufficient funding and staff resources for Observer Program functions; • procedures for reviewing and modifying observer recruitment, training and briefing, and debriefing criteria to meet the needs of NMFS; and • effective communication between observers, program staff, government agencies, and industry participants.
2. Provision of information necessary to support increased compliance with specific regulations.	
3. Provision of information necessary to support management of marine mammals and other protected species.	
4. Provision of information necessary to support other specified science and management programs.	
5. Promotion and enhancement of communication and cooperation between all stakeholders in North Pacific fisheries.	
Activities required in support of NPGOP Objectives/Outputs (the Service Delivery Model)	**Requirements and potential threats**
1.1 Collect catch information for quota monitoring and management of groundfish and prohibited species.	Catch data must be reported in a time frame consistent with quota management systems. Sufficient observer coverage must be maintained to support sampling requirements.
1.2 Collect biological data and samples required for stock assessment analysis.	Sufficient observer coverage must be maintained to support sampling requirements. Sampling procedures must not be compromised by observer harassment and/or sampling interference.
2.1 Collect information from which NMFS and the USCG can enforce regulations.	Information collection must not be compromised by observer harassment and/or sampling interference.
2.2 Collect information which can be used to assess the effectiveness of management programs.	Information collection must not be compromised by observer harassment and/or sampling interference.
2.3 Establish standardized compliance monitoring and reporting procedures for observers.	Maintain effective communication and coordination on compliance issues with appropriate government agencies and industry organizations, and ensure responsiveness to compliance concerns raised by observers.

Activities required in support of NPGOP Objectives/Outputs (the Service Delivery Model)	Requirements and potential threats
3.1 Document fishery/protected species interactions.	Documentation procedure must not be compromised by observer harassment and/or sampling interference
3.2 Provide information to support population assessments and biological studies.	Information collection must not be compromised by observer harassment and/or sampling interference
3.3 Provide information to reduce interactions with protected species.	Information must be collected systematically.
4.1 Collect observations and samples as required for marine ecosystem research.	Sampling procedures must not be compromised by observer harassment and/or sampling interference.
4.2 Provide information and support in the development of proposed management measures.	Information must be collected systematically.
5.1 Maintain and improve communications between NMFS, observers, observer companies, the fishing industry, the North Pacific Fishery Management Council and its committees, and other individuals and stakeholder groups interested in the program.	Requires cooperation between stakeholders.
5.2 Enhance outreach and awareness of the impact of noncompliance on the quality of observer data and consequent implications for the fishery.	Requires cooperation between stakeholders.

3.3 NPGOP authorities and organizational structure

As described in Section 3.2.2.2, the SDM comprises all of the activities and tasks required to achieve the Observer Program objectives. A substantial portion of this is dictated by the Program authorities and organizational structure. In this section we discuss the effects of the current Program authorities and organizational structure on:

- program integrity and
- data quality and delivery

and make recommendations for modifications to the SDM which will lead to improvements in these two important aspects of the Program. In subsequent sections of the report we discuss issues relating to coverage levels, cost distribution, observer support and stakeholder outreach.

An important point to note at this stage is that although the OPO manages the Observer Program, much of its structure has been determined by the Council. This includes design of the current SDM, observer coverage requirements for different size vessels, and implementation of special sampling or compliance programs (e.g. VIP, IR/IU, CDQ).

3.3.1 Strengths and weaknesses

3.3.1.1 Program integrity

On the positive side, the current SDM provides the program with a mechanism for covering costs - something that the government was unable to do at the inception of the Program in 1990. However, it is widely recognized that the third party pay-as-you-go observer procurement system leaves observers and observer companies vulnerable to pressures that jeopardize the quality and credibility of the data which the Program is seeking to provide, particularly with the increased emphasis on individual vessel accountability which has taken place since the Program started.

In an effort to reduce the potential for conflicts of interest, NMFS has drafted conflict of interest standards for NMFS certified observers and observer companies (59 FR 22133, see Text box 3.2). These standards cover the usual requirement that observers and observer suppliers cannot have either a financial or personal interest in the vessels or shorebased facilities they are employed to observe. In order to allow the existing SDM to comply with these standards, there is an explicit statement that the provision of certified observers for remuneration does not constitute a conflict of interest. Issues of program integrity are somewhat subjective and open to interpretation. However, few would argue that this SDM, under which the industry is essentially a client to any of several competing observer companies, is bound to impose certain commercial pressures on the observer companies, which have a high potential for degrading the objectivity of the Observer Program.

In comparison to the conflict of interest standards in Text Box 3.2, the Australian Fisheries Management Authority (AFMA) imposes similar standards in accrediting “data collection agencies” for providing “data collection officers” to work alongside AFMA (i.e. government) observers in their sub-Antarctic fisheries. AFMA prefers that no directors or employees of the entity seeking accreditation have been employed by a fishing company. If employees have been previously employed by a fishing company, this must be declared. If an observer was previously employed by a fishing company which holds, or has held, an Australian fishing concession in the sub-Antarctic fisheries, they must not be associated with any functions related to that fishing company for a period of 12 months.

The difference in this case is that the “data collection officer” provided directly to the industry by the accredited agency works under the direct scrutiny of an AFMA observer deployed on the vessel at the same time. There is therefore much less likelihood of commercial pressures affecting the work of the data collection officer paid for directly by the industry. In addition, the penalty for non-compliance is severe. If a data collection officer fails in his or her obligations or there are any improper dealings, the contracting agency is "de-accredited" and the fishing company loses its access to the fishery permanently.

Text Box 3.2:
Conflict of Interest Standards for NMFS Certified Observers and Contractors

Contractors certified by NMFS to provide observer services to the fishing industry and observers certified by NMFS to perform observer duties, cannot have either a financial or personal interest in the vessels or shorebased facilities they are employed to observe. A direct financial interest is defined as payment or compensation received directly from the owner or operator of the vessel or shorebased facility being observed that results from a property interest or business relationship in that vessel or shorebased facility. A personal interest is defined as an interest or involvement held by the contractor or observer, or the contractor's or observer's immediate family or parent, from which the contractor or observer, or the contractor's or observer's immediate family or parent, receives a benefit.

The provision of certified observers for remuneration does not constitute a conflict of interest under this paragraph.

a. Conflict of interest standards for certified observers. A certified NMFS observer:

5. Must be employed by an independent contracting agent certified by NMFS to provide observer services to the industry;
2. May not have a financial interest in the observed fishery;
3. May not have a personal interest in the vessel or shoreside facility to which he or she is assigned;
4. May not solicit, accept, or receive, directly or indirectly, a gift, whether in the form of money, service, loan, travel, entertainment, hospitality, employment, promise, or in any form that is a benefit to the observer, under circumstances in which it could be reasonably inferred that the gift is intended to influence the performance of official duties, actions, or judgment;
5. May not serve as an observer on any vessel or at any shoreside facility owned or operated by a person (as that term is defined at 50 CFR 620.2) who previously employed the observer, for a period of 12 months after being employed by that person.

b. A certified observer contractor --

1. May not be an individual, partnership, or corporation with a personal or financial interest in the observed fishery, shoreside facilities or vessels, other than the provision of observers;
2. Shall assign observers without regard to any preference by representatives of vessels and shoreside facilities for or against a specific observer;
3. Shall assign observers without regard to any preference by representatives of vessels and shoreside facilities for or against any classification of observers based on race, gender, age, or religion.

Source: Observer Program Office

It is almost impossible to determine categorically whether the current SDM gives rise to a conflict of interest which significantly degrades the quality of the program outputs to the extent that remedial action is required. None of the participants in the observer procurement system have any incentive to apprize NMFS when compliance with conflict of interest standards is in question. Nevertheless, there is substantial circumstantial evidence and a large body of opinion (expressed during this review process) which indicates that the integrity of the NPGOP is in question. This is of particular concern given the length of time for which the “interim” SDM has been in place, the

changing demands on the Program in terms of increased requirements for catch accounting and compliance data, and the amount of money spent annually by both industry and NMFS on the Program's implementation.

The direct business relationships between fishing companies and observer companies create, at a minimum, the appearance or perception of a conflict of interest. Observers have reported, on occasion, that vessel masters or owners have refused to take them on board, because they had previously filled out affidavits or noted violations on that vessel, and the vessel masters have sought a replacement observer.[18] This is contrary to the stated policy, yet there was apparently no penalty issued against the vessel operator. In these circumstances, vessels which are not subject to 100% coverage of sea days (i.e. the vessel category with 30% observer coverage) can turn away an observer and proceed with their fishing trip, opting to fulfil the coverage requirement at a later date. It was also noted, however, that in some instances when an observer was turned away, the observer company refused the vessel's request to place a different observer on the vessel and that vessel had to wait until all other vessels were serviced in the planned order.

Nevertheless, in principle the industry has the choice of several different observer companies when it needs observer coverage. The existence of competition for industry clients amongst the observer companies has eroded the confidence in the reliability of the data (see Section 3.3.1.2), particularly when there is virtually no mechanism for government control over observer company performance (other than decertification) and observer placement.

3.3.1.2 Data quality and delivery

Two main issues are considered under this heading: the effects of the SDM on data quality, and the extent to which NMFS is able to collect the type of data it needs to fulfill its stock assessment, protected species monitoring, and compliance requirements.

As described in the previous section, day-to-day competition to supply vessels with observers is high, and observer companies must constantly try to reduce costs and improve efficiency. In principle, improved efficiency is a commendable aim, however, concerns have been voiced that if this is taken to extremes, for example in terms of low remuneration for observers, this may be detrimental to the observers' work, and have negative consequences on data quality. Low remuneration is cited as an important cause of the unionization of observers in the mid 1990's . Since that time, four of the observer companies have reached agreement on pay scales with the Alaska Fishermen's Union.

In addition, negative incentives exist at the individual observer level, which may add to the data quality problem. For example, in some fisheries, observers can benefit directly from under reporting bycatch of protected species, because this prolongs the open season, thereby extending the requirement for observer coverage and their days at sea.

During the course of this review, data quality and the potential for sampling interference were subjects brought up by several of the stakeholder groups. While it was possible to identify several

[18] In one such case, in October 1998, a vessel refused to take an observer because that observer had reported a gear violation aboard the vessel on a previous deployment during the CDQ opilio crab fishery. Since the observer company was unable to provide the vessel with a different observer, the captain chose to go fishing without an observer aboard. The vessel was in the 30% coverage class, so it may not have been in violation of coverage requirements. Anecdotal reports of similar incidents are received by NMFS every year.

documented incidents of sampling interference,[19] it was not clear that there are systemic problems of bias within the dataset generated by the NPGOP that result directly from problems within the SDM. Both within and outside NMFS, most of those who use the observer data directly in their analyses seem to be comfortable with the data quality. There is, nevertheless a lack of trust in the data on the part of some stakeholders, and efforts should be made to address elements of the SDM which give rise to this.

In this regard the IPHC expressed particular concern regarding the pre-sorting of species subject to prohibited species cap (PSC), especially halibut. In the case of PSC, there is a clear incentive to pre-sort the catch to bias the observers samples and to reduce the total catch estimates of these species, and hence prolong the season. Both fishermen and the IPHC acknowledged that the current reliance on basket sampling of the catch leads to problems. Retaining all of the catch until sampling is complete results in higher bycatch mortality than if the fish are returned to the sea immediately. Flexibility in sampling for prohibited species, especially halibut, might help to decrease the problems of illegal pre-sorting and reduce the mortality of discarded fish. For example, pre-sorting could be encouraged on the majority of catches (say 75%), and proper sampling (i.e. with no pre-sorting) would be undertaken on the remaining catches. The precise split between the pre-sorted and non pre-sorted catches (and hence the observers' sample size) would need to be determined according to statistical sampling protocols. In addition, regular industry forums should be developed to explain PSC issues, and encourage data transparency. In-season distribution of weekly charts of PSC and by-catch densities from fleet, would encourage avoidance of areas of high by-catch.

The second issue relating to data quality and delivery is that of control over observer placement. The OPO is ultimately responsible for the satisfactory delivery of outputs from the NPGOP, the most important of which is generally regarded to be the observer data. However, the OPO is distanced from the day-to-day deployment of observers onto vessels, and is therefore less able to exercise operational control over the data collected by the NPGOP. For example, placement of observers on 30% vessels (and thus largely in the GOA) is largely opportunistic, dependent upon choices made by the fishing vessel and observer companies, rather than the requirements for stock assessment or catch accounting data. Furthermore, there is a large component of the groundfish fleet which has no observer coverage at all (vessels less than 60ft). Non-random placement of observers has the potential to introduce bias into the scientific data with possibly severe consequences for the stock assessment analyses (see Section 3.4 for discussion of coverage levels).

In this regard, the First Biennial Canada/U.S. Observer Program Workshop commented that the tendency for numbers of groups or agencies to take on responsibility for separate aspects of the research process creates a complex network that is increasingly difficult to coordinate. Nevertheless, the need for downsizing of government programs has resulted in a large number of observer operations being out-sourced to companies in the private sector, and in many cases this experience has been positive. Note, however, that in the majority of cases where private companies are used, there is a direct contractual relationship between the government agency whose responsibility it is to monitor the fishery, and observer company which supplies the observers. This is not the case in the NPGOP.

In our view, the use of observer companies to provide observer services for the NPGOP can have both positive and negative effects on the Agency's ability to coordinate and control data outputs. While the removal of NMFS involvement in the day-to-day business of observer deployment makes

[19] For example, of the 239 observer violations reported between December 1997 and September 1998, 74 (31%) were related to sampling interference of some type (Internal NMFS Memo from Todd Dubois dated September 30 1998).

them less able to control and modify observer deployment and sampling arrangements at short notice, in reality, private companies are generally more able to respond to the fluctuating manpower requirements which such modifications generate. [20]

Nevertheless, it is clearly important for NMFS to maintain control over data quality if it is to be confident in fulfilling its obligation to achieve the objectives of the Observer Program. NMFS has sought to do this through maintenance of observer hiring and training standards, in-season advisors and also through the conduct of mid cruise and end of cruise debriefing of observers deployed by observer companies.

The hiring and conflict of interest standards shown in Text Boxes 3.1 and 3.2 are part of this process. NMFS has also set out conditions and procedures under which observer companies and observers can be decertified.[21] One certified observer company was decertified when it went bankrupt in 1993,[22] and the observer decertification process has been invoked on several occasions.[23] One apparent inconsistency between the two processes is that while lack of integrity of data quality is a valid reason to decertify an observer, it appears to *not* be a reason for decertifying an observer company, hence the current SDM appears to not hold observer companies responsible for their employees' work. Note, also that none of these initiatives address the problem of non-random placement of observers on vessels requiring less than 100% coverage of sea days (i.e the 30% vessels).

Another factor which undoubtedly affects the quality of data collected by observers is their morale and experience (Balsiger in McElderry *et al* 1999). Issues relating to observer experience (with respect to observer turnover) and morale and how these are influenced by the SDM are discussed in Section 3.6.1.1.

3.3.2 Recommendations

3.3.2.1 Changing the Service Delivery Model

The 1998 biennial Canada/U.S. Observer Program Workshop concluded that *"Program delivery models which allow industry influence to compromise the integrity of the data or which mitigate government control or flexibility in placing observers, setting coverage levels, and designing sampling protocols should be avoided*" (McElderry *et al* 1999).

The weight of evidence collected during this review leads us to the conclusion that the SDM of the NPGOP is one such model which should be avoided and needs to be changed. The problem is how to bring about changes which will avoid the problems discussed in the preceding sections,

[20] Regarding the capability of the observer companies to respond to short term fluctuations in the demand for observers, see Section 3.4.

[21] A total of eleven observer companies have been certified for the NPGOP. Over the last few years, there have been five main observer companies operating, with one additional company being certified by NMFS in late 1999. The reason why there are fewer companies operating than have been certified is unclear.

[22] When this company ceased trading, 20 to 25 observers were left without payments owed to them (amounting to approximately $150,000 in total). NMFS was unable to intervene or provide any relief for those affected because they were not government employees and NMFS had no legal liability.

[23] In one extreme case, in 1996, an observer received a 12 month prison sentence for filing false observer reports and under-reporting halibut by-catch information (a felony).

while ensuring costs are, to the greatest extent possible, controlled and equitably distributed within the industry.

Experience from observer programs around the world has demonstrated that there is a plethora of different SDMs in operation, which are to a greater or lesser extent successful in achieving the monitoring requirements of stock assessment scientists and fishery managers. SDMs vary greatly in the details of program responsibilities and funding mechanisms, however, in general, they can be divided into three main types:

- government program;
- government-contractor relationship; and
- SDMs involving "third party" contracting.

In the government program model, the government has responsibility for all aspects of the program, including:

- monitoring program design;
- recruitment, hiring and training of observers;
- deployment and all logistical support for observers in the field;
- provision of sampling and safety gear; and
- data analysis and production of reports.

Funding of the program is either covered by government central funding, or through some form of cost recovery. An example of a government program is the AFMA observer program for sub-Antarctic fisheries (see Section 2.1.3.2).[24]

In the government-contractor relationship, responsibility for some or all of the observer program tasks is transferred to a non-governmental agency or company which is contracted directly by the government. Such arrangements routinely involve a variety of quality control mechanisms, including competitive bidding, contract negotiations, detailed statements of work, service delivery performance standards (and mechanisms to deal with poor performance), regular program review, audits, and finite term, ensuring that the government has tight control over all aspects of the program. Facilities at the disposal of the government commonly include contract officers, professional negotiators and financial auditors.

The extent of the task transfer to the contractor varies. For example, in the case of the Pacific Drift Gillnet Fishery observer program, NMFS conducts observer training and debriefing while a single private company is contracted by NMFS to hire observers and handle logistics. In the case of the EU/NAFO observer program, the EU contracts a private company to provide a turn-key service including all the elements listed above.

The expression "third party" contracting is used to describe the model under which one or more government-certified private observer companies are contracted directly by fishing vessel operators to provide observers to fulfill a government requirement for observer coverage (e.g. the NPGOP). This is the most extreme form of outsourcing in which the government has been removed from much of the service delivery process, although it may retain involvement in training and briefing/debriefing of observers, as in the NPGOP. This approach has rarely been used in practice, due to perceived problems of conflicts of interest and concerns over the quality of data outputs

[24] Although AFMA does allow for data collection officers to be provided by accredited private companies and contracted directly by fishing companies, the AFMA program itself is entirely run by the Australian Government.

(see Section 3.3.1). When it has been used, it appears to have been for reasons other than the pursuit of optimal program outputs. The structure of the NPGOP, for example, was designed as an interim solution because at the time of its development (1989/90) NMFS lacked the authority to collect user fees from fishery participants. The "pay-as-you-go" system provided a means of funding which enabled the program to proceed (see Section 1.1).

Other examples of observer programs involving direct payments by the industry to private observer companies, besides the NPGOP, are the ADF&G shellfish observer programs (see Section 2.1.3.1), the AFMA "data collection officer" program (see Section 2.1.3.2), and certain observer programs in Canada under the Canadian Service Delivery Model (Rowe, page 46 in McElderry *et al.* 1999).

According to Boyle (page 7 in McElderry *et al.* 1999), the ADF&G shellfish observer programs operate under an SDM which is essentially the same as that of the NPGOP, and similar problems exist, which ADF&G is attempting currently to rectify through the Alaska Board of Fisheries.

In this case of the Australian data collection officers, this program was devised in response to industry concerns over rising costs of observer requirements (two are required on every vessel). However, there are fewer concerns over the third party element of this program, compared to the NPGOP, because the industry contracted data collection officer is supervised directly by a government observer, and there are severe penalties for any in-proper activities (see Section 2.1.3.2). To our knowledge, problems associated with conflicts of interest do not arise.

In the Canadian SDM, program managers focus on six essential elements to ensure objectives are met. These are:

- arms-length from industry;
- operational efficiency;
- high level of integrity and perception of integrity;
- provision of high quality, experienced observers; and
- responsiveness to government and industry needs.

This model has evolved from a program that was wholly government controlled, delivered and funded, through a stage of government control and funding with contractor delivery, to its present status which is government controlled, contractor delivered and industry-government cost-shared. Under the current model, the government retains regulatory and contractual control over the program, which is delivered by a private sector contractor and cost-shared between the industry (through sea-day rates) and government (through administrative overhead). The arms-length/conflict of interest requirement is satisfied through a prohibition of industry involvement with the observer contractor and a contract exclusivity which allows only one contractor to deliver the service in any region at any time. This program model, and particularly the emphasis on exclusivity, is believed to deliver an effective data collection program which is free from conflicting interests (McElderry, page 47 in McElderry *et al.* 1999).

In the following sections, we discuss the pros and cons of the three basic types of SDM described above in the context of their potential utility in the NPGOP, and make recommendations regarding the applicability of each.

3.3.2.2 A government program

The most obvious way to eliminate the potential conflict of interest and provide observers with increased backup on compliance issues would be to make all observers federal employees within a wholly government controlled observer program. One would expect that a federal program that

provides government employees as observers would allow for tighter government control over data outputs, data quality and the perception of data quality, and the enforcement of regulations. If this option is open to the OPO, then we recommend that it is implemented as soon as possible to enable NMFS to effectively deliver on its responsibilities for monitoring north Pacific groundfish.

However, we recognize that this would be a radical change from the existing SDM and is unlikely, at least in the short term, to be a practical option. It would result in major disruption amongst current stakeholders, particularly the certified observer companies, and would resurrect the problems of funding and cost equity which arose at the advent of the third party pay-as-you-go system, and were the reason for the failure of the Research Plan in 1995/96.

3.3.2.3 Direct government-contractor relationship

A viable alternative to a wholly federal NPGOP would be an SDM based on direct contractual relationships between the government and the observer companies. The emphasis on government downsizing has already resulted in a large number of observer programs around the world being outsourced to private companies. In many cases, such programs are working very well, without the problems experienced in the NPGOP. This is generally because the SDM most frequently used in these circumstances is the government-contractor relationship, rather than the third party pay-as-you-go SDM.

We therefore believe that the use of private observer companies in the NPGOP *per se* is not the root cause of the problem with the SDM. Instead, it is the lack of direct contractual obligations between the government and the companies, the direct industry payments, and the existence of multiple observer companies competing for business from industry clients which have lead to many of the problems with the SDM noted during this review. Returning the NPGOP to a solely government run program is therefore not the only viable solution.

3.3.2.4 Short term modifications to the third party pay-as-you-go system

During the course of the review it has become apparent that many people involved with the NPGOP share the view that the direct link between the observer companies and the industry, and the associated lack of government control, are unacceptable features of the existing SDM. We would agree with this, and have noted the commendable, but ultimately unsuccessful attempts by the NMFS OPO to remedy the situation through the proposed Research Plan and the JPA. The suggestions made above, for either direct government-observer company contracts or a wholly government run program would go a long way towards solving these problems. However, we are aware that these are essentially the proposals which were included in the Research Plan. Our understanding regarding the Research Plan proposal is that the main reason for its demise was concerns within the industry regarding the cost recovery process and particularly cost equity across all elements of the groundfish fleet. The issue of cost distribution is discussed in Section 3.5 of this report. In the event that the cost recovery problem can be solved, either through the recommendations made in this report, or by some other means, then we recommend that the original Research Plan proposal should be re-considered.

We also recognize, however, that this process could be lengthy and may not lead to a solution in the short term. With this in mind, we present a proposal for modifications to the third party pay-as-you-go SDM which it may be possible to implement in the short term. The goal of this proposal is to achieve immediate progress towards alleviating several of the negative incentives and pressures which currently exist. It is not a total solution in itself and has been formulated on the

understanding that to be wholly effective, it should be dove-tailed with the longer term and more far-reaching changes described in Sections 3.3.2.2 and 3.3.2.3.

In addition to the problems of the direct link between the observer companies and the industry, and the lack of government oversight, the existence of multiple observer companies competing for business on a day-to-day basis with a large number of industry clients is a feature of the current SDM which should be avoided.[25] This situation could be rectified in the shorter term and we have developed a two phased approach to achieve this. The first phase aims to achieve exclusivity in the provision of observer services. This would move the NPGOP SDM closer to the Canadian SDM, described in Section 3.3.2.1. The second phase would start to address the need for increased direct government control over the operations of the NPGOP and move the SDM closer to either the direct government-contractor relationship, or the wholly government program described above.

Phase one

The goal of phase one would be to develop and implement a system under which the industry has no choice regarding the observer company from which it can obtain the observer service it requires. This does not address the problem of the direct payments made by industry to the observer company, nor the problem of cost inequity, but it does remove the problem of day-to-day competition between observer companies, and reduces the potential conflicts of interest which arise.

One problem is that the NPGOP is too large for a single observer company to operate by itself. This would also be a risk-prone solution in that the whole program would be relying on the operation of a single company. Were that company to fail, the whole program would collapse. Instead, we suggest that the Observer Program is subdivided into smaller units, based on a rational sub-division of the North Pacific groundfish fishery. Breaking up the fishery (and hence the observer requirement) into smaller units was part of the "modular contracting" model considered by the Council at the time of the Research Plan discussions. This involved breaking up the groundfish fishery into a number of discrete modules (based on sub-fishery, area, gear type, etc.), and offering a contract for each one. A criticism of this approach was that it would be difficult for prospective observer companies to develop bid prices for each module, because they would be forced to estimate costs under the assumption that they might be awarded contracts for only a minimal number of modules. In our view, this scale of this problem would depend on the size and number of modules offered.

Vessel operators will undoubtedly be concerned about the possibility of escalating costs if the element of competition between observer companies is removed. According to our proposal, only one observer company would be certified by NMFS for providing observer services within each unit (although a single company could be certified for more than one unit). However, to achieve this, all observer companies wishing to be certified for a particular fishery unit or module would need to apply to the OPO for certification. This would effectively be a competitive bidding process, since the OPO would select one of the companies applying for certification for each fishery unit. Concerns over costs could be addressed as part of this process. The application for certification could include an undertaking to charge industry a fixed price, for example on the basis of observer

[25] Note that the competition which is being referred to here is the day-to-day competition for observer placements on specific boats, which arises in the NPGOP SDM, not the competition which exists between observer companies when they take part in a competitive bidding process for a particular contract for observer services.

days, which could form part of the bid evaluation criteria. [26] This would ensure that companies did not exploit their certification exclusivity once they had been certified, by charging unreasonable daily rates to industry clients.

In order to ensure that no single observer company took on more responsibility for providing observers than is appropriate, and the bidding process remains truly competitive, the certification process could also include a maximum number of fishery units that an individual company could be certified for. We also suggest that the certification should have a finite term, so that observer companies would need to re-apply after a period of time (for example two or three years), allowing for the possibility of new companies entering the process. This would also ensure that costs remain reasonable, and salaries and compensation do not lag behind market demands. There should also be measures in place to prevent price collusion between individual observer companies. Some form of fishing industry participation in the bid evaluation process might also be appropriate, although, the final decision on contract award should rest solely with the government.

Another concern under this model would be maintaining a sufficient supply of observers to fulfill the coverage requirements of all the modules. However, given that the observer companies would no longer be in direct day-to-day competition with each other, there would seem to be no reason why a single observer could not work for more than one observer company, as some do under the current system.

Regarding the sub-division of the fishery, this should be done so that each division forms a rational unit of suitable size to guarantee sufficient business to attract interest from a large number of commercial companies. [27] This could be done, for example, using a combination of fishing area, target species, vessel and gear types. The categories should be devised so as to minimize the likelihood of vessels crossing over repeatedly from one category to another, which might give rise to multiple observer requirements from different observer companies. Such a division would also help the observer data collection to be tailored to specific requirements of these smaller fishery units, making it more focused and flexible to potentially changing data needs. Finally, at least all vessels currently covered by the NPGOP should be included in one of the new categories. The possibility of including sectors of the fishery not already covered should be considered.

Table 3.3 presents a preliminary attempt at a possible sub-division of the North Pacific groundfish fishery, which could be used to create coverage units within the NPGOP. However, if NMFS decides to pursue this recommendation further, the fishery subdivision should be considered very carefully by NMFS staff, in consultation with industry representatives.

Phase Two

The second phase would seek to address the issue of government control. As discussed previously, the most effective way to achieve this is either under a wholly government controlled program, or through the establishment of direct contractual agreements between observer companies and the government. In fact, the latter would form a natural progression from the certification process described in phase one, simply by taking the step of establishing an actual contractual agreement between the certified company and NMFS. In effect, some form of agreement would be required anyway to ensure the conditions of certification (including fixed

[26] The fixed price would be established in the certification terms and conditions, which would also include a price commitment for any period added to the certification term by way of a modification.

[27] It would also be important to consider stability so that a decline or stoppage in one fishery unit would not put an observer company out of work. With this in mind it is envisioned that individual companies will service more than one fishery unit.

prices) are met. This could possibly be achieved through carefully drafted certification conditions (which if not met would result in de-certification), but a formal contract would clearly be more effective.

The establishment of a formal contract between the certified observer companies and NMFS may or may not imply that the pay-as-you-go system would need to be replaced immediately by some other form of fee payment method. It may be possible to establish contracts first and address the cost recovery issue separately. For example, the potential for using a "no-cost" contract should be investigated.[28] Retaining the existing pay-as-you-go system, however, would not address concerns over conflicts of interest, and cost inequity (discussed in Section 3.5).

Table 3.3. Provisional proposal for subdivision of the North Pacific groundfish fishery.

Fishery unit	Fleet characteristics and observer coverage requirements
BSAI pollock fleet	Mainly large catcher-processors requiring 2 observers each (AFA boats), and catcher boats in the 100% coverage bracket with some vessels less than 125 ft in the 30% coverage bracket
Gulf of Alaska pollock fleet	Mainly small trawlers servicing shore-side processing plants (30% coverage)
Non-pollock trawl fleet	Catcher boats
Bering Sea medium size flatfish catcher processors	Medium sized trawl catcher-processors over 125 ft requiring 100% observer coverage, with a few in the 30% coverage range
Head and gut flatfish catcher processors	The smaller head and gut catcher-processor fleet covering the Aleutian Islands and the Gulf of Alaska. Also targeting rockfish and Atka mackerel (Aleutian Islands)
BSAI longline (hook and line) fleet	Longline catcher-processors targeting cod
Gulf of Alaska (hook and line) longline fleet	Mainly small catcher boats in the 30% coverage range or below the current size limit for 30% observer coverage (< 60ft)
Pot catcher vessel fleet	Operating mainly in the Gulf of Alaska, small vessels in the 30% coverage range or below the current size limit for 30% observer coverage (< 60ft)
Processing plants and floating processors	Must have a NMFS-certified observer present at the facility each day it receives or processes groundfish during that month, except for plants processing less that 1,000mt of groundfish, which must have an observer present for at least 30% of the days it receives or processes groundfish

[28] A no-cost contract, for example, is awarded to a concessionaire to operate facilities on government property (e.g. restaurants, lodges and gift stores in national parks). The no-cost contract approach has been used for contracting observer services in the past on the east coast of the U.S. and is currently under development for the New England scallop observer program (Lynn Phipps, NOAA contracting, pers.com.). Essentially, it is possible to have contractual obligations between an observer company and the government without fees being paid. However, contractual details and issues of liability would need to be investigated in more detail by NMFS staff before proceeding with this recommendation for the NPGOP.

3.4 Coverage levels

3.4.1 Strengths and weaknesses

3.4.1.1 Current coverage levels

In general, an operator of a catcher vessel, catcher/processor vessel, or mothership processor vessel must carry a NMFS-certified observer on board the vessel whenever fishing operations are conducted if the operator is required to do so by the Regional Director. A manager of a processing facility must have a NMFS-certified observer present at the facility whenever groundfish is received or processed, if the manager is required to do so by the Regional Director. Notwithstanding these requirements, observer coverage is also required as described in Table 3.4.

Table 3.4 Current requirements for observer coverage in the NPGOP.

Fleet/Industry Component		Coverage
Catcher / processor or catcher vessel	125 feet (38.1 meters) in length overall (LOA) or longer	Must carry a NMFS-certified observer at all times while fishing for groundfish, except for vessels fishing for groundfish with pot gear as provided for below.
	equal to or greater than 60 feet (18.3 meters) LOA but less than 125 feet (38.1 meters) LOA	Must carry a NMFS-certified observer during at least 30% of its fishing days in each calendar quarter in which the vessel participates for more than 3 fishing days in a directed fishery for groundfish. Each vessel that participates for more than 3 fishing days in a directed fishery for groundfish in a calendar quarter must carry a NMFS-certified observer during at least one fishing trip during that calendar quarter for each of the groundfish fishery categories defined in regulations 50 CFR part 627.27(c)(1)(iv) in which the vessel participates.
Catcher / processor or catcher vessel fishing with hook-and-line gear	equal to or greater than 60 feet (18.3 meters) LOA but less than 125 feet (38.1 meters) LOA	Must carry a NMFS-certified observer during at least one fishing trip in the Eastern Regulatory Area of the Gulf of Alaska during each calendar quarter in which the vessel participates in a directed fishery for groundfish in the Eastern Regulatory Area.
Catcher / processor or catcher vessel fishing with pot gear	equal to or greater than 60 feet (18.3 meters) LOA	Must carry a NMFS-certified observer during at least 30% of its fishing days in each calendar quarter in which the vessel participates for more than 3 fishing days in a directed fishery for groundfish. Each vessel that participates for more than 3 fishing days in a directed fishery for groundfish in a calendar quarter using pot gear, must carry a NMFS-certified observer during at least one fishing trip during that calendar quarter for each of the groundfish fishery categories defined in regulations 50 CFR part 627.27(c)(1)(iv) in which the vessel participates.
Mothership processor vessels of any length	processes 1,000 mt or more, calculated in round weight equivalents, of groundfish during a calendar month	Must have a NMFS-certified observer on board the vessel each day it receives or processes groundfish during that month.

Fleet/Industry Component		Coverage
	processes from 500 mt to 1,000 mt, calculated in round weight equivalents, of groundfish during a calendar month	Must have a NMFS-certified observer on board the vessel at least 30% of the days it receives or processes groundfish during that month.
Shoreside processing facilities	processes 1,000 mt or more, calculated in round weight equivalents, of groundfish during a calendar month	Must have a NMFS-certified observer present at the facility each day it receives or processes groundfish during that month.
	processes 500 mt to 1,000 mt, calculated in round weight equivalents, of groundfish during a calendar month	Must have a NMFS-certified observer present at the facility at least 30% of the days it receives or processes groundfish during that month.

In addition to this coverage, due to the strict requirements to monitor specific quotas by CDQ group, each catcher processor vessel fishing under an MSCDQ quota must have motion compensated flow scales, two observers aboard to monitor 100% of fishing effort, and a sampling station. Observers also are required to have a minimum of 60 days prior experience and additional training. Vessels operating under the provisions of the AFA have similar observer requirements to the MSCDQ. Related to this, the industry described what they perceived as inconsistencies in the observer coverage requirements. For example, CDQ iceboats that are longlining are required to carry two observers at all times, while similar longline vessels fishing under an IFQ are only required to have 30% coverage by a single observer.

The present requirement for two observers on CDQ vessels attempts to provide direct accountability, but the industry has reported occasional wide discrepancies between observer estimates and their estimates of landed catch, calculated using product recovery rates. To alleviate the observer burden, the industry has suggested it may be possible to use agreed upon product recovery rates, combined with electronic logbook reporting, and a single observer ensuring that nothing is discarded. The inconsistencies between catches estimated using product recovery rates and observer estimates of catch need to be resolved.

During the review, these additional observer requirements, compounded with a low number of qualified candidates currently applying for observer positions, were highlighted by observer companies as a problem in meeting the required coverage levels in the MSCDQ fisheries in the second half of 1999. According to industry sources, some CDQ vessels lost several days to one week of time at sea, due to the shortage of observers. In response to this problem, the OPO conducted a survey of observers with MSCDQ training to determine their availability for deployment. Apparently, the major factors influencing their availability were the short notice at which they had been contacted regarding the deployment opportunity, and the lack of recognition for the extra training MSCDQ, in the form of better remuneration.[29]

In Section 3.3.1.2, we suggested that private companies may be more able to respond to the fluctuating manpower requirements than the government would be if all the observers were federal employees. This is usually true in terms of the logistics of hiring additional temporary personnel to

[29] Remuneration was also shown as an important factor in observer retention in our mail survey of observers (see Section 3.6.1.1).

deal with a short term demand, however, in the case of the current NPGOP SDM, the process relies on communication and coordination between the OPO and observer companies to warn of forthcoming events in the fishery which are likely to result in peaks in observer demand.

Another issue, which observer companies described as exacerbating the problem of observer availability, was the 90 day and/or four vessel limits imposed by NMFS on observer deployments and the recent refusal by NMFS to allow any extensions or waivers for individual observers to allow them to work briefly past these limits. These deployment limits were designed by the OPO to protect observers from "burn-out" and help ensure high quality data. In the past, the OPO has granted waivers on a case-by-case basis, when circumstances were such that a short extension would avoid a major observer deployment problem. However, in 1999 the OPO ceased issuing waivers because they considered the system was being abused by the observer companies.

Regarding the 90 day contract limit, responses to our mail survey indicated that the majority of observers (71%, n=90) felt that this limit was appropriate. Eighteen percent of respondents considered it was too long and should be shortened to 60 days, or less in some cases. The remaining 11% thought it was too short and should be extended to 110 to 120 days. Regarding the question of waivers, it seems that occasionally there are going to be circumstances under which the issue of a waiver makes sense from the point of view of the observer, the vessel on which they are deployed, and the observer company. A system should be developed which allows for this common sense approach, but is not open to abuse. At a minimum, we suggest that any requests for waivers should be accompanied by a full explanation of the circumstances and reason for the request, and it should be certified by the observer, the vessel captain and a representative of the observer company.

3.4.1.2 Covering multiple observer roles

Coverage requirements for observers depend greatly on the objectives of the program and the operational conditions of the fishery. Broadly speaking, coverage requirements for providing data to support stock assessment can be calculated on statistical principles related to required levels of data precision and hence sample sizes.[30] In this regard, an essential feature of programs which provide observer coverage for less than 100% of the vessels is that the selection of vessels and periods for coverage must be random, otherwise the data collected may be non-representative, creating major problems in the scientific analysis.

Coverage levels for monitoring interactions with protected species (e.g. marine mammals and seabirds) may be quite different and levels for catch accounting and monitoring compliance with management measures can be different again. As with many observer programs, the NPGOP encompasses all of these roles and, as described earlier, the balance between them has shifted over time. There is therefore, no general agreement on what the coverage levels should be. Nevertheless, it is possible to make some comments regarding the advantages and disadvantages of the existing coverage levels and generally describe the basic requirements which should be met (Table 3.5).

[30] Meaning the sample of vessels rather than the size of samples of fish taken on board individual vessels.

Table 3.5 Summary advantages and disadvantages of observer coverage arrangements under the existing SDM.

Coverage	Advantages	Disadvantages
Total (100%) coverage	• Provides the opportunity for collecting large amounts of data • Provides good cover for compliance monitoring • Equitable across the fleet	• One observer on every vessel may not provide 100% coverage of fishing effort, if not all fishing activity is observed. True 100% coverage of fishing effort may require more than one observer on each vessel • Expensive • May not be feasible for small vessels (issues of space, cost etc.) • May not be necessary for purely scientific programs
Partial (30%) coverage	• Cheaper than 100% coverage • More feasible for smaller vessels • May provide sufficient coverage for routine scientific sampling	• High likelihood of differences in vessel behavior between observed and non-observed vessel days, both in terms of fishing patterns and compliance[31] • Data may be biased for various reasons, including non-random selection of vessels for placement of observers and differences in the behavior of observed and non-observed vessels • May not provide enough spacial or temporal coverage for special scientific programs (e.g. otoliths, stomach contents sampling for ecosystem studies) • May be inequitable across the fleet
No coverage	• No cost	• No observer data • No on-board compliance monitoring • Not equitable compared to other components of the fleet

3.4.1.3 Coverage flexibility

Within the existing SDM, NMFS has no opportunity to modify coverage levels at short notice to respond to specific data or compliance monitoring requirements. There is also an entire component of the groundfish fishery for which there is no coverage and therefore no opportunity to collect data at all.

[31] A practical example of this effect was described to the review team during the information gathering phase of this project. Some vessels in the pot and longline fleets specifically modify their behavior to achieve the required observer coverage at the lowest possible cost. For example, a boat that needs coverage will set the main body of gear on the fishing grounds, and then set a few pots, or one string of longline gear, very close to the port where the observer will be picked up. After picking up the observer (and more gear, in the case of small boats), the boat will go out and retrieve and re-set the gear that is close-in before and after midnight to get two days of observer coverage. The boat will then return to port to drop off the observer. Having done that, it will depart again and retrieve the close-in gear on the way to the "real" fishing grounds where that gear will be set with the rest of the fishing gear. This cuts down both the vessel's overhead costs and the amount of fishing which is actually observed. This would also bias the observer data.

The multiple and increasing observer roles, and lack of clear determination of priorities, has led to observers becoming heavily over-burdened with tasks on some vessels, such as the mixed trawl fisheries, and relatively under-utilized on other vessels, such as the catcher-processor pollock fleet.

The uncertainty associated with coverage of observer sampling is not recognized in overall catch and bycatch estimates used for stock assessment and management. This review has not considered the statistical properties of coverage requirements for stock assessment in any detail. A separate NMFS review project "Evaluation and Analysis of Current Field Sampling and Inseason Catch Estimation Procedures Used in North Pacific Groundfish Fisheries", currently on-going, will address this issue in considerably more detail.

3.4.2 Recommendations

The main precursor to progress on coverage levels is an agreement on the objectives and priorities of the NPGOP itself (see Section 3.2). Once this issue has been addressed, the context in which to assess coverage requirements should be considerably more clear.

In the mean time, consideration should be given to the following issues:

- the implications of the proposed revision of the service delivery model (i.e. the sub-division of the program into smaller fishery units - Section 3.3.2.4) for current and possible future coverage levels;
- development of a mechanism under which NMFS has direct control over coverage level, timing, and placement of observers, to ensure bias is not introduced through non-random selection of vessels and periods for observer coverage (it is expected that this will be a component of the revised SDM, and achieved either under a federal observer program, or included in the contractual details of direct government-contractor relationships);
- expansion of the current observer coverage to include vessels in the less than 60ft category;
- development of a mechanism, agreeable to the OPO, observer companies, and observers, under which waivers can be granted for short extensions to the 90 day contract limit;
- use of alternative approaches to monitoring fishing activity, such as vessel monitoring systems (VMS), digital video surveillance, and the use of imaging devices with fish recognition software for automatic monitoring of species composition; and
- increased use of logbook data to cross-reference with observer data and for extrapolating observer sample data to the un-observed component of the fishery.

3.5 Cost distribution

3.5.1 Strengths and weaknesses

The costs of the NPGOP have received considerable review since the Program's start, and in particular during the development of the Research Plan and JPA. Concerns raised about costs and cost equity (i.e. distribution within the industry) were a major stumbling block in discussion of both of these plans.

Currently, costs are pay-as-you-go, directly tied to deployment of an observer on a fishing vessel, based on the required observer coverage levels. Although these observer coverage levels were determined, in part, to try to equalize costs, the realities of the program demonstrate inequities. According to the Council inequity takes at least two forms - first, many who benefit from the NPGOP pay no costs at all (i.e. the <60ft LOA vessels); secondly, among those who do pay, some operators' observer costs comprise a disproportionately high percentage of their gross revenues, in many cases much higher than 2%.

NMFS conducted an analysis in 1997 of observer costs by vessel and gear type [32] to present to the Council. Costs were calculated as a percentage of ex-vessel value. For each category of vessels/plants examined, while the average was close to 2%, the percentage covered a wide range. For example, the range for 30% coverage trawl catcher vessels was 0.02% to 9.6% (average 1.4%). Overall, the average percentages ranged from 0.5% for processing plants up to 3.4% for the l00% coverage fixed gear catcher vessels. The 100% trawl catcher/processors averaged about 1%, while the remaining vessel categories were between 1.5% and 2.4%. The Council considered this analysis to indicate that the cost inequity issue may not be as prevalent as previously thought, by general vessel category. However, it is a significant issue for individual vessels within the various categories (NPFMC 1998). Note that there exists no relationship between vessel catches or vessel fishing effort and the amount paid for observer coverage.

Implementing language in the Magnuson-Stevens Act allows for the collection of up to 2% of the ex-vessel value of the fish and shellfish harvested under the jurisdiction of the Council. From an outside perspective this appears to be a very equitable method of paying for an observer program which benefits the entire fishery, regardless of the specific level of coverage required vessel by vessel, since that varies among participants.

One shortfall of this system, however, is that actual revenues will not be completely stable, as ex-vessel value is dependent both on market forces and quantity of landings. Although TACs for many of the groundfish species have been fairly stable, incidents such as the recent collapse in some of the Alaska crab stocks demonstrates a vulnerability. There is a potential for a shortfall in funds if the fishing revenues decrease, while observer coverage needs remain the same (for example if catch rates, or fish prices should fall, but fishing effort should remain the same).

3.5.2 Recommendations

The Council needs to return to the issue of funding of the Observer Program as part of the process of changing the SDM, although it may be possible to address the two issues separately, at least in the short term. As discussed in Section 3.3.2.4, in the short term, it may be possible to make

[32] Memorandum on Groundfish Observer Costs by Sector for the NPFMC, Council's SSC, AP, and Observer Advisory Committee, from William Karp, Task Leader, NPGOP, September 5, 1997 (Attachment 9 in the September 1997 Council package).

some changes to the SDM without changing the pay-as-you-go system, for example through the establishment of no-cost contracts between the government and the observer companies. Nevertheless, cost inequities will need to be addressed sooner rather than later, and below we set out some recommendations in this regard.

3.5.2.1 Funding objectives

It is a function of the Council to appraise potential funding structures for the NPGOP. In doing so, it should consider the objectives set out below.

The funding policy should:

- provide financial support for current and future observer coverage needs;
- ensure adequate observer coverage and data quality;
- ensure equity of payment to all industry sectors;
- keep costs of observer coverage reasonable; and
- ensure adequate compensation for fisheries observers.

3.5.2.2 Funding options

The current pay-as-you-go system does not support all of the objectives listed in the previous section. Other alternatives were extensively reviewed by the former Observer Advisory Committee of the Council, during the review of options for the re-development of the Research Plan.[33] No conclusion or consensus has yet been reached, other than the agreement that vessels smaller the 60' category should be required to carry some level of observer coverage or pay for the program in some fashion.

Funding options discussed previously include (NPFMC 1998):

- 2% of ex-vessel value with an absolute cap (as authorized under Magnuson-Stevens);
- 2% fee with a supplemental program for monitoring programs which require direct individual vessel benefits such as the MSCDQ, AFA, and similar programs;
- TAC set aside for cost recovery, as was used by ADF&G to help fund observer program expansion in the Alaska crab fisheries;
- pay-a-you-go with an ancillary fee, surcharge, or voluntary industry contribution; and
- full federal funding.

Of the approaches considered, the most commonly applied elsewhere in the U.S. is full federal funding. A federally funded and managed program may be the best solution to the problems facing the NPGOP, however, the Council concluded that this is not presently a viable option, particularly with the present focus on industry user fees as a mechanism to fund management costs. The Council has established that its current task is to develop a model that relies on an industry fee assessment and the use of contractors for observer procurement (NPFMC 1998).

The TAC set-aside option was developed by the ADF&G following the repeal of the Research Plan in late 1995. Under this option, a portion of the quota (guideline harvest level) is set aside for use

[33] Observer Advisory Committee Discussion Paper on the Re-Development Options to Fund the Domestic Groundfish Observer Program in the EEZ Fisheries Off Alaska, prepared by Council staff, September 8, 1999.

by the state government to generate revenue to fund the observer program (for example through vessels bidding competitively for the opportunity to harvest the TAC set aside). It is not a direct fee assessment, but it accomplishes virtually the same purpose. The implication of such a system is that rather than individual vessels paying directly for their observer coverage, all vessels would experience a reduction in quota which would cover the cost of the program. Such a program might be a feasible alternative for the NPGOP and we recommend that it is given further consideration by the Council. Its advantages compared to the Research Plan options include the removal of the need to assess fees on vessels and processors, and elimination of the accounting and collection burden placed on processors.

Nevertheless, none of the options discussed by the Council has yet been taken forward as a viable option for funding the NPGOP. Linking the observer funding to landed value (i.e. under the Research Plan) has proved to be a highly complex issue. With this in mind, we have considered one further option which we recommend is given further consideration by OPO and the Council: linking observer fees to fishing effort in the form of vessel days at sea.

The difference between this and the present pay-as-you-go system is that costs would be spread amongst all vessels in the groundfish fleet, on the basis of all the days they spend at sea. Costs would not be bourne only by those vessels with observers actually deployed on board. This should include vessels in the less than 60ft LOA fleet, which at present are not obliged to carry observers and hence have no costs associated with the Observer Program. For example, the cost per vessel day at sea in a particular year (year *t*) could simply be calculated using the formula

$$\frac{\textit{total projected cost of Observer Program}_{t}}{\textit{total number of days at sea by goundfish fleet}_{t-1}}$$

i.e. the cost per day would be based on the total projected cost for year *t* and the number of days at sea in the previous year (year *t*-1). The cost to each vessel would then be simply the number of days at sea for that vessel in year *t* multiplied by the cost per day (although see discussion below regarding the possible use of historical averages to alleviate the monitoring burden). To ensure an equitable distribution of costs between larger and smaller vessels, the fee formula could also include a weighting by a measure of vessel size, such as gross registered tonnage (GRT), or some other factor. In addition, to avoid cost inequities resulting from vessels operating on distant, compared to local fishing grounds, instead of using sea days, it might be possible to use fishing days - for example identified as the number of days a vessel spends in a particular zone.

Strengths

Assessing observer fees on the basis of days at sea would express the program costs in the same "currency" as the service provided (i.e. days). As the observer requirement changes, due to changes in the overall days spent fishing, so would the fee levied. A fee structure based on all days at sea could be used to more equitably distribute costs across the entire fleet.

Combined, this fee recovery system should:

- more closely link the fee system to the service being provided (i.e. observer days);
- simplify the fee calculation; and
- provide a mechanism for distribution of costs throughout the entire groundfish fleet, including vessels in the less than 60' category.

Additionally, this system would meet four of the five Council goals for potential funding structures listed above. The issue of data quality, which this proposal does not address directly, should be met through the recommended changes in the SDM.

Weaknesses

The major problem with this proposal is the need to identify the total number of days at sea for each vessel. To implement this approach fully, it would be necessary to enumerate days at sea for all elements of the groundfish fleet (including the less than 60ft LOA vessels) to ensure equitable distribution of costs across the entire fleet. To simplify this process, and alleviate the monitoring burden for both the government and the fishing vessels, the potential for using average historical values, and/or a sliding scale of ranges of days at sea, rather than actual numbers for each vessel in a given year, should be investigated. Such an approach would probably need to be part of the system, in any event, because some payments would be needed in advance of the fishing season to enable funding of the Observer Program in the early part of the season, before days at sea could be enumerated, and the exact observer levy calculated and invoiced.

One possible source of data on days at sea is the paper logbook, which is not currently entered into a computer database. The logbook has been mandatory for vessels greater than 60ft, since 1989. It was also mandatory for vessels smaller than 60ft from 1989 until 1996, so some historical data also exist for these vessels. The days at sea, or at least fishing days, could be enumerated from the active/inactive boxes on the logbook. This might, at a minimum, provide enough information to test the feasibility of this approach.

A future drawback would be that linking costs directly to reported days at sea would immediately create an incentive to misreport data on fishing effort. In this regard it should be noted that implementation of an automatic vessel monitoring system on all vessels would simply and quickly provide accurate near-real time data on fishing effort, which could be used to identify observer coverage requirements and calculate fees.

It has also been suggested that linking costs directly to days at sea might encourage activities associated with the “race to fish” such as deck loading at the end of trips etc. in order to reduce the time spent at sea, and hence observer costs. The likelihood of this happening would need to be formally investigated as part of the further consideration of our proposal. However, given the expected low overall cost per day once the costs are spread across the entire groundfish fleet, we think it unlikely that individual vessel behavior would be influenced to this extent.

Some approach to funding supplemental observer coverage requirements for specific monitoring needs that directly benefit individual vessels and not the fishery at large (i.e. MSCDQ, AFA and other programs), would also need to be devised. However, it is important that the industry does not perceive observer costs as open ended, with no fixed limit.

3.6 The observer support system

3.6.1 Strengths and weaknesses

One of the most important weaknesses in the current SDM, highlighted during this review, is the lack of opportunity for clear accountability and support for the observers by NMFS. The collection of data to support science and management of the north Pacific groundfish fishery is a government responsibility. The observers are employed directly by observer companies, who are responsible for their remuneration, benefits package and personnel services. However, under the current SDM, NMFS has no direct contractual arrangement with these companies which could be used to regulate their activities and ensure adequate working conditions for observers. The commercial realities of the pay-as-you-go system and the competitive process, in which multiple observer companies vie for business directly from vessels, mean that costs must be minimized. These commercial pressures can have an effect on working conditions, which may, in turn, affect observer morale and hence data quality. Low remuneration, for example, is cited as an important cause of the unionization of observers in the mid 1990s (see also Section 3.3.1.2).

With the exception of the Alaska Fishermen's Union and the APO, there is limited evidence of support for the observers to act as a counterbalance to these commercial pressures. This is of great concern, because observers work out in the field, performing a complex task under frequently extreme conditions. The following sections discuss observer support in more detail under the headings of observer job satisfaction, and the interaction between observers and NMFS.

3.6.1.1 Observer job satisfaction

One of the effects of low morale amongst observers is a tendency to leave the profession after only a short time. This has the effect of reducing the level of experience within the observer community as departing observers are replaced with new recruits who often have little or no prior sea time experience. This also increases training costs to NMFS.

The following information on observer turnover was provided to the review team by the OPO. The NORPAC database was queried to determine how many cruises every domestic observer had completed. The query returned results for 2010 Observers.

On average, each observer completes 2.8 cruises. The percentage of all observers that have completed 1-5 cruises are provided in Table 3.6. Table 3.7 shows the experience level, in terms of numbers of deployments, of the observers currently at sea. These data suggest that a large proportion of observers compete only one observer cruise before moving on to other things. This is likely to be the result of a combination of factors including, the fact that many recruits are fresh from college and were only ever intending to undertake one trip, the difficulty of the job and the relatively poor incentives to stay in the profession (see the results of the MRAG Americas observer mail survey below). As a result, the proportion of first time observers deployed in the NPGOP is high (40%). Nevertheless, the proportion of highly experienced observers (five or more cruises completed) is also quite high (37%), which is encouraging, particularly from the point of view of having a source of experience observers to act as mentors for new recruits (see Section 3.6.2.4).

Table 3.6 Number of cruises completed by observers trained in 1997 and 1998 (source: OPO).

Number of cruises completed	All observers	Observers who first attended training in 1997 (data as of July 1999)	Observers who first attended training in 1998 (data as of July 1999)
1	45.2%	44.5%	46.2%
2	19.7%	15.0%	24.2%
3	10.5%	11.0%	14.4%
4	6.7%	11.0%	6.1%
5	5.4%	9.2%	4.5%
>5	12.5%	9.2%	4.5%

Table 3.7 Current experience level of observers, as of May 2, 2000 (source: OPO).

Experience level (number of cruises completed)	Number of observers (percentage in brackets)
0	67 (40%)
1	12 (7%)
2	10 (6%)
3	10 (6%)
4	7 (4%)
5+	62 (37%)
Total	168

Part of the cause of the low retention of observers beyond their first cruise may be the prevailing view of fisheries observing as a transient profession. Feedback from observers indicated that they had the impression that NMFS personnel did not view observing in fisheries as a longer term employment opportunity. It was primarily considered to be temporary employment for recent graduates searching for an interesting first job experience after college. This is exacerbated by the current SDM. Once trained, observers are only paid full wages when they are deployed on vessels or at processing facilities. A reduced daily rate or per diem is usually paid during training, briefing and debriefing, but there are no paid vacations, nor other incentives to take time off and return later. The hectic pace at which many observers must work means that many are forced to consider the job as transient, because they cannot maintain the high level of input required for a long period of time.

Having said that, it is unrealistic to attempt to establish observing as a long term career prospect for college graduates. The aspirations of most graduates are likely to go beyond collecting data on fishing vessels. Nevertheless, spending time as a field data collector is a very useful step for those

interested in a career in fisheries and environmental management. Therefore, it should be possible to provide encouragements which would retain more observers in the system beyond the completion of a single cruise. It would undoubtedly be of benefit to the Observer Program if observers could be encouraged to stay longer in the observer pool, for a period of two years or more. The statistics on observer retention suggest that this could have a cumulative effect. According to data in Table 3.8, if observers can be retained for at least two cruises, the chances that they will continue observing are quite good, and the probability or retention increases for those completing 3 and 4 cruises.

Table 3.8 Probability that the observers will undertake another cruise, relative to the number of cruises they have completed (source OPO).

Number of cruises completed	Probability that the observers will continue for at least one more cruise
2	53.5%
3	63.6%
4	80.1%
5	61.5%
6	73.1%

In the interests of providing guidance on observer retention, the observer survey was used to collect data on job satisfaction and reasons for leaving (in the case of ex-observers). The three most common reasons for leaving the profession were a lack of advancement opportunities, unsatisfactory compensation for the work, and finding a better job (see also Section A3.6.2.c, question 16). These responses are indicative of a low level of morale and self-esteem. Ex-observers were also asked whether there were any incentives or changes in the program that would encourage them to return to work as an observer in the future. Of the 62 total responses, 33 answered affirmatively, and the majority of these (20) cited an increase in observer remuneration as the incentive they would require. Seven indicated that the problem was also the lack of respect and trust with which they were treated when they were observers.

The attempts to reform the SDM in the mid 1990s (the Research Plan and the proposed JPA) were seen by observers as an opportunity for their working conditions to improve. According to Turk (page 48 in McElderry *et al* 1999), it was the failure of these initiatives which led to the unionization of the observers in 1997. Unionization has brought about some improvements. Nevertheless, within the current SDM, observers are still vulnerable to direct pressure from the industry. The SDM creates the opportunity for individual observers to be placed in difficult or potentially compromising situations to satisfy the demands of the industry and their employers if they wish to stay employed, even if these demands are not consistent with the performance standards required by NMFS.

At present, NMFS has very little influence over the working conditions of the observers. The primary means of control which NMFS has over the observer companies is the certification/decertification process. However, once certified, the conditions under which an observer company can be decertified relate primarily to conflicts of interest, or commission of serious offences such as fraud, embezzlement, theft, forgery or falsification of records. There

appears to be no means by which NMFS can impose simple employment standards in support of the observers.

Despite this, responses to our observer survey indicated a reasonable level of satisfaction amongst the observers with the level of support provided by their observer companies (Figure 3.4). Sixty-six percent of observers who provided a response (n=94) indicated that their level of satisfaction with their employers was good. A further 27% were adequately satisfied (although some, who had experience of multiple observer companies, indicated that there was some variation between employers). The same question was asked for NMFS. In this case only 37% had a satisfaction level of good; 45% were adequately satisfied and 18% were poorly satisfied. Only 2% of respondents were poorly satisfied with the level of support provided by the fishing vessel master and crew.

The rate of return of first time observers will also depend on the extent to which they know what to expect from the realities of working conditions on board fishing vessels in the Bering Sea or Gulf of Alaska. The profile of new observers as recent graduates with little or no experience, however, may not be wholly accurate. Nearly 50% of respondents to the observer survey (n =105) indicated that they had some prior experience aboard sea-going vessels. Additionally, only three of 47 (6.4%) responses cited either sea sickness or safety concerns as a primary reason for not returning to work as an observer (two cited these at secondary reasons). Nevertheless, over 50% of respondents had no sea time experience prior to working as an observer. These individuals might be expected to be somewhat unsettled by a first experience at sea in Alaska.

During the review, observer companies expressed concerns regarding the current pool of interested applicants applying for observer positions. Apparently there are insufficient good candidates presently applying due to the favorable national economy and job market.[34] In light of this, some consideration should be given to the potential for encouraging applications from a wider catchment of possible candidates. Clearly, one way of achieving this would be to offer more remuneration. This would be particularly important in encouraging older, more experienced individuals to apply. In this regard, it also may be beneficial to review the required qualifications (see text box 3.1). Although they lack a college degree, there may be very capable candidates with prior experience in commercial fisheries, or from other at-sea occupations, who can meet all the other observer requirements.

This suggestion should not be viewed in any way as a proposal to weaken the required qualifications. The observer task is extremely demanding and requires a diversity of skills, including both scientific and practical capabilities. Our observation is that the current drafting of the required qualifications by NMFS puts by far the greatest emphasis on the academic skills and much less on the practical side. Clearly the academic skills are highly important and a lengthy scientific training cannot be replaced by a few classes on sampling theory during the training course. Nevertheless, the emphasis on academic qualifications may discourage applications from candidates with a more practical background and without a college degree, who may, nevertheless, have the necessary scientific skills to perform the sampling tasks on board. During the training course it should be relatively straightforward to determine whether these candidates have the necessary scientific capabilities or not. If they have, then these individuals may be the types of people who will remain working as observers for longer periods, therefore providing more return for a given amount of training input.

[34] Related to this, the observer companies also explained difficulties they have had with the supply of observers qualified to work on vessels in the CDQ fishery, and also problems with the maximum duration of an observer cruise (90 days). These issues are discussed in Section 3.4 of this report.

Being pro-active in encouraging applications from individuals with more practical fisheries experience might also reduce fishers concerns over safety issues, which result particularly from observers with little or no prior sea-time experience. Industry satisfaction with general observer experience levels is also likely to rise. The problem is that under the current SDM, NMFS has no way of influencing the recruitment activities of the observer companies, beyond a simple re-drafting of the required qualifications.

3.6.1.2 Interaction between observers and NMFS

As discussed previously, under the current SDM, interaction between observers and NMFS staff and the extent to which NMFS can support the observers are limited. NMFS OPO and enforcement staff interact with observers potentially at several stages in the work cycle - at the training/briefing prior to deployment, during deployment through field office support (including email while on board) and at the mid/end of cruise debriefing. These interactions provide an opportunity for NMFS to support the observers by preparing new and returning observers to the greatest extent possible for their task, offering encouragement and supporting observers while in the field, receiving feedback from returning observers, and acting on the information received.

There is, however, considerable time during an observer's deployment when they are essentially on their own. This is, in part, the nature of the job. Observers need to be prepared to perform their tasks effectively, without day-to-day guidance, in an environment were they may experience personal isolation and have their methodologies and motivations continually called into question. To succeed in their task, however, they need to feel that they have support from their employers and the fishery management process of which they are part.

There is no doubt that NMFS support for observers would be greater under a revised SDM in which all observers were federal employees (see Section 3.3.2.2) and many of the problems discussed below would probably be solved as a result. Pending development of a new SDM, the review sought feedback on the interaction between observers and NMFS under the existing SDM to evaluate the need for short term improvements. This feedback and the resulting recommendations are presented below. The recommendations relate most directly to the current SDM, however, we feel that they would also have application under a revised SDM, particularly if that involved direct government-contractor relationships as described in Section 3.3.2.3.

Through meetings with individual observers, and the observer survey, we solicited comments on all aspects of the observer experience which involve NMFS directly. Although our review was not specifically required to undertake a detailed review of observer training and briefing activities, we think that the results of the observer survey are relevant in the context of observer support, and we therefore report on them here. We have also received feedback from NMFS, particularly on the end of cruise debriefing process.

Training and briefing

The training and briefing were generally well rated by observers. More than 80% of respondents to the survey rated the training as good or very good, and the briefing was similarly rated by nearly 75% of respondents. Less than 2% rated the training as poor, and 3% rated the briefing as poor. Similar results were obtained when the observers were asked how well the training and briefing prepared them for observer duties, although the proportion who gave a good or very good rating for this aspect was slightly lower (See Appendix 4, questions 7 and 8). Aspects of the training and briefing which were particularly well regarded include explanation of the paperwork, species identification, understanding the regulations and recent changes to them (e.g. MSCDQ), sampling techniques (but see comment below on the need for hands on practice), and first hand knowledge

of the fishery. There was also an indication that observers with longer term experience felt that the training and briefing had improved over time.

While these ratings can be viewed as a general endorsement of current training and briefing content and practices, there were some suggestions for areas which could be improved or expanded. These include more hands on experience of the day to day observer tasks, particularly sorting and sampling fish on board vessels, and dealing with confrontational situations on board. Several observers suggested that training on vessels in real situations, and preparation more specific to actual vessel assignments would be useful. Several observers commented that there was too much emphasis on factory trawlers when many observer assignments are on other types of vessels. These latter suggestions highlight one of the problems of NMFS being removed from the actual observer placement process, since it is not be possible for the trainers and briefers to know when, where and onto what vessels individual observers will be deployed.

Regarding safety on board and at sea, some observers commented that this was well covered and others highlighted this as an area needing improvement. This apparent inconsistency probably reflects the range of conditions in which observers find themselves on different vessels. This review has not considered observer safety in detail, but this should not detract from the importance of this issue. One area which has been highlighted is the extent to which observers can make judgements about the safety of the vessel to which they have been assigned, prior to embarking on a trip. Coast Guard staff provide training for new observers which focuses on vessel safety, equipment that should be aboard fishing vessels, importance of drills and the laws in place to ensure the safety of observers. Observers are directed to contact NMFS, the Coast Guard or their employer if they have safety concerns (see Section 3.6.2.5), but this is something that there may be considerable pressure on them *not* to do, since at best it will delay the departure of the vessel, and may result in considerable problems for the captain and crew. In addition, Coast Guard representatives have commented that many observers do not appreciate all the dangers that exist on fishing vessels and may not be sufficiently aware of safety issues. Additional training and support in this area should be considered (see Section 3.6.2.5).

Debriefing

The purpose of the observer debriefing by NMFS is twofold:

- to ensure that data provided by observers is of the highest quality and contributes to the integrity of the database; and
- to provide support to observers through training, field communications and final debriefings.

The OPO considers debriefing to be the most integral part of the NPGOP. During the process, a debriefer meets with each observer face to face in either Seattle or one of the field offices. The debriefing can take anywhere from a few hours to up to one week depending on many different factors. This meeting between the observer and Program staff provides the greatest opportunity to assess the work of each observer, evaluate their methods and determine the quality of the data. In addition, this personal contact between observers and OPO staff during debriefing can facilitate communication, identify problems and provides the opportunity to instill pride in work well done (NMFS draft debriefing continuity file).

OPO staff prepare for the debriefing by familiarizing themselves with the background and output of the observer's trip, including reading the observer's logbook, checking for messages received during the deployment, and checking the paper data record and the data in the database. The face-to-face debriefing consists of the following activities:

- verification of trip details (start and end dates etc.);
- review of the vessel report with the observer and make corrections and/or elaborations;
- update of the vessel profile (indicates the "best" way to perform observer tasks for each fishery type);
- check of species identification;
- check of special projects and biological specimens; and
- correction of data in the database.

After the debriefing interview, the debriefer is required to produce an evaluation of the observer. According to the OPO, the purpose of the evaluation is to provide them, observer companies, data editors and end users with a description of sampling methods, a quality rating of the data and observer performance, and of any specific issues pertaining to the observer's contract. The evaluation also provides the observer with affirmation on appropriate methods and efforts as well as identifying areas for improvement. The OPO regards the evaluation system as a permanent, ongoing record used to track observer performance throughout their observer career.

The written evaluation consists of three parts: a text portion describing sampling methods, data quality, and observer performance; a score of 0, 1, 2, or 9 that rates the observer's performance for each vessel or plant to which the observer was assigned during a cruise; and a rehire recommendation based on the observer's evaluation. The rehire recommendation specifies training and conditions required to be met by the observer for their next contract.

The scoring system itself is very simple:

- a score of 0 is given when an observer fails to meet program expectations;
- a score of 1 is given when an observer meets program expectation;
- a score of 2 is given when an observer exceeds program expectation; and
- a score of 9 is given to an observer if the performance can not be evaluated because, due to seasickness, the observer was not able to demonstrate his/her abilities.

However, the OPO has acknowledged that the evaluation of observers is the most difficult responsibility of a debriefer. Observers spend months in the field collecting data with, at times, no contact with NMFS staff. The observers then return to the NMFS office to be debriefed and evaluated by a debriefer, who has only the vessel survey, responses made during the interview and the data, as a basis for evaluating the work of each observer.

As part of our observer mail survey, past and current observers were asked questions about the debriefing process and particularly the evaluation component. Summary presentations of the responses are provided in Figures 3.5 and 3.6. According to the responses, the basic structure of the debriefing seems to be good. Eighty percent of respondents indicated that the debriefing instructions were clear and easy to follow and 87% considered their instructions for data corrections to be clear. However, more than half of the observers who responded considered that the evaluation system would benefit from improvement. More than 20% gave it the lowest rating of "unsatisfactory."

There is an ongoing effort by the OPO to improve the debriefing process. The major milestones in this process are listed in Table 3.9. Despite these efforts, the response to question 51 on the observer survey indicates some remaining dissatisfaction amongst the observers with the evaluation system, enough to suggest some remedial action is required. Recognizing that efforts by the OPO will take some time to have an effect, we reviewed the responses to question 51 by year of the respondent's most recent contract. These results are provided in Table 3.10. No formal statistical analysis was conducted on these figures, but simply looking at the data does not indicate

any improving trend over time. The majority (52%) of responses were received from observers who last worked in 1999.[35]

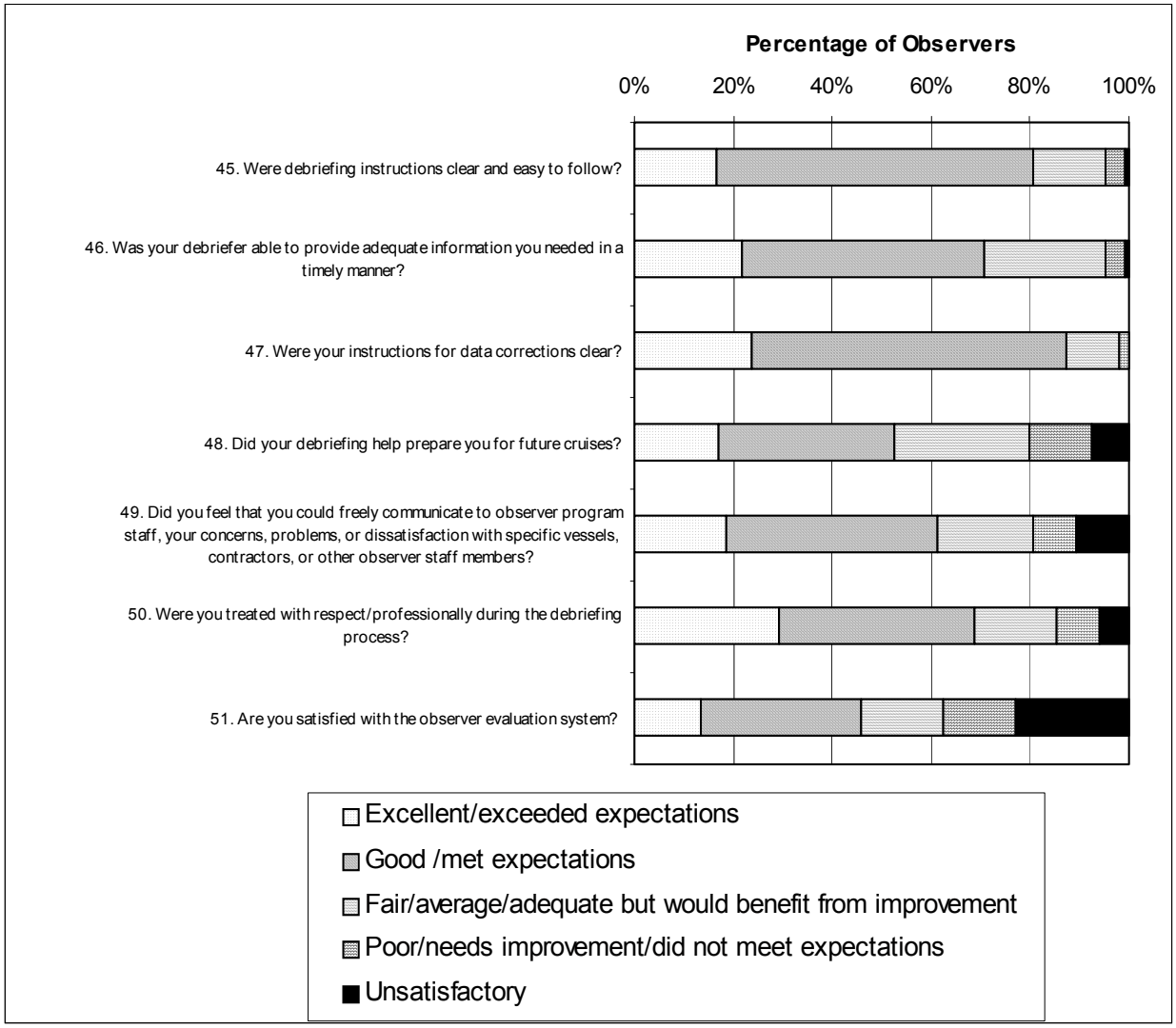


Figure 3.5 Observer responses to questions 45 to 51.

[35] This is partly a function of the mail survey approach. Many of the addresses for observers who last worked more than a few years ago proved to be out of date and questionnaires were returned undelivered (see Section 2.2.5).

Table 3.9 Major milestones in the ongoing effort to improve the debriefing process (provided by the OPO).

Year	Milestone
1994	Implementation of requirement for staff to be experienced observers to debrief
1995	Implementation of weekly staff meeting where consistency issues are discussed
1995/96	Development of an electronic report which eliminates redundancy in the writing of final reports
1995 to present	Initiation of systematic changes in the debriefing process to make more personal and observer friendly
1997	Implementation of the Atlas data entry/communications application which allowed observers more direct communication with staff from sea. Through Atlas the elimination of great volumes of paper data and cumbersome data checking processes in debriefing which caused bottlenecks and time delays in completing debriefing.
1998	Unionization of 4 of the 5 active observer companies that established consistent debriefing pay. This was not a NMFS initiative but it was significant because of the pay issue. Prior to this, many observers were unpaid during debriefing which presented a great barrier to having an effective process.
1998	Opening of a field office in Anchorage to facilitate field debriefings
1998-1999	The development of an in-season advisor program where individual staff are assigned as the points of contact and mentors of individuals at sea. NMFS OPO strives, where possible, to have the in-season advisor also act as the final debriefer (not always possible due to field debriefings and logistical constraints). This was a major improvement which provides a personal staff face to the observers at sea.
2000 and ongoing	Expansion of the Anchorage office and development of a field cadre of staff to work with vessel personnel and observers

Table 3.10 Responses to question 51 (“are you satisfied with the observer evaluation system?”) broken down by year of most recent observer contract.

Satisfaction with the evaluation system	Year of most recent observer contract								
	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**Total**
Excellent/exceeded expectations	0	0	1	1	0	3	2	6	**13**
Good /met expectations	1	0	0	2	8	1	3	16	**31**
Fair/average/adequate but would benefit from improvement	0	0	1	0	5	2	2	6	**16**
Poor/Needs improvement/did not meet expectations	1	0	0	0	2	0	2	9	**14**
Unsatisfactory	0	0	0	2	1	2	4	13	**22**
Total	**2**	**0**	**2**	**5**	**16**	**8**	**13**	**50**	**96**

Question 52 (Figure 3.6) focused more closely on the effect of the evaluation system on observers. Less than 55% of respondents (n = 92) felt that the evaluation provided useful feedback and less than 40% felt that it provided them with an incentive to do good work. Perhaps the most worrying statistics, however, are that nearly half of the responding observers felt that the evaluation process provided an incentive to limit information shared with the debriefer and one third felt that it encouraged changes to data to facilitate the debriefing process/or improve a personal evaluation. Finally, just over 33% found the evaluation system demoralizing. We again looked at the breakdown of responses by year of most recent observer contract and found that the proportion of responses in each category were very similar in 1999 to responses received for the period 1992 to 1998. In fact the responses were more negative in 1999 compared to pre 1999, with a slightly larger proportion of responses indicating that the evaluation system encouraged changes to data to facilitate debriefing process/or improve personal evaluation (34.5%, n=48 in 1999, compared to 29.5%, n=44 pre 1999) and was demoralizing (34.5%, n=48 in 1999, compared to 31.8%, n=44 pre 1999).

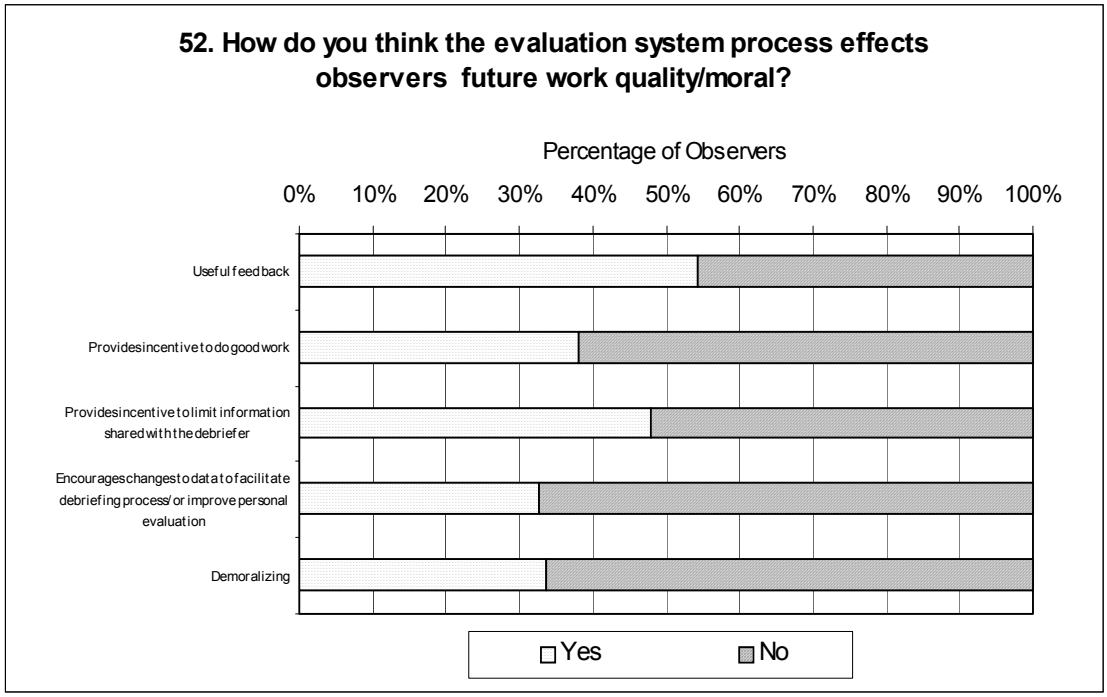


Figure 3.6 Observer responses to question 52.

In addition to these structured responses, observers were given the opportunity to provide written comments on the evaluation system, and these same issues were discussed in meetings with observers. Similar sentiments to those illustrated in Figures 3.5 and 3.6 came through strongly in these comments. Additionally, many observers described the evaluation system as inconsistent and subjective. Long term observers noted in particular that the evaluation was highly dependent on who was conducting it and that it did not provide an objective measure of the true performance of the observer. Also several respondents indicated that the system is relatively easily manipulated by experienced observers who learn to "say the right thing" to debriefers and withhold information, if it is not specifically asked for, in order to gain a higher evaluation score. Some observers also expressed dissatisfaction with the way in which the evaluation score, which they viewed as highly subjective, has been used by their employers to dictate remuneration levels. No information was available on exactly how this is done, and OPO staff explained that while one of the functions of the evaluation system is to provide observer companies with feedback on their employees, the evaluation score was never intended to be used in this way.

Regarding the subjectivity of the evaluation process, the OPO has developed guidelines in an attempt to evaluate each observer objectively and achieve consistency between debriefers. The debriefing staff is a diverse group with different observer experiences and debriefing styles. The OPO regards communication as the key to consistency. A weekly debriefer meeting is intended as a forum to discuss individual observers and to gain consensus on the evaluations. Current efforts include:

- peer and sub-task leader review;
- sit-in debriefing (training & consistency);
- debriefer briefings to remain up to date on observer training; and
- rotation to the field, field office, and/or observer cruise.

In this regard, observers noted that it would be helpful if debriefers had more recent sea-time experience as observers on vessels similar to those on which the observers have been working.

Another result of the observer questionnaire was that observers seem to be poorly informed of the outcome of affidavits they had filed. Eighty-eight percent of respondents were apparently unaware of the outcome, and of these, 73% were interested in knowing. The only reason we could determine for not keeping the observers informed was the workload within NMFS Enforcement and the lack of staff time to allocate to this task.

Overall, there was a feeling amongst a large proportion of the observers contacted during this review that their interaction with NMFS was more adversarial than supportive. The perception of many observers is that NMFS staff had a low opinion of the observer profession and a low opinion of observers in general. NMFS OPO staff have responded that while this may be the impression that some observers have gained, it is certainly not true. Nevertheless, the perception has existed and it is important to explore what the reasons for it may be, and hence what can be done to rectify the situation.

The most likely explanation seems to be that it is one of the results of the low morale which has developed within the OPO staff due to the problems with the SDM and the failure of attempts to reform it. We expect, therefore, that implementation of the longer term recommendations for reform of the SDM described in Section 3.3.2 will go a long way towards alleviating these problems. In addition, however, it is important to address these problems in the shorter term, and this is best achieved through the observer cadre and other initiatives within the OPO (see following section).

3.6.2 Recommendations

3.6.2.1 Observer cadre

There is a clear need to improve the observer support system under the current SDM. The OPO is already responding to this need through the development of the observer cadre (see Section 1.2.2.2). This initiative should be encouraged and NMFS should continue to allocate staff time towards developing the cadre concept as rapidly as possible. It is reasonably expected that the proposed initiatives will:

- improve communications between components of the Observer Program;
- increase support for observers, particularly in the field; and
- improve relations with industry through enhanced outreach.

The development of the cadre, in itself, will help to demonstrate to current and newly recruited observers that the OPO is serious about supporting the observers, even though the existing SDM does not provide for direct control by NMFS of the observers' work environment. Although the concept of the cadre can be regarded to a large extent as an attempt by the OPO to mitigate the problems of the SDM, in the absence of a more long term solution, it is likely that cadre support could be more effectively provided under a reformed SDM that includes greater government control over the Observer Program. Therefore, while we support it as a useful short term improvement, we also recommend that it remains in place in the longer term, albeit probably in a modified form, appropriate to whatever SDM is established in the future.

3.6.2.2 Observer evaluation

With respect to the evaluation system, the issues raised by observers require some attention. In part, the responses of the observers may be a natural reaction to being evaluated. However, the perception of the system as subjective and inconsistent is something which should be avoided. As mentioned previously, the OPO is well aware of the importance of consistency and has made this one of their goals. The question is, perhaps, given the size of the NPGOP and the number of staff involved, is it possible to remove all sources of subjectivity when evaluating the performance of individuals with such a diverse range of backgrounds and experience, on the basis of their personal recollection and interpretation of what they have done? As indicated in the observer responses, the debriefer's assessment may depend greatly on the individual observer's communication skills and honesty (and their prior experience in the evaluation process) rather than their actual performance during the cruise.

Instead of struggling with the evaluation of individual performance, and particularly the assessment of the observer score, we recommend that the OPO debriefers should concentrate more on the verification of the data which are produced by the observer deployment. The observer dataset is the primary output of the NPGOP and the time and efforts of the OPO staff would be more productively spent making sure that its integrity is intact (as they currently do) than determining whether the observer should receive a 0, 1 or 2 rating. It is, nevertheless important to provide the observer with constructive feedback on their performance and advice for future deployments. However, providing the data they have collected are approved, it seems appropriate that this advice could be provided on a one-to-one basis and does not need to form part of a formal evaluation.

The remaining problem is the need to specify the re-hire conditions, including training, required to be met by the observer for their next contract. It is a function of the current SDM that this information must be provided to the company employing the observer so that they can ensure that these conditions are met. This, in itself, is bound to constitute an evaluation of the observer's performance, although it is somewhat more objective, since certain re-hire conditions are compulsory (for example a four day briefing is an annual requirement, and a mid-cruise debriefing is mandatory for all first and second time observers). Nevertheless, the issue of observer evaluation will only be fully addressed as part of the broader requirement to reform the SDM.

3.6.2.3 Observer task priorities

In conjunction with the clarification of the goals and objectives of the NPGOP, observers need to be given clear guidance on their roles and priorities in the NPGOP, in an effort to create a more standardized interpretation, particularly amongst trainee observers. Some progress has been made in this regard with the revision of the NPGOP Observer Manual in 1999.

The problems of conflicting objectives should be alleviated where possible through the removal of tasks which compromise the most important functions, such as scientific data collection. For example, the need for observers to collect compliance data on management measures with very poor records of enforcement, such as the VIP (see Section 3.2.1.2) should be re-evaluated. Also, alternative, less subjective approaches to monitoring compliance with management measures should be investigated. The potential for using advanced techniques, such as the digital video surveillance system used in the Canadian Pacific Blackcod Seamount Fishery (page 63 in McElderry *et al*. 1999), should be explored. Such approaches may also help to reduce the number of observer tasks on vessels where they are already over-burdened.

3.6.2.4 Observer morale and retention

Efforts should be made to improve observer morale and retention of trained observers for longer than a single cruise. As previously indicated, we expect that this problem will be greatly helped if recommendations for the revision of the SDM are implemented. In the shorter term, however, this problem must be addressed through the greater support provided by the cadre. In addition, the following approaches should be considered:

- while recognizing the limited extent to which NMFS can influence the activities of the observer companies, and the commercial realities of the multi-company pay-as-you-go system, the OPO should encourage observer companies to the greatest extent possible to offer better incentives to observers to enhance job satisfaction and career path development; including a clearer progression from trainee observer, through various stages of experience with commensurate levels of responsibility and compensation;

- through the training and debriefing processes, and other means of communication, such as the APO publication *the Mail Buoy*, OPO staff should help to promote the concept of observing as a profession, and retention of trained observers for several years if possible;

- enhance and broaden the observer recruitment criteria to include candidates with more practical sea-time experience; waive the requirement for a college degree for individuals who have gained requisite scientific experience elsewhere;

- provide better preparation and support for trainee observers in what to expect from working at sea on fishing vessels, for example through training on vessels (or if not, at least using some sort of simulated environment); incorporate training on conflict resolution,[36] for example through role playing; if possible, accompany all first-time observers to their first deployment (for example using experienced observers, and/or cadre personnel);

- improve screening, so individuals are better prepared for the difficulties and realities of working at sea on fishing vessels;

- develop a more objective and less confrontational evaluation system for observers which provides encouragement and fosters confidence in the support system provided by NMFS;

- promote the use of debriefers with recent and varied sea-time experience on vessels similar to those observed by individuals they are debriefing; and

[36] Conflict resolution has been included in the MSCDQ training, and has been part of regular training as of 2000.

- solicit regular feedback from observers on the evaluation system, and allow observers the opportunity to comment on their evaluation.

3.6.2.5 Observer safety

The procedure for responding to observer concerns over the safety of an individual vessel prior to embarkation should be clarified with the Coast Guard and clearly explained to both observers and the industry.

In January 2000, the OPO revised its safety policy in response to a vessel safety incident. The incident involved observers being deployed on a vessel which did not have a current commercial fishing vessel safety decal. Several observers were deployed on this vessel and did not notice, or did not report, the expired decal.

Every observer must now check for the safety decal upon boarding a vessel. If the vessel does not have a safety decal, or it has expired, the observer must disembark the vessel and notify their company, who should notify NMFS. No observer should sail on a vessel which lacks a valid safety decal. The OPO now considers checking for a safety decal to be a normal part of the observer duties that will be completed as a first priority upon boarding a vessel. The OPO also strongly encourages the observer companies to verify with their contracted vessels that the decal is present and valid before sending an observer to the vessel. The safety decals are valid for two years from the month issued, indicated with the hole punch. Observers are currently trained on this issue and NMFS intends to place greater emphasis on it as a requirement for the vessel, and for the observer to check before embarkation.

Considering the constraints of logistics and staff availability, the Coast Guard has recommended that during the training program, observers should receive a minimum of a one day intensive course on safety, with Coast Guard participation if possible.

3.7 Stakeholder outreach

The opportunity for using the NPGOP for enhancing outreach to stakeholders seems to be largely absent from the current Program. This is considered to be a missed opportunity to build bridges between management and the fishing community to enhance understanding and promote the common goal of a healthy, viable, sustainable fishery. Observers should be used as part of the process of demonstrating to the industry how the fishery benefits from the observer program, and soliciting feedback from the fishers in order to generate more support for the management process. For example, the practice of interviewing vessel captains, whenever possible, at the end of an observer deployment should be adopted. This practice is followed in several other observer programs, including the AFMA observer program and the ADF&G crab program.

Appendix 1. List of documents used in the review

Barbeaux S.J. 1999 Analysis of observer program funding structures, University of Washington class paper Policy Memo 3: March 12, 1999.

Collective Bargaining Agreement from NWO, Inc. to Alaska Fisherimen's Union, 1998.

Credle, V.R. *et al*. 1994. NMFS Observer Programs: minutes and recommendations from a workshop held in Galveston, Texas, November 10-11, 1993. US Dept. of Comm., NOAA Tech. Mem. NMFS-OPR-94-1, 96 p.

Council discussion Paper on Re-Development Options to Fund the Domestic Groundfish Observer Program in the EEF Fisheries off Alaska. Prepared by staff of the Alaska Fishery Management Council.

Department of Commerce 1994. Final rule to implement the North Pacific Fisheries Research Plan for the Gulf of Alaska (GOA) groundfish fishery, Bering Sea and Aleutian Islands (BSAI) management area groundfish fishery, BSAI are king and Tanner crab fisheries, and Pacific halibut fishery in convention waters off Alaska. Filed with the office of the Federal Register September 2 1994, published September 6, 1994 (includes public comments received on Proposed Rule).

Hiatt, T., and J. Terry. 1999. Stock assessment and fishery evaluation report for the groundfish fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic status of the groundfish fisheries off Alaska, 1998. Socioeconomic Assessments Program, NMFS-AFSC-REFM, 88 p.

Jeffrey, N.B. *et al.* 1992. Panel Report on a Program Review of the Alaska Fisheries Science Center's Observer Program, June 10-11, 1992.

Letter from NMFS Regional Director to Council Chairman, Sept. 22, 1998, regarding need for a review of the NPGOP.

Magnuson-Stevens Act language with Research (fee) Plan provisions.

Mail Buoy. A publication of the Association for Professional Observers P.O. Box 30167, Seattle, WA 98103 (206) 547-4228 E-mail: APO_obs@hotmail.com.

Marasco, R. *et al.* 1992. Comments on recommendations of Report on Observer Program Review. NMFS internal memorandum, Alaska Fisheries Science Center, November 24, 1992.

McElderry H., W. A. Karp, J. Twomey, M. Merklein, V. Cornish, and M. Saunders 1999. Proceedings of the First Biennial Canada/U.S. Observer Program Workshop. U.S. Dep. Commer., NOAA Tech. Memo. NFS-AFSC-101, 113p.

McLean, D. 1988. The Logical Framework in Research planning and evaluation. ISNAR Working paper No.12. International Service for National Agricultural Research, PO Box 93375, 2509 AJ The Hague, Netherlands.

NMFS 1994: Diagrams of Research Plan Fee Assessments and Flow of Funds, August 1994.

NMFS 1995: Discussion of alternative contractual arrangements for observer service under the Research Plan, Sept. 6, 1995, prepared by NMFS.

NMFS 1995. North Pacific Fisheries Research Plan Implementation Issues, dated Sept. 8, 1995, prepared by NMFS.

NMFS 1996: Draft Goals and Objectives for North Pacific Groundfish Observer Program, July 1996, prepared by NMFS.

NMFS 1997: Observer Coverage Needs (draft discussion), June 3, 1997.

NMFS 1997: Groundfish Observer Costs by Harvesting and Processing Sector, Sept. 5, 1997, prepared by NMFS (including revenues from halibut fisheries).

NMFS 1998: Observer qualifications, education and experience standards, January 1998.

NMFS 1999. North Pacific Groundfish Observer Manual 1999. United States Department of Commerce, NMFS Alaska Fisheries Science Center, Seattle Washington. June 30 1999.

NMFS 2000: NMFS draft debriefing continuity file (OPO).

NPFMC 1995: Summary comparison (pros and cons) of Research Plan vs 'Third Party', pay-as-you-go program (developed by OAC in October 1995).

NPFMC, 1995. Elements of the North Pacific Fisheries Research Plan as adopted by the North Pacific Fishery Management Council on June 28 1992, and subsequently revised by the Council during its December 1993 and June 1995 meetings.

NPFMC 1998. Redevelopment of options to fund the domestic groundfish observer program in the EEZ fisheries off Alaska. Discussion paper prepared by Council staff to facilitate discussions by the Observer Advisory Committee, September 9, 1998. North Pacific Fishery Management Council, 12 p.

NPFMC 1998. Report of the Council's Observer Advisory Committee, Sept 24-25, 1998, meeting agenda and list of committee members.

NPFMC. Copies of Observer Advisory Committee (OAC) reports, (1992 - 1998).

Previous estimates of annual costs, ex-vessel values, and the fee percentage for the current level of observer coverage and a comparison of costs with and without the Research Plan (Sept 25, 1995).

Summary of Service Provider observer contracts.

Appendix 2. Individuals and organizations contacted

Name	Title	Affiliation/Location
NMFS-Regional Office, Sustainable Fisheries		All, Sustainable Fisheries unless noted
Steve Pennoyer	Regional Administrator	
Sue Salveson	Assistant Administrator	
Dave Ackley	Fisheries Management Biologist	
Patsy Bearden	Resource Management Specialist	
Sally Bibb	CDQ Program Coordinator	
Obren Davis	CDQ Program Specialist	
Mary Furuness	Resource Management Specialist	
Alan Kinsolving	At-Sea Scales Program Coordinator	
Steve Kocsis	Programmer	
Kent Lind	Fisheries Management Biologist	
Bridgit Mansfield	Fishery Management Specialist & Regional Office Liaison	
Pamela Mason	Programmer	
Kim Rivera	Wildlife Biologist	Protected Resources Division
Andrew Smoker	Senior In-Season Manager	
Galen Tromble	Chief, Fisheries Information Branch	
NMFS-Alaska Fisheries Science Center (AFSC)		
James Balsiger	Director (now, Regional Administrator)	
James Coe	Deputy Director (now, Acting Director)	
Richard Marasco	Director, REFM Division	
NMFS-AFSC-Observer Program Office		in Seattle, unless noted otherwise
Bill Karp	Program Leader (former)	
Daniel Ito	Program Leader	
Martin Loefflad	Supervisory Fishery Biologist	
Shannon Fitzgerald	Supervisory Fishery Biologist	
Allison Barns	Fishery Biologist	Kodiak
Steve Barbeaux	Fishery Biologist	
Jerald Berger	Fishery Biologist	
Mike Brown	Fishery Biologist	
Glenn Campbell	Computer Specialist	
Liz Chilton	Fishery Biologist	
Sharon Davis	Fishery Biologist	
John Dakan	Program Support Assistant	
Kimberly DeMorett	Fishery Biologist	
Jennifer Ferdinand	Fishery Biologist	
Ken Kruse	Fishery Biologist	
Douglas Limpinsel	Fishery Biologist	
Todd Loomis	Fishery Biologist	Anchorage
Troy Martin	Fishery Biologist	Dutch Harbor
Bob Maier	Fishery Biologist	
Kitty McCauley	Fishery Biologist	
Carrie Nordeen	Fishery Biologist	
Todd Parker	Fishery Biologist	
Karen Teig	Fishery Biologist	
Heather Weikart	Fishery Biologist	

Name	Title	Affiliation/Location
NMFS - AFSC - Stock Assessment Group		in Seattle, unless noted otherwise
Anne Babcock Hollowed	Program Leader	
Martin Dorn	Research Fishery Biologist	
Sarah Gaichas	Research Fishery Biologist	
Jim Ianelli	Statistician	
Sandra Lowe	Research Fishery Biologist	
Michael Sigler	Research Fishery Biologist	Auke Bay Laboratory, AK
Paul Spencer	Research Fishery Biologist	
Grant Thompson	Research Fishery Biologist	
Tom Wildebuer	Research Fishery Biologist	
NMFS - AFSC - Ecosystems Modeling Group		
Patricia Livingston	Program Leader	Seattle
Geoff Lang	Research Fishery Biologist	Seattle
NMFS - AFSC - National Marine Mammal Laboratory		
Charles Fowler	Program Manager, Systematic Mgmt. Studies	Seattle
NMFS - Office of Law Enforcement, Alaska Enforcement Division		
Stephen Meyer	Special Agent-In-Charge	Juneau, AK
John Kingeter	Assistant Special Agent-In-Charge	Juneau, AK
Kenneth Hansen	Assistant Special Agent-In-Charge	Kodiak, AK
Todd Dubois	Special Agent	Anchorage, AK
Kevin Heck	Special Agent	Anchorage, AK
Mark Kirkland	Special Agent	Juneau, AK
Fredrick Koontz	Special Agent	Seattle, WA
Ron Volk	Special Agent	Juneau, AK
NOAA - Office of General Counsel		
Susan Auer	Staff Attorney	Juneau, AK
Garland Walker	Staff Attorney	Juneau, AK
NMFS - Headquarters (Silver Spring, MD)		
Mark Holliday	Chief, Fisheries Statistics & Economics Div.	Office of Science & Technology
Vicky Cornish	Program Leader, National Observer Program	Office of Science & Technology
Stephen Copps	Fishery Management Specialist	Office of Sustainable Fisheries
Other NMFS staff		
Tom Pearson	Fisheries Management Biologist	Kodiak
North Pacific Fishery Management Counsel		
Rick Lauber	Chairman, Council	
Clarence Pautzke	Executive Director	
Chris Oliver	Deputy Director	
Cathy Coon	Staff	
Jane DiCosimo	Staff	
Linda Behnken	Council Member	Alaska Longline Fishermen's Association (AFLA)
David Fluharty	Council Member	Research Associate Professor, Univ. Washington
Earl Krygier	Council Alternate	Alaska Department of Fish & Game
Joe Kyle	Council Member, Chair Observer Comm.	Pacific Associates, Inc.

Name	Title	Affiliation/Location
Kevin O'Leary	Council Member	Alaska Leader Fisheries
Jack Tagart	Chair, Scientific & Statistical Committee	Research Scientist, WA Dept. of Fish & Wildlife
Doug Eggers	Member, SSC	Alaska Department of Fish & Game
Doug Larson	Member, SSC	Univ. of California-Davis, Dept. of Agriculture & Resource Economics
Keith Criddle	Member, SSC	Utah State Univ, Dept of Economics
Terrence Quinn	Member, SSC	Professor, Univ. of Alaska, Juneau Center, School of Fisheries and Ocean Sciences
Hal Weeks	Member, SSC	Oregon State University, Sea Grant Ext.
Mandy Merklein	Observer Committee	Fisheries Consultant
International Pacific Halibut Commission		
Robert Trumble	Senior Biologist	
Gregg Williams	Biologist	
Alaska Department of Fish & Game		
Earl Krygier	Council Alternate	
Larry Boyle	ADF&G Crab Observer Program	
U.S. Coast Guard, 17th District		
Captain Vince O'Shea	Council Member	Juneau
LtCdr Greg Buch	17th District	Juneau
Lt Chris Woodley	Vessel Compliance Section	13 District
Lt Paul Flynn	N. Pacific Reg. Fisheries Training Center	Kodiak
Matt Brandt	N. Pacific Reg. Fisheries Training Center	Kodiak
Geoff Robinson	N. Pacific Reg. Fisheries Training Center	Kodiak
Charlie Medlicott	Fishing Vessel Safety Coordinator	Marine Safety Office
North Pacific Fisheries Observer Training Center, Anchorage, AK		
Paula Cullenberg	Director	
Gregg Morgan	Trainer	
Kyle Hogrefe	Trainer	
Fishing Industry		
Bob Alverson	Manager	Fishing Vessel Owner's Association
Robert Andrews	Operations Manager	Yukon Delta Fisheries
Mike Atterberry	Government & Industry Relations	Alaska Ocean Seafood
Kelly Barber	Vessel Captain	Deep Pacific
Brian Beaver	Fisher	*Peggy Jo*
Al Burch	Director	Alaska Draggers Association
Leroy Cossette		Clipper Seafoods
Craig Cross	President	Alaska Trawl Fishing
Steve Faust	Fisher	*Mar Del Norte*
Al Geiser	Fisher	*Hazel Lorraine*
Ed Glotfelty	Vessel Manager	Yukon Delta Fishermen
Jan Jacobs	Director of Government Affairs	American Seafood Company
Teressa Kandianis	Vice-President	Kodiak Fish Company
Jack G. Knutsen		Fishing Vessel Owner's Association
Paul MacGregor	Counsel	At-Sea Processors
Joe Macinko		
Trevor McCabe	Executive Director	At-sea Processors Association
John McCarthy	Fisher	*Pacific Star*

Name	Title	Affiliation/Location
Glenn Merrill	Chief Resource Analyst	Aleutian East Borough
Peggy Murphy	Manager	Pacific States Marine Fisheries Comm.
Jack Noose	Fisher	
Paddy O'Donnell	Fisher	*Topaz*
Helmut Opolka	President	Daily Fish, Inc.
Glen Reed	President	Pacific Seafood Processors Association
Edward Richardson	Economist	At-Sea Processors Association
Susan Robinson	Fisheries Management	Fishermen's Finest
Terry Shaff	CEO	UniSea
Jeff Stephan	Director	United Fisherman's Marketing Assoc.
Beth Stewart	Director, Natural Resources Dept.	Aleutians East Borough
Bob Storrs	Fisher	Unalaska Native Fish Association
Richard Thummel	Vessel Captain	*Alaska Leader*
Robert Wurm	Managing Partner	Alaska Leader Fisheries
Grant Yutrzenka	Fisher	
Community Development Quota Groups		
Norman Cohen	Executive Director	Coastal Villages Region Fund
Larry Cotter	CEO	Aleutian Pribilof Island CDQ Assoc.
Chris Mirkzesky	Quota Manager	Aleutian Pribilof Island CDQ Assoc.
Eric Olson	Fisheies Quota Manager	Bristol Bay Economic Dev. Corp.
Jon Zuck	Advisor	Norton Sound Economic Dev. Corp.
Data Contractors & Other Services		
Chris Blackburn	Director	Alaska Groundfish Data Bank
John Gauvin	Director	Groundfish Form, Inc.
Karl Haflinger	Owner	Sea State
John Henderschedt	Special Projects Coordinator	Groundfish Form, Inc.
Paul Peyton	Owner	Fisheries Business Consulting
Scott Smiley	Director	Fshery Information Technology Center
Janet Smoker		Fisheries Information Services
Lynn Walton	Consultant, Broker	Access Unlimited, Inc.
Observer Companies		
Michael Lake	Director	Alaskan Observers Inc.
David Edick	General Manager	Alaskan Observers Inc.
Pam Gale	Logistics Manager	Alaskan Observers Inc.
Bryan Belay	Operations manager	Data Contractors Inc.
Joanne Alvarez	Field Coordinator	Saltwater Inc.
Debbie Hicks	Vice President of Operations	Saltwater Inc.
Nancy Munroe	President	Saltwater Inc.
Kathy Robinson	Observer Coordinator	Saltwater Inc.
Observers		
Janelle Zimmerman		
Victor Simon		
Nicole Caputo		
Julie Kellicutt		
Brenda Scannell		
Andreas Winter		
Tom Wilson		
Nathan Lagerway		

Name	Title	Affiliation/Location
Gillian Stoker		
Felix Canez		
Plus five anonymous individual observers and 107 responses to the observer mail survey		
Association of Professional Observers		
Kim Dietrich		
Erika Acuna	NMFS Fishery Biologist	Former AP member representing APO
Teresa Turk	NMFS Fishery Biologist	Representative to Natl. Observer Program Committee
Alaska Fishermen's Union		
Mark Coles	President (former)	
Non-Governmental Organizations		
Francine Bennis		Alaska Marine Conservation Counsel
Paul Clarke		Greenpeace
Niaz Dorry		Greenpeace
Steve Ganey		Alaska Marine Conservation Counsel
Gerald Winegrad	Vice President for Policy	American Bird Conservancy

Appendix 3. Stakeholder feedback

This section provides our written reports from meetings with the various stakeholder groups that were interviewed as part of this review process. We have endeavored to represent faithfully all of the views and concerns that were brought forward by those with whom we discussed the NPGOP. The review team has not provided any additional perspective in this section, except as necessary to clarify specific comments, where it is duly noted. In this section we make no comment as to the validity or accuracy of claims and statements made by any organization with whom we discussed the Observer Program. Discussion of issues raised and the review team's recommendations based on these and other sources of information are provided in Section 3 of the main report.

Groups who were contacted, but did not have substantive individual comments and those whose comments are incorporated into the Council section are not listed separately.

A3.1 NOAA/NMFS

A3.1.1 Alaska Regional Office, Sustainable Fisheries managers

The Regional Office receives the data generated by the NPGOP on a daily basis, and utilizes it for inseason management. Overall, there was little complaint with the quality of data. The implementation of the ATLAS system allows for data availability in a much shorter time frame, facilitating inseason management.

There was some concern over how compromised data are filtered in Seattle. Data which are considered to be bad in some way may be removed from the operating database and stored in another location. The Regional Office staff would prefer that the data remained in the database and were simply flagged in some way to indicate what the problem is. This is because they need to match data up with other records (hauls, actual fishing) and if the records are removed completely there are no data with which to make the comparison and a mismatch occurs.

One issue that the managers noted was how to handle errors which they detect in the data (errors sometimes cannot be corrected by the OPO until observers return and debriefing occurs). The number of errors has been greatly reduced through the use of the ATLAS system, however, there is no clearly defined process for correcting errors or communicating them back to the OPO.

A3.1.2 NMFS/Alaska Fisheries Science Center, North Pacific Groundfish Observer Program Office

When the domestic observer program began in 1990, there were approximately 50 NMFS employees working in the North Pacific Groundfish Observer Program Office (now referred to as Observer Program Office or OPO) based at the Alaska Fisheries Science Center and in regional field offices. Staff who left the program over the next few years were not immediately replaced due to the overall "downsizing" that was simultaneously occurring throughout the federal government. This soon resulted in the OPO having only approximately half of the original number of employees. Although there have been technical changes to the program as well, such as the development of NORPAC, which has reduced the need for some staff, the reduced work force has caused problems in consistently handling the workload efficiently. It is most evident when large pulses of observers are returning from cruises at the same time, all requiring debriefing. NMFS recognizes that when

backlogs occur, it is costly to everyone and weakens relations between NMFS and observers and NMFS and the observer companies.

The current staff of the OPO numbers 34. This comprises the program leader and two supervisory fishery biologists, 21 fishery biologists (including one in each of the regional offices: Anchorage, Dutch Harbor and Kodiak), a research fishery biologist, a biological technician, a zoologist, four computer specialists and three program assistants.

Senior Program staff acknowledge that relations with observer companies, observers, and industry have not been as good as they could be, although this is improving in some areas. The dynamics of the existing service delivery model (SDM), and a lack of a direct contractual arrangement between NMFS and observer companies makes resolving some problems more difficult and confrontational. In *toto*, the SDM has led to the appearance of conflicts of interest between the fishing industry and the observer companies, thus eroding a level of trust between all parties and confidence in data quality.

A written evaluation system for observer companies was designed to help NMFS objectively review the performance of the observer companies, and provide a measure of control. The evaluation process ceased for several years, when NMFS staff were devoting time to the development of the Research Plan. It resumed in 1997, and as a paper trail, the evaluations are available to the public through FOIA requests. Subsequently, the evaluations have been requested by the Association of Professional Observers (APO) and posted on their web site.

Although a decertification process for observer companies exists, it is an avenue of last resort for an egregious act on the part of a observer company. Additionally, political and legal realities make it a difficult process to pursue. Rather, the Program is working to re-strengthen the role of the staff members assigned to liaise with observer companies. It is usually more productive to both NMFS and the observer companies to handle problems more immediately.

A few more recent issues have strained the relationship between the OPO and observer companies. The OPO used to allow waivers for individual observers to work briefly past their 90 day contract period. However, widespread abuse of this waiver system by the observer companies led to a refusal to allow any further waivers in 1999. The 90 day and four vessel rule[37] is designed to protect observers from “burn-out” and help ensure high quality data. OPO staff also informally interviewed observers, and found that for every five observers, only one wanted extensions or waivers, two to three agreed that 90 days should be kept as the maximum length and no waivers should be allowed, and one to two said 90 days was too long, and 60 days was more appropriate (Fitzgerald, pers. comm.; see also Section A4.1.c.)

OPO staff have been working to improve the existing observer training. Based on prior feedback, they recognized the importance of conflict resolution training, and as of 2000, have incorporated it into all training, as well as in the more specialized MSCDQ training. Likewise, now all staff who are involved in debriefing observers are experienced as prior observers. Before, this was not always the case.

The ability of inseason advisors to be able to communicate quickly with observers and vice versa, through ATLAS, allows sampling problems to be resolved more readily. It is believed to also be improving overall relations between observers and NMFS. Yet there is still room for improvement.

[37] 90 days and four vessels are the limits per observer contract.

Staff expressed concern about the high turnover rate or fallout rate of first time observers, estimated at 45%. This decreases efficiency in the program and increases costs in training. Obviously, some of the high turnover is a result of the nature of the job, new recruits likely not having reasonable expectations, but some may be due to the fact that new observers need more support, particularly while on their first assignment.

Thus, the OPO has been moving in the direction of establishing an observer cadre; its development and implementation is currently proceeding. Though details are being finalized, its mission is to improve the overall effectiveness of the NPGOP and ensure data quality and integrity. NMFS staff explained that one of its goals is to improve communications between all stakeholders (observers, industry, observer companies, other NMFS sections, and all other clients). Implicit in this is that the cadre's efforts will work to restore the level of trust between all parties that has been eroded.

A3.1.3 Stock Assessment Group

The Stock Assessment Group are a primary "client" of the species and biological data collected through the NPGOP. The NPGOP provides good data for most of the primary target species, but some data are lacking in multispecies fisheries. Additionally, NMFS is obligated to document the impact of fishing on non-target or secondary species, yet there are very little data with which to do this. The SDM, and lack of control over the placement of observers, does not allow the scientists to fill these data gaps. It was noted that data needs were being better met for the Bering Sea/Aleutian Island area, but general biological information such as length frequencies, age composition, and maturity data for certain species was still greatly lacking from portions of the Gulf of Alaska (data are not spatially or temporally representative).

There was concern that a clear mechanism for input from the Stock Assessment Group and other agency scientists to the OPO was somewhat lacking, although there have been efforts to work on this. In some instances, the current sampling methodologies might not meet data needs and should be reviewed and potentially changed to get required data. Yet, NPGOP programmatic constraints make such changes difficult to orchestrate. As an example, it may not take that much additional time to train experienced observers to key out non-target species, but there is no way to ensure that these observers will be working on vessels in the areas from which this extra data may be needed.

Occasionally, special projects have been developed successfully, particularly if assigned to certain vessels where the observer has more available time. But the SDM does not provide adequate flexibility, thus the current process to implement special projects is often slow, tedious, and very time consuming. It has not been difficult to train observers for special projects, and an effort is made to keep instructions as simple as possible, but it is difficult to ensure that placement of these observers will allow the project to take place.

The Stock Assessment Group has had feedback from observers indicating that they enjoy and are enthusiastic about special science projects. They seem to prefer the role of scientist to the role of compliance agent.

A3.1.4 Resource Ecology and Ecosystem Modeling

The Resource Ecology and Ecosystem Modeling group demands on the observer program are currently not very great, and have been scaled down, because of difficulties that arose. Essentially the samples needed are stomach contents, but ovaries are also sometimes sampled. Predator-prey data collected through analysis of stomach contents are used in single species and multispecies models.

Ideally, the scientists in this group would like to receive stomach contents samples seasonally and spatially distributed. It is important to get samples on the boats as opposed to at the processing plants, because samples break down, regurgitation occurs, etc. More seasonal coverage is needed which would allow time trends to be developed. This would allow analysis of how predation rates may change over a particular time series.

These scientists reported that they used to get a fair amount of samples; now sometimes no samples are received, even though it is a standard operating procedure. Similarly to the needs of the Stock Assessment Group, data needs are not met primarily due to the SDM of the NPGOP (i.e. logistics of observer deployment). Additionally, observers used to do some analysis of the prey items in the samples; now the samples are brought back unanalyzed, in part because the effort did not produce high quality data. Scanning stomach contents requires extra training and extra sampling equipment for the observer. The standard sampling equipment all fits into a bucket, but occasionally the buckets and equipment go missing.

Preparing samples in formalin seems to be less of a problem, although formalin requires special handling, and logistics can still be problematic. It cannot be transported by air, and in some cases, vessel operators do not want it on board. Freezing samples is not a possible option as it causes cells to break down.

It has been possible to get cod samples from the large pollock vessels that have two observers (in the BSAI). More samples were returned in 1999 than received during the previous five years. The goal for each trip was to collect 86 stomachs or a full bucket, at varying times during the day and for different predator sizes. The goal included sampling from a minimum of four hauls and a maximum of 16. The design (assigning the project to specific vessels) and goals appear to have made this a very achievable project, and a good example of how the implementation by the OPO works to meet stakeholders' needs. However, to achieve success required the devotion of a good deal of NMFS staff time.

There is a lack of data from the Gulf of Alaska (GOA), because there are predominantly smaller boats fishing there, and continuous sampling is more difficult. One recommendation made that could possibly remedy this is to have observer only take stomach samples from the last haul, rather than be concerned with sampling over the course of the trip. It was noted by the OPO, that once the process of obtaining cod samples in the BSAI (mentioned above) was operating successfully, the plan was to implement the same procedure in the GOA in following years.

A3.1.5 National Marine Mammal Laboratory and Protected Resources Division

Monitoring for marine mammals has consistently been a primary responsibility but observers' responsibilities in monitoring incidental seabird interactions have increased over the years. Development of the marine mammal and seabird monitoring programs have grown out of cooperative efforts between NMFS managers, USFWS, industry, and the working relationship with the NPGOP has been good.

Protected Resources staff felt that one difficulty that exists is that there is not a clear process to follow to develop priorities. There are so many individual demands on the current NPGOP, that different interests often appear to be competing against one another (i.e. for level of priority or observer time). Additionally, data are lacking from vessels that are not required to carry groundfish observers, and the best method to fill data gaps has not yet been determined.

Overall, data provided to NMML have been adequate, however, sometimes the quality of data can be variable. Part of the problem is that observers are not uniformly skilled. Data on incidental take of protected species is quite different from the random sampling for catch or bycatch composition. A complete census is needed, as well as details of the condition of the animal. For example, the scientists need to know if the animal is alive or actually close to death, even if it is alive when released. These nuances are important. There were no clear ideas on how to get around the issue of variable observer skill. Some observers do a remarkable job, providing all the details necessary to clearly distinguish species and the animal's condition. Sometimes, the efforts of observers appear to be hindered due to configuration of the vessel or lack of cooperation on the part of crew, although overall, this problem has been diminishing.

The NMFS seabird coordinator reported that there were 24 affidavits forwarded in 1998 - 1999. Affidavits have been thorough and included birds being caught and tossed overboard without the observer being allowed to sample, vessels not using seabird avoidance measures (i.e. bird scaring devices), or interference with sampling.

Although data are considered adequate, there are enough problems that annual reviews and program updates were highly recommended. Such a review would allow the OPO to assess what worked well, as well as where improvements are needed. This would only be possible if enough resources are provided. It was recognized that the OPO already does all it can to keep up with requests, changes, adjustments and the other pressures it is subjected to.

A3.1.6 NMFS Office of Law Enforcement, Alaska Enforcement Division

Overall, the agents in the Office of Law Enforcement conveyed a view that although the NPGOP works, there are certain problems that are pervasive, and the Program could be much more effective than it is if certain systematic problems were addressed. The work of an observer is a difficult balancing act between data collection and compliance monitoring. Observers are not supported well by the current SDM. Enforcement agents feel the program as a whole, and the responsibilities of the observer, would be better served if the NPGOP was managed like it was during the foreign fishing days, when NMFS had a stronger direct link (i.e. contract) with the observer companies and observers.

Similar problems and allegations arising on vessels are similar to those at processing plants. Although many masters and vessels are compliant, certain problems, such as presorting, are pervasive. There is a handful of vessels and masters that have long histories of interference or

harassment. Overall, it was estimated that 90% of the industry is law abiding, and about 10% are not. Agents are aware of and have seen evidence of overt actions and crew cooperation to threaten or intimidate observers, hide bycatch, and interfere with sampling. Additionally, vessels will fish differently or in different locations than their standard fishing grounds, when an observer is aboard.

For a ten month period (December 1997 through September 1998) the office's liaison received 239 reports of violations from the Observer Program. Of these, 31% were sampling interference/bias (presorting, failure to notify of haulbacks, etc.), and 4.6 % were for assault, sexual harassment or harassment. The entire breakdown is presented in Table A.1. Anecdotal information from observers also includes vessels refusing observers because of past reported violations, and observers not being rehired by observer companies, because of reporting.

Table A.1. Reports referred to Alaska Enforcement Division by the Observer Program, December 1997 through September 30, 1998 (File Memo of Todd Dubois, Special Agent and Liaison to the Observer Program, Sept 30, 1998).

Violation	Number of violations	Percent of total
Interference/sampling bias (presorting, failure to notify, etc.)	74	31.0
IR/IU violations	64	26.8
Mishandling/retaining prohibited species	47	19.7
CDQ violation (bin marking, lighting etc.)	13	5.4
Assault/sexual harassment/harassment	11	4.6
Other (info reports, MARPOL, oil pollution etc.)	10	4.2
Miscellaneous groundfish violations	6	2.5
Failure to maintain safe conditions/FV safety decal (NMFS reg.)	5	2.1
Inadequate accommodations	5	2.1
MMPA/ESA violation	4	1.7
Total	239	100.1*
*Total does not equal 100% exactly due to rounding.		

Even though observers are not enforcing any regulations themselves, their presence leads some fishers to consider them as enforcement officers. It is difficult to separate data collection from compliance monitoring activities.

The Office of Law Enforcement only has the resources to handle the worst cases. They have zero tolerance on sexual assault or aggressive interference. Most effort is focused on violations that may affect data integrity (i.e. sample bias issues and other harassment). Other violations that may or may not affect sampling are a lower priority. They admit they are not doing the job as well as they would like, and the time it takes to process affidavits is sometimes unacceptable.

In the past, this has lead to observers believing that filling out affidavits is sometimes meaningless. However, no affidavit is ignored. Feedback to the observer may be lacking from enforcement staff, but typically not many observers have asked. The Office of Enforcement has made a significant effort to improve communications with observers in the past two to three years, by establishing a

direct liaison, and feedback from observers regarding these improvements has been positive. This helps provide another level of support to the observer. A newsletter or web page for observers that provides general updates about enforcement actions was considered as a way to improve communications further, and may be investigated.

To improve their ability to handle the workload, enforcement agents now look for patterns and maintain files on individual vessels/plants, thus pursuing several affidavits at once where they can make strong cases, rather than individually. They have also developed a more efficient, internal data management system (Enforcement Management Information System, EMIS) to better track cases.

Unfortunately, the level of a threat of an enforcement action based on observer information has been generally low. Now, the Summary Settlement System allows the Office of Enforcement to handle certain cases (common, lesser violations that have lower fines) with quicker results, rather than going through the NOAA General Counsel Office. There is more fear of a "count" against a boat versus a fine. For very minor violations, or for vessels with no history of violations, the Agency will send a letter explaining the violation rather than a violation notice, giving the vessel an opportunity to correct the problem. This type of communication has been seen as positive.

Periodically, enforcement agents in the field speak with captains about allegations, but they have to carefully weigh whether their action will make the life of the observer more difficult. When possible, they leave such decisions to the observer. They also encourage the US Coast Guard boarding teams to do the same, if they learn of interference or harassment. If data are seriously being compromised, or harassment is occurring, observers are encouraged to report such incidents immediately. If the activity is less significant, they are encouraged to wait until they are back at shore to report.

Occasionally there have been problems with a few observers themselves. There have been instances where observers have refused to file negative affidavits, hid the truth about problems aboard vessels, or filed affidavits in support of a vessel or plant in order to protect their job. Again, it was felt that better control by NMFS would help eliminate these types of problems.

Some recommendations from NMFS Enforcement included reactivating the "placement meetings" that occurred in the tuna-porpoise observer program. A staff member of NMFS went with the observer to the vessel to meet the master directly. More outreach to industry is needed, and this is something which a voluntary compliance officer could help. And it would be useful if licensing of Masters could require some type of training regarding the NPGOP. This would help eliminate some problems.

There are several areas where enforcement agents felt the observer training could be improved. This includes putting them on a vessel for a day or creating a simulator that mimics rough seas and life on a boat and role-playing certain scenarios. It is the view of most enforcement agents that high turnover rates of first time observers are often due to unrealistic work conditions and the harsh environment.

A3.1.7 NOAA Office of General Counsel, Alaska Region

While understanding the need for observers to be involved in compliance monitoring, General Counsel staff recognize the difficulties that this sometimes brings to the program and individual observers. The shift from fleet-wide management to individual vessel management programs burdens the program and individual observers with more compliance monitoring responsibilities.

Concerns were raised that certain programs have not been successful in meeting their intended goal, are not providing any benefits, yet they still require observer monitoring. An obvious example is the Vessel Incentive Program (VIP). It was a difficult program to implement and although the goal was to change fishing behavior, it did not. Instead, observers increasingly are viewed as "cops." The VIP only emphasized the monitoring character of the observer: they were no longer perceived to be an "arms length" away from the enforcement action. The increasing focus on individual vessel accountability emphasizes the underlying problem that observers have not been adequately supported and trained to fulfill their role effectively. Overall, it is easy to see how this can lead to resentment on the part of the industry against observers and resentment on the part of observers against the OPO, for putting them in such a role.

The General Counsel had four cases related to the VIP referred for prosecution, and two are being appealed. NMFS and NOAA have been criticized for not enforcing the VIP, yet General Counsel staff estimated that at various times, up to 50% of the vessels involved failed to comply with the regulation.

In general, VIP cases are difficult to make. This is due in part to the sampling designs, and thus the information gathered by observers may not provide adequate information for legal cases. Moreover, since VIP violations are measured by fishing month, proving a case usually required evidence from several observers. Generally, proving any case involving evidence from an observer requires the commitment and cooperation of that observer. It has been General Counsel's experience that observers without a stake or interest in the success of the Observer Program are less satisfactory as witnesses than observers who understand their importance of their data to fishery management.

Related to this is the lack of resources in the Office of Enforcement. They simply do not have enough manpower to handle all the individual cases and affidavits that are forwarded by the OPO. To improve this situation, they are now attempting to identify more serious violations and are building files on specific vessels when there are more than one affidavit or allegation against them, rather than pursuing individual affidavits. This shows a pattern of behavior by vessel crew or the master, and makes it much easier to build a strong legal case.

Legal staff are encouraged by the plans and goals of the observer cadre. It may help to insulate observers from retaliation and hopefully elevate the level of authority and respect due them. General Counsel is encouraging the Observer Program to identify responsibilities that could be moved to the observer cadre, such as serving as liaison with observer companies and serving as back up or mentor when observers encounter problems during a particular deployment. Additionally, it offers the potential of some upward mobility for observers interested in pursuing a career in fisheries management.

Observers cannot be relieved of their enforcement/monitoring role without a wholesale change in how we manage fisheries. Observers will be expected to provide evidence of violations in the absence of a "revolutionary" way of thinking and regulating fisheries. General Counsel staff believe that the Agency (as a whole) needs to reassess the NPGOP and how it and its observers are supported in the field. This would include, among other things, a more methodical evaluation of how much observer coverage is necessary in each fishery, whether observer training provides the skills needed to succeed and enjoy observer duties, whether observers are sufficiently compensated for their work, and whether observers are insulated to some extent from the temptation to falsify data (both through debriefing of data and through the administrative structure supporting the observers). More importantly, once the features of an effective observer corps are identified, then that program must be implemented by the Agency and Congress, if necessary.

A3.2 Other governmental organizations

A3.2.1 North Pacific Fishery Management Council

Although NMFS manages the Observer Program, much of its structure has been determined by the North Pacific Fishery Management Council (the Council). This includes design of the current service delivery model, observer coverage requirements for different size vessels, and implementation of special sampling or compliance programs (e.g. VIP, IR/IU, CDQ).

During an extensive discussion at the October 1999 Council Meeting, issues of concern were raised. The Council concluded that fundamentally, the Observer Program has been operating well over the years, but the need for more real time data, more compliance monitoring, more observers and more skilled observers for AFA and MSCDQ fisheries, have placed a significantly greater burden on the program. The program is good, but needs to get better.

Some specific issues raised included concerns about coverage; some fisheries likely should have more while others likely do not need 100 % coverage. They felt observers need to be placed based on data requirements and the Program needs more flexibility. The active observer pool does not appear to be large enough to handle some of the new requirements (i.e. MSCDQ). Issues of cost and equity are still a concern.

After this discussion, the Council decided to reconstitute an Observer Advisory Committee. Its first meeting was held near the end of March 2000 (see Section A3.2.1.3).

A3.2.1.1 NPFMC Scientific and Statistical Committee

The Council's Scientific and Statistical Committee (SSC) also discussed the NPGOP at its October 1999 meeting. It was clear to the committee members that operationally, in-season decisions such as closures would not be possible without the observer program, and the amount of data that are collected is phenomenal. But scientifically, there are some deficiencies.

The SSC considers the lack of a random sampling design for observer placement is a fundamental data quality problem for the Observer Program. It leads to potential bias, yet this bias is unmeasurable. A major goal of the proposed Research Plan was to address observer placement.

There is concern by some that removals have not been adequately accounted, and that the methods used to extrapolate data for the total catch (the blend, conducted by the Regional Office) leaves ambiguities. It is complicated by the fact that the 60' to 120' vessels that are only required to have observer coverage 30% of the time are likely fishing and behaving differently when they have observers than when they do not, and that there are no observer data for smaller vessels. Others on the committee felt more confident that information on total removals was fairly good.

Some data that are collected through the fishery, such as certain parts of logbook data, are not keyed into any database and are completely inaccessible. There should be better links between observer data and logbook data.

Thus, due to placement issues, coverage on 30% vessels, and similar issues, it is perceived that the OPO has no mechanism for quality control related to these issues, i.e. there is no assurance that the sampling design per tow is random (for the whole fishery).

Overall there is no annual assessment of how the NPGOP is doing, whether it is attaining its goals, nor a clear process for direct input from stakeholders. The SSC has attempted to schedule an annual review of the NPGOP during their February meeting, but the SSC has not achieved this either, and it has not happened either for one reason or another.

The Committee recognizes that for some vessels and fisheries, the data needs are much less than what is gathered. The decision about observer coverage is a pragmatic one, based more on equity and fairness than scientific needs. Yet, more and more precision is needed, as the fisheries move towards individual vessel accountability, rather than fleet-wide accountability.

A3.2.1.2 NPFMC Advisory Panel

Concerns about the recent perceived lack of observers for the MSCDQ fisheries during 1999 were discussed at the October 1999 meeting of the NPFMC Advisory Panel. Different perspectives were voiced by the industry representatives and representatives of observers, as to why problems arose. Admittedly, it was the first season and "test" of the program since its expansion to include multispecies, and other pressures were placed on the pool of observers due to problems in the ADF&G managed crab fisheries. Regardless of the different perspectives, there was general agreement that the objectives and implementation of observer coverage for MSCDQ should be reevaluated.

A3.2.1.3 Observer Committee

The reconstituted Observer Committee held its first meeting in March 2000. Long-term issues of concern that were discussed were similar to those discussed by members of the AP, SSC, and full Council. These include: overall NPGOP funding issues, the SDM, fee program development, cost distribution, appropriate coverage levels by fishery, and observer availability and training requirements for CDQ and AFA observers. Some additional issues of immediate concern included rollover of the existing program which expires at the end of 2000 and the current omnibus regulatory amendment package which covers issues such as housing support for observers, sharing of plant observers, changing from monthly to weekly threshold to determine plant coverage requirements, clarification of definition of fishing day, and confidentiality of observer personal information.

The committee had a lot of discussion about costs and coverage needs. Some felt that the ability to pay needed to be de-linked from the scientific needs of the fishery, i.e. there should be a pooling of funds. However, others were concerned about the equity as well as controlling costs overall. The committee discussed the TAC set aside idea, being used by ADF&G to fund part of the crab observer program. Some worried that this would lead to another type of CDQ. Additionally, most felt that appropriate coverage levels to meet scientific needs had to be assessed, but it was equally recognized that such a comprehensive endeavor would take some time, and waiting for results should not limit making other needed changes to the Program.

A3.2.2 International Pacific Halibut Commission

The International Pacific Halibut Commission (IPHC) is a primary user of the data collected by the NPGOP, and relies on data being accurate and timely. Scientific staff identified several areas of concern with the Observer Program data collection efforts and made recommendations that they thought would provide improvements.[38]

As a prohibited species, monitoring of discards of halibut is a key function of observers. Data integrity is a serious concern to the IPHC, since they receive reports that presorting of prohibited species catch (PSC) is rampant. They perceive this is due to inadequate reporting (i.e. lack of affidavits), inadequate response from NMFS Enforcement to observer reports of presorting, and to actual, or the appearance of, conflicts of interest that is an outcome of the current service delivery model (vessel-observer company-observer relationship). The IPHC recognized that the Alaska Enforcement Division does not have adequate resources to cover all areas of its responsibility. If they could make some solid cases against vessels suspected of presorting, it may make a difference in behavior, but this has not yet happened.

Overall, the sampling design of the Observer Program is complex, entrenched, designed to maintain consistency from an earlier era, or is required to support ineffective regulations (e.g. VIP program). It is slow to adapt to changing regulations and needs such as the IFQ and CDQ programs, even though these occur on a year to year basis. An example of this is the requirement that processing and discarding of PSC from the factory hinders the survivability of PSC, and leads to very high mortality rates. If the discarding of PSC was allowed to be monitored on the fishing deck, time out of the water would decrease, greatly enhancing the survivability of discarded fish. The IPHC developed the Halibut Mortality Avoidance Program to investigate this, and they believe it showed that it eliminates presorting bias. The IPHC requested that sampling procedures change, but they were disappointed that the NPFMC did not approve this change.

These problems are likely due in part to inadequate resources and the need of the program to respond to the increasing demands placed on it. The Program does not have the opportunity to look ahead, plan for management and/or regulatory changes, and focus resources and personnel as needed.

A3.2.3 Alaska Department of Fish & Game

Staff at the ADF&G commented that they had suffered similar problems to the NPGOP resulting from the third party pay-as-you-go SDM. ADF&G has set aside part of the crab TAC to auction and raise funds for a test fishery (red king crab) using state-paid observers to go into effect July 1, 2000.

A3.2.4 U.S. Coast Guard, 17th District

The U.S. Coast Guard believes their presence acts as a deterrent to interfering with observers and their job, as well as a deterrent to harassment. High level officers do not hear about many confrontations or problems for observers while at sea from their staff, though they recognize such problems are brought up at Council meetings or other venues. In their view, problems are not

[38] IPHC staff biologists participated in the workshop held in conjunction with the October 1999 NPFMC meeting, and presented written comments to MRAG Americas dated October 11, 1999.

necessarily as prevalent as some perceive. Additionally they believe some problems may simply be linked to personality conflicts, stresses of a new environment (working at sea) and new job, rather than more direct or blatant harassment.

They recognize that while conducting boardings, the responses they get while questioning observers may be restrained. The observer is aware that the vessel's crew knows that he/she is being questioned, and may not answer completely truthfully, considering they have to continue to work side-by-side with crew members for the duration of the trip.

If a problem is noted either by the observer or others, they generally approach the master of the vessel to discuss the issue. If it is acknowledged that a problem occurred, it is noted in the boarding report and is sent to NMFS Enforcement. In 1998, two vessels were cited by the Coast Guard for failure to meet the required observer coverage; in 1999, one was cited for failure to have 30% observer coverage, another was cited for failure to notify the observer before haulback.[39]

The Coast Guard did have concerns with some of the new regulations that allow an observer to refuse to board a vessel that he/she may consider unsafe. This has not yet occurred, but there was concern as to who would have the final determination if this arises, the observer, observer company, NMFS Enforcement officer, or U.S. Coast Guard. The Coast Guard agreed that NMFS should be able to make such a determination, but only after there was input from the Coast Guard, which is the agency with the best training to make such a determination. Considering their minimal experience and expertise (generally speaking), observers should not have the power to make a boat stay tied up to the dock. Because such "power" can be abused by either side, a recommendation was made to use an adjudicator or some third party.

Likewise, the Coast Guard believes that many observers do not appreciate all the dangers that exist on fishing vessels and may not be sufficiently aware of safety issues. They advocated that observers spend more time in safety training beyond what is currently provided during the existing training course (specific components were not elaborated upon). Considering the logistics and possibilities, a minimum of a one day intensive course was recommended, with USCG participation if possible.

Finally, the Coast Guard suggested that a better balance may be needed while watching for other types of violations, such as those related to marine pollution. These should be of a much lower priority, as compared to the gathering of good fisheries data.

A3.2.5 North Pacific Observer Training Center

The observer training course provided by the North Pacific Observer Training Center (NPFOTC) in Anchorage has the same content and form as the training course run in Seattle. There is some contact between personnel of the two courses, which is generally made by phone. There is little opportunity for additional cross-over between the two courses due to time and staff constraints in both centers.

[39] USCG database. Personal communication, Feb 2000. LCDR Greg Busch, Seventeenth District, Technology and Communications Branch, Juneau. It was noted that the local database is currently not set up to search for the number of reports received or forwarded to NMFS. They are typically handled through direct message delivery.

Additional modules on conflict resolution and shipboard familiarization would be a useful addition to the course[40]. Observer sea-sense and general onboard safety was addressed and considered to be an important issue which could be specifically addressed by a requirement for candidates to have a certified sea safety course before taking the trainee course. Such certification would have to be kept up to date for the observer to continue to work at sea.

To those at the NPFOTC, Anchorage is the hub for observer movements. Further development of the resources in Anchorage would make sense to those at the NPFOTC and would perhaps enhance the relationship and cross-over with the NMFS course.

A3.3 Fishing Industry

The perceptions of the fishing industry towards the Observer Program were obtained through individual interviews and meetings and an open workshop that coincided with a Council meeting (October 1999, Seattle).

A3.3.1 Individual fishing companies/fishers

A3.3.1.1 Observer roles

Everyone agreed that gathering good quality scientific data was the primary objective of the observer program. Quality of data was considered more important than quantity of data. Many considered the other roles, the catch accounting functions, monitoring of bycatch of prohibited species and the enforcement role, as more ancillary, but to varying degrees. The confidence in data quality varies widely, depending on individual circumstances, if fishers use the data themselves, and/or contract others to monitor the data.

Most fishers understand that the current management system requires real time data, which is an accounting function. Having observers on vessels provides needed verification. This has become extremely important as fleet-wide management has shifted towards individual vessel management, such as with the CDQ and AFA programs. Yet the accounting is not only necessary for monitoring the fishery or for enforcement reasons, it is basic to science needs as well.

Some fishers described inconsistencies in how observers appear to view their role, and most fishers do not appreciate when monitoring and enforcement appears to be their primary focus. It is obvious that tensions are stressed when this occurs. Fishers understood the benefits of sharing vessel specific information that affects sampling, but the fact that observers have the opportunity to review other observer reports and compliance related information about individual vessels was not supported by the fishers. They felt this could unduly influence observers and potentially lead to biased sampling.

In the open meeting there was some discussion about how precise and accurate data need to be and how precise and accurate they actually are. Is “approximate” good enough in some cases, and might this be more cost effective for the program? One participant calculated that having two observers aboard MSCDQ vessels only increases coverage by 28% on his longline vessel.

[40] Conflict resolution has been added to 2000 training classes and briefings.

A3.3.1.2 Sampling issues

There are major concerns, particularly in the multispecies fisheries, with the species composition sampling. Scales and bag measurements are considered accurate, but there are concerns that species composition and counts of prohibited species are not. Data integrity was questioned when samples are not taken from different places in the net. Estimates determined by the observer do not always match well with the estimates of the vessel captain or crew. This leads to differences between production data and observer data. For example, NMFS Regional Office staff confirmed that on average, observer estimates are 9% higher than the Pacific cod production estimates provided by the longline catcher processors.

With regard to these discrepancies, those in the MSCDQ fisheries have suggested to the Regional Office that managers use the weekly production rate reports (weekly PRR) produced by the vessel, and use the bycatch data that are generated by the observer. Some even suggested developing vessel-specific PRRs. This issue is not yet resolved.

Other sampling concerns came from longliners as well. Some observers are very good and monitor two-thirds or the majority of a line being hauled. Others monitor only one-third of a line. Catch can be different on different parts of the line, therefore fishers believe extrapolations can be extremely inaccurate.[41]

Others had concerns about the correct application of sampling strategies. Some fishers would prefer to see observers working in tandem rather than separately trying to sample every tow. Fishers resent when they believe they see incorrect sampling and try to make suggestions, and are ignored by the observer, particularly if the observer is new. Additionally, there is a view that the Observer Program staff are not receptive to comments from vessel captains.

Vessels with motion compensated flow scales, particularly the larger vessels in the fleet (catcher processors) don't have the same problems and have much less concern about uncertainty in the catch data.

Overall, a lack of flexibility in sampling strategies was considered an impediment to improving the NPGOP. Some experiments with sampling strategies had been conducted with success, yet the OPO has not changed the sampling. The example presented several times was the proposed Halibut Mortality Avoidance Program, which used a grid over the hold to presort large halibut out on deck, versus in the hold. The method reduced halibut mortality, which in the long run, benefits all related fisheries.

Conversely, others who have recently recommended and conducted testing of alternate sampling designs on specific vessels have praised NMFS staff for being cooperative in conducting the tests. Results had not yet been fully analyzed.

A3.3.1.3 Observer coverage

With regards to the MSCDQ program, the rationale for requiring two observers aboard every catcher-processor vessel was questioned, as well as the need for observers to have special training. The problems that arose in 1999 in finding sufficient trained observers caused some fishers to miss days of fishing. Likewise, it was felt that the 90 day rule (observer contract limit) and

[41] It should be noted that these comments reflected a perception that more sampling is better, and were not comments on the random sampling design. Observers are required only monitor one-third of a set.

the recent lack of waivers has contributed to observer shortages. Other shortages occur for some sectors of the fleet when other sectors have a high demand for observers, such as during pulse fisheries, or at season openings (i.e. pollock openings).

Related to this are concerns that coverage requirements for the entire program are not well rationalized, even though most fishers realize coverage levels were determined by what was considered "fair" by the Council at the start of the program. The view was expressed that it was determined more by politics than science. There was some support for the recommendation that everyone who catches fish should pay for the observer program, regardless of the observer coverage they may individually receive. Since coverage is determined by size of vessel, there is an incentive to build new vessels just slightly shorter than 60 feet in length, below the current size limit for 30% observer coverage. Thus, a loophole exists, no observers are required, regardless of the volume of the vessel's landings.

Fishers expressed concerns that the vessels requiring only 30% coverage behave and fish differently when there is an observer on board. The system is susceptible to manipulation and data biases. Examples of methods that vessels employ were described, such as fishing closer to port rather than on "real" fishing grounds, and fishing overnight to be able to obtain an extra day observed, without really expending more fishing effort. Although such methods are not practiced by everyone, they were considered to be widespread in the fleet.

Some fishers recognize that if these loopholes were eliminated, and near real time data were used to manage the mixed species trawl fisheries, bycatch "hotspots" could be avoided, thus allowing target fisheries to stay open longer.

A3.3.1.4 Service Delivery Model

Fishers from some sectors see the need to move away from the current model and towards something similar to what was proposed in the Research Plan to better support the science needs, as well as to establish some distance between the observer companies and the industry. They recognize that the North Pacific groundfish fisheries stand apart from those in other regions. The fisheries are doing much better than in other regions, and having the observer program has provided good data and can be regarded as a hallmark of a good fishery, something perceived by the public as well. Even though problems exist, having the program is thought to be significantly better than not having one.

During the development of the Research Plan, the idea that coverage should be determined by scientific needs was supported, and in general, there was agreement that collection of 2% of gross landings was a fair assessment. What was expressed as some of the industries' concerns included who exactly needed to be included in the calculation. Industry worried about potentially losing flexibility in the program, and not being able to get an observer when they were needed. Additionally, industry requested more individual catch accountability in the program, and there were serious concerns over how supplemental observer needs would be financed (i.e. special projects; who would pay and how much).

A3.3.2 Community Development Quota (CDQ) Groups

Representatives of the CDQ Groups complained that the observer coverage requirements for MSCDQ fishing (two observers) is excessive, and it was often difficult in 1999 to obtain two observers with the required MSCDQ training. They described examples of vessels losing several days to one week of time at sea, due to shortages of observers. They recognized that 1999 was

the first full year of implementation, but CDQ Groups in conjunction with the observer companies, explained that they predicted that a shortage of trained observers would occur. One representative suggested that all observers should be required to be MSCDQ trained, so such shortages would not happen again. They were concerned that availability in 2000 might be worse, since trained observers were doing special work in Cook Inlet, and there was the potential of the West Coast observer program getting initiated, both of which might siphon observers away from the NPGOP.

CDQ Groups are not clear why 100% observer coverage of fishing activity is required on all the vessels if a statistically valid sampling strategy is employed. Some understood how vessels fishing for flatfish can have wide fluctuations between hauls, thus necessitating 100% coverage, but they argued that conditions are different on vessels in other fisheries. One representative could not understand why CDQ iceboats that are longlining are required to have two observers on board all the time, while similar longline vessels fishing under an IFQ are only required to have an observer on board for only 30% of the time.

Although they dispute the need for two observers, CDQ Groups recognize that their ability to access data quickly is directly a result of the Observer Program. Most of the CDQ Groups hire outside data contractors (see Section A3.4.3) to help monitor and manage individual fishing vessels, watch quotas, bycatch, etc. They are pleased with the ability to monitor their data daily through the web-based system designed by the OPO, and it allows them to fish their whole quota successfully for the most part. Data access has been very good and fast, although occasionally small glitches have occurred.

The CDQ Groups have been concerned with problems of discrepancies between the weekly production report amounts that they submit to NMFS and those generated by the observer, and have requested that the NMFS Regional Office use the vessel generated data and not that from the observers.

Representatives of the CDQ Groups mostly stay in contact with NMFS staff in the Regional Office and not staff in the OPO.

A3.3.3 Data contractors

Overall, the data contractors hired by industry to monitor catch data gave credit to NMFS for establishing a good data management system, and for handling the volume of data successfully. Data contractors study the data daily, and considered the data quality to be good. Overall, it is very rare that data appear unreasonable or data points out of place. Only occasionally are small errors noted. The feedback loop is relatively fast through the web access. The only areas where there was considered to be room for improvement was in the species composition sampling, and halibut viability data is “spotty” (i.e. not always taken).

Additionally, the data contractors reported good working relations with the OPO and Regional Office staff, and considered them very responsive to their inquiries.

Data contractors work directly with industry and although they used to hear complaints from vessel captains concerning observers, over the last two years, complaints have been much fewer.

Data contractors felt that the VIP program had caused NMFS major problems, and was now statistically indefensible.

A3.4 Observers and observer organizations

A3.4.1 Observer companies

There are more demands being placed on the observer program than before, and therefore on the observer companies as well. The combination of pulse fisheries, the politics between fishing groups, and demands for more data has led to increased pressure on the NPGOP.

Retention of observers is a problem recognized by all observer companies. Although some observer companies did not consider initial recruitment to be a major problem, others did. The recruitment process is lengthy and one observer company reported a success rate of only one recruit for every 15 inquiries in 1999.

It was the general opinion of observer companies that the favorable job market was contributing to a shortage of observers. Although some candidates are excited about working at sea out of Alaska, one cruise is often enough to satisfy their curiosity. It was thought that new college graduates and ex-observers can find similarly paid jobs closer to home with less hardship. Although there is good loyalty among returning observers, some observer companies estimated that approximately 40% of observers do not return after their first cruise (contract period). Others projected these estimates at 45 - 50%.

The qualification criteria set by NMFS were considered to be appropriate, and there was little support among observer companies for refining or strengthening the criteria, such as with an entry test (for math, fish identification, computer skills), primarily due to the lack of candidates.

Observer companies considered the observer training course structure and content to be appropriate as well. There was support for the idea of incorporating conflict resolution into the general training (it had been included in the MSCDQ training, and is part of regular training as of 2000), as well as a visit on a fishing vessel for a practical session. Some concern was voiced over a lack of professional teaching qualifications among the trainers of the Observer Training program.[42]

Observers in four of the five companies have unionized, and there were varying views on the Union and whether it has affected the program significantly. Some observer companies felt it had. Due to increased wages, observers could now afford to take longer seasonal holidays, and one observer company considered this to be one cause of the current observer shortage.

A number of concerns were voiced over the CDQ program. The advanced training required for CDQ observers, and the lack of personnel with this training made it very difficult in 1999 for both observer companies and industry to satisfy the CDQ observer requirements. Some were concerned that observers perceived the debriefings to be more detailed and difficult than regular debriefings, thus they saw no real benefit to attain CDQ certification. As it is currently constituted, the observer companies do not believe the CDQ program is sustainable because of these major problems. Some problems are thought to be due in part to a lack of constructive communication or discussion between the various NMFS' offices. Finally, the current situation, which required placement of experienced observers on CDQ vessels, resulted in new observers being placed on "difficult" vessels, something that could potentially affect data quality. In essence, they felt it took some of their flexibility away, and didn't allow them to make the best placements based on their expertise and the observer's experience.

[42] The OPO has training staff with teaching credentials.

The relatively recent refusal to allow any extensions or waivers for individual observers to allow them to work briefly past the 90 day and/or four vessel limit concerned observer companies, as well as some observers (see Section A3.6.1). In the past, waivers were provided on a case-by-case basis, and from the observer companies perspective, were requested in "common sense" situations. For example an observer may have one week remaining under a contract, is willing to work, yet the only vessels going out expect 12 or 14 day trips. That observer is not allowed to work during the week left on their contract, they lose pay, and the observer company may or may not be able to find an alternate. Some feel it is a no-win situation for those involved, and exacerbates the problem of observer availability (see observer comments below, some contrary to these).

Communication between the Regional Office, the OPO, and the observer companies has been very poor at times, and is viewed as a major hindrance to an effective relationship between all parties. The observer companies noted that there has been some recent improvement in communications and liaison, however management at the OPO and Regional Office was considered to have become very bureaucratic. The problems with the CDQ program in 1999, brought a lot of problems, frustrations, and the pressures felt by all parties to the surface. Similarly, the observer evaluation process, though it has improved, was viewed as still lacking consistency and objectivity.

Some observer companies discussed the current SDM, and acknowledged that they would like to see changes that allowed NMFS more contractual control of the NPGOP and the relationship between the industry and observer companies. They believe that structural changes are necessary to alleviate some of the program's problems. They would support this aspect of the aborted Research Plan. Yet they are cognizant that this was a Council decision, and a process that is politically charged. The JPA was not considered suitable due to an increase in bureaucracy, and appeared to be unfair to certain parts of the fleet.

A3.4.2 Individual observers

The comments in this section are based on a meeting held with individual observers in Seattle[43], from conversations that team members had with other individual observers, and email received. A survey was mailed to current and inactive observers and the results of that survey and the questionnaire (survey tool) used are presented in Appendix 4.

Most people that become observers are interested in the job to get field experience and for the adventure. Those that met directly with MRAG Americas first considered themselves as data collectors, not as compliance officers. They enjoyed the special science projects; the science experience is the reason they pursue this work. NMFS does not emphasize the compliance role as much as they should, but it is this role that is sometimes perceived as their primary role by the fishers.

In general, the observer training program was considered to be very good. Yet some observers, particularly new ones, don't clearly understand how the data are used. The same holds true for many of the fishers. Sometimes sampling priorities are not completely clear. When sampling is compromised by lack of time, often species composition data are affected. In some cases, such as at some processing plants, the speed of the operation (amount of fish pumped in) is so fast, it is impossible to collect data effectively.

The observers experience a lot of covert interference. Captains and crew push the limits, and often "test" the observer, which is essentially interfering in a covert fashion. Observers hear comments

[43] Most of these observers had several years of experience; one had less than one year of experience.

from crew members such as “the last observer did it this way....” or “those data are not going anywhere....it is useless.” Essentially it appears that the crew members are trying to undermine or erode the observer’s confidence in how they are doing their job. Experienced observers know how to deal with this, whereas new observers can be more easily affected.

Observers reported being refused by vessels because they had filled out affidavits in the past. Systematic pre-sorting was also reported as being witnessed on some vessels. When such acts are witnessed, there have been occasions when the vessel Master has directly threatened the observer or announced they would deny everything and lie if the observer attempted to report the incident. Observers believe that the penalties for such acts are so low they are not a deterrent, and most of the time the pre-sorting is infrequently caught.

The observers recommended that the NMFS have more open dialogs or forums with industry as a whole (including fishers, processors, buyers, sellers) to try to alleviate some of these problems.

Vessels that are only required to have 30% coverage fish differently when an observer is on board. This comment also came from some of the fishers themselves (see Section A3.3.1.3) and former observers who now work as crew.

With regards to the MSCDQ program, considering the extra burden of the training and responsibilities aboard the vessel, some observers were displeased that they would not receive a higher pay rate if they became certified (some would; one observer company reported paying $10/day more during an MSCDQ fishery, another was reported to be paying $250/day). The observers attributed many of the 1999 problems to a lack of planning on the part of vessels. Many observers had left Alaska prior to when most vessels began targeting an MSCDQ fishery, since these are prosecuted when open access fisheries close.

Lack of trust is a big issue. Observers perceive that OPO staff do not trust them to be doing a good job. Several observers commented that questions about the observer cadre that they kept hearing about, have gone unanswered. It epitomizes the problem. Lack of information has led some observers to fear the cadre, believing that their own jobs are in jeopardy of disappearing.

Debriefing is definitely a major area of contention. Observers constantly feel like they are defending their data, having to justify them, and that they are not trusted by the debriefers. Observers perceive that there is a lack of trust towards the fishers and it spills over to the observers. Debriefing is considered a weak link between the OPO and the observer. Since the majority of observers in the meeting were somewhat experienced (been observers for several years), they noted how seeing a film in their briefing of the one observer who had been sent to jail was not helpful in building trust. It made some observers paranoid from the start (it has been noted it is not shown anymore). When debriefers had no actual or recent experience aboard vessels or as a prior observer, it made debriefing extremely difficult.[44] There is a lack of consistency between debriefers when it comes to observer evaluations. This is seen as extremely unfair, particularly since observer pay is sometimes tied to their evaluation score (depending on which observer company they work for).

Having the ATLAS system has provided many improvements to the NPGOP, since questions or problems can get answered early in a cruise. But questions do not always get answered. More vessels having ATLAS in the future is supported by observers.

[44] According to the OPO there are now no debriefers who were not previously observers.

Having a practical session aboard an actual vessel during training would help to build confidence for new observers. With regards to annual briefings, most felt four days was much too long, and it could be handled in two. The fish identifications test was considered very important and a good exercise. Additionally, many thought the MSCDQ training could be added into the regular training.

Other issues cause mistrust and/or resentment from the fishers, captains and crew. Many of the crew's paychecks show a deduction as the "observer fee," so naturally they question the need of the observer, which appears to directly affect their pay.

Observers felt that the OPO needs to do a better job at holding the observer companies to required standards. Some long-time observers reported that if the Union had not gone through, they would have quit some time ago. Pay has obviously improved since the Union became involved.

There is certain information that observers require when on new vessels, such as measurements (net) and the deck layout. Rather than each observer having to go around and measure spaces, some of this information should be made readily available for the next observer. The information could be verified by NMFS and stay on the boat.

A3.4.3 Association of Professional Observers[45]

The APO believes the current service delivery model is flawed for several reasons. The first is the concern that there is a lack of observer company oversight by NMFS. Even if observer companies do not comply with the conditions of their certification, and there appears to be justification for decertification, this has never occurred. They felt the NMFS evaluations of the observer companies did not adequately assess the observer company's performance.

The APO suggests there are three possible solutions to help increase accountability:

- Implement a strategy similar to the Research Plan such that observer companies work for NMFS and not individual fishing companies;
- Maintain status quo but implement a no-cost contract with observer companies that require biannual reviews; two poor consecutive reviews would result in decertification; and
- Eliminate observer companies and make all observers federal employees.

The second reason is that the ability to place observers based on data needs is inadequate. The Observer Program has no ability to fill in data gaps, provide agency scientists with the appropriate data needed for some species' stock assessments, and the 30% coverage rule for small vessels allows for manipulation by the vessel, rather than random sampling. The APO supports how the Research Plan proposed to remedy this problem.

Like the observer companies, the APO has concerns about the consequences of the MSCDQ guidelines. Since the MSCDQ requires prior experience, experienced observers are sometimes "locked up" on the MSCDQ (and AFA) vessels, which often involve easier sampling conditions, while inexperienced observers are forced on vessels with more challenging conditions. There is a concern that data quality is adversely affected by these guidelines for the open access fisheries as a whole, rather than improving it.

[45] The APO have outlined their concerns with the interim Observer Program and submitted their recommendations formerly to NMFS in two letters, a September 28, 1999 letter to Dr. Daniel Ito, NPGOP Task Leader, and a February 5, 2000 letter to Mr. Steve Pennoyer, Regional Administrator, Alaska Region.

The APO agrees that the 90 day/four vessel limit per contract (or cruise) is needed, however, the refusal to allow some flexibility in the form of waivers forces observers willing to work to lose opportunities, and the system potentially loses good data collectors. Additionally, the frustration it causes leaves the observer with a negative view of NMFS. The APO recognizes that there may be concerns that the observers are being taken advantage of, or forced to work when they do not wish to. Therefore, they encourage a relaxing of the 90 day/four vessel rule with a requirement for the observer to contact NMFS directly to alleviate such concerns.

A further concern is that the Alaska groundfish observers are not covered by the Service Contract Act (SCA) wages, which is one outcome of the fact that observer companies do not have a direct contractual relationship with NMFS, but rather with the fishing industry. In their view, the failure of Research Plan to alleviate this problem was one reason observers unionized. Efforts to improve wages would be better resolved if SCA wages applied to the observers in the North Pacific, regardless of the contractual arrangements. To work towards this end, the Alaska Fisherman's Union has filed a petition with the Department of Labor asking for a wage determination, but the Department has not yet responded.

Other concerns involved a lack of a clear protocol when vessel safety concerns are raised, lack of equity for observers in the decertification process, and reported distribution of personal information about observers to industry by observer companies.

Finally, a long history of mistrust between observers and the Observer Program exists and is not healthy for the program, and the APO believes that similar mistrust exists between observer companies and NMFS. Observers are wary, and sometimes even paranoid, to discuss sensitive issues with NMFS staff. The proposed Observer cadre may help this situation, but more is needed. Having monthly discussion groups for observers and staff in a non-threatening environment was suggested.

The APO presented a series of recommendations to NMFS managers and the review team to utilize the cadre to positively improve the program:

- Use the cadre to help eliminate the mistrust between observers and the Observer Program. Diplomacy among the cadre will be paramount to its success.

- Ground-truth observer methods. Send cadre out with current observers to work as a team, sample concurrently or independently and make comparisons. Such quality control will build reassurance that sampling is done accurately, data are of good quality, and will quickly identify if any problems do exist. Performing a pre-season review on each vessel by a member of the cadre and an assigned observer will review specific vessel sampling possibilities and NMFS' preferences.

- Conduct mid-cruise reviews on board the actual vessel.

- Build a bridge between Resource Assessment, Conservation, & Engineering (RACE) and the NPGOP. Much valuable information is not shared between the groups. Observers will be more enthusiastic about the data collected if they understand who is using it and to what extent.

- Conduct industry outreach. Hold pre-season meetings with captains and crews in major ports to discuss the Observer Program, it's goals, expectations from the crew, etc. Also, it may be possible to involve the crew with pre-season sampling review on each vessel. Crew members frequently have useful suggestions but do not always have the motivation or opportunity to pass the information along.

- Perform a post-cruise interview with vessel captains similar to that conducted by ADF&G.

- Provide supplemental coverage on 30% vessel or vessels which do not currently carry observers. The cadre could be a partial solution to filling data gaps (mentioned above).

Finally, neither the APO or the AFU are currently allowed to make a brief introduction to observers during training. The APO believes that allowing for such interaction could be helpful to new observers, by utilizing the collective experience of prior/current observers.

A3.4.4 Alaska Fishermen's Union

The Union representative was in attendance at the meeting that MRAG Americas team members had with observers, as well as the large group meeting that was held in conjunction with the October 1999 Council meeting. Comments and concerns of the Union are adequately covered in the preceding sections.

A3.5 Non-governmental organizations

A3.5.1 Alaska Marine Conservation Council

The Alaska Marine Conservation Council (AMCC) has been frustrated that prior efforts to remedy problems with the interim Observer Program have not made any progress, although issues get discussed continually. They believe there are fundamental flaws in the existing Observer Program SDM, in particular that industry has direct contractual arrangements with observer companies, and vessels smaller than 60' are excluded from the program. The potential for conflicts of interest need to be removed, so that data integrity can be restored.

They support industry paying for the Program, but agree that the pay-as-you-go system is unfair to sectors of the fishing industry. They believe that to increase broad-based support for the program requires moving to a fee based system.

Ultimately they see the responsibility for making the necessary changes as the responsibility of NMFS, rather than the Council, although it appears that NMFS has abdicated this responsibility. A new system must have clear objectives and guidelines.

A3.5.2 Other non-governmental organizations

Other non-governmental organizations actively participate in different aspects of fishery management in the north Pacific groundfish fisheries. However, they have not been very actively involved in the issues that have surrounded the Observer Program to date. Of the groups contacted (i.e. Greenpeace, Center for Marine Conservation, American Bird Conservancy, Sierra Club) their comments were limited. There was agreement that conflicts of interest must be removed through changes in the SDM, and that both the science and compliance monitoring were essential components of the Program.

Appendix 4. Observer survey

A mail in survey was used to gather further input from observers (see Section 2.2.5). Surveys were returned by a total of 107 former and current North Pacific groundfish fishery observers. All responses were entered into an MS Access database designed specifically for this project. The following is a preliminary presentation of the responses. Within the scope of this project it has not been possible to undertake a comprehensive statistical analysis of the data.

Responses to each question are described below. Not all respondents answered every question. Where the number of responses to a specific question is different from 107, it is indicated.

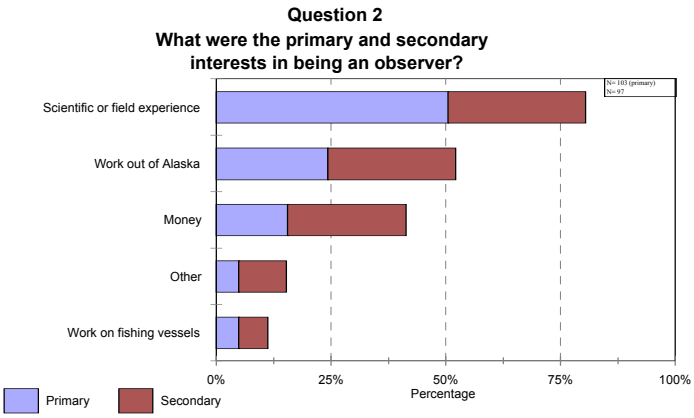
The survey questionnaire is provided at the end of this appendix.

A4.1 Survey results

a. Becoming and observer

The first section (questions 1 - 4) asked questions on how the respondent became involved in the observer program. The largest portion (35%), said they originally learned about the observer program and observer jobs through an announcement at college. Other respondents learned about the program from advertisements in papers or magazines (25%) and some (14%) specified other sources. Of those who chose "other," 7 of 15 respondents referred to the Internet.

On question 2, respondents were asked to chose their primary and secondary reasons for their interest in being an observer. Most respondents (50%) said the primary reason for their interest was for scientific or field experience, 24% wanted to work out of Alaska and 15% were interested because of the pay. Secondary reasons for their interest follow closely, with the largest portion choosing for scientific or field experience (30%), followed closely by an interest in working out of Alaska (27%) and earning money (25%).



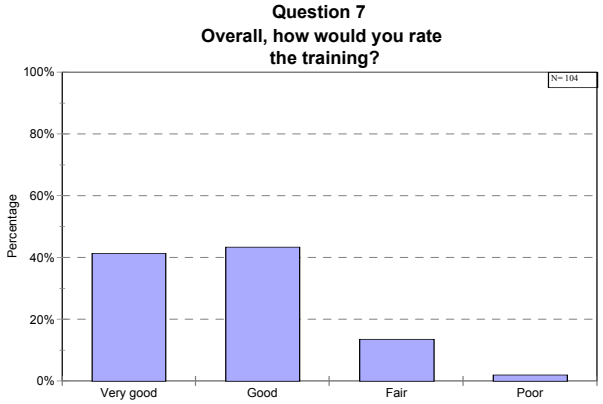
Question 3 asked for a "yes" or "no" response. A very large majority of respondents (72%), said that the observer pay level was an attractive incentive to first becoming an observer and only a minority (27%) stated that the pay level was not an incentive.

Job interviews for almost all respondents were conducted over the telephone (89%, question 4), with very few (6%) having a personal meeting or conference call (1 of 104 responses). Two individuals responded "none of the above," and one individual could not remember having an interview.

b. Observer Training

The second section (questions 5 - 9) asked about observer training and briefing. The majority of observers that responded (62%) were trained in Seattle, and the remaining individuals (37%) were

trained at the Observer Training Center (OTC) in Anchorage. The vast majority also rated the overall training as either "good" (43%) or "very good" (41%), while only 13% considered it "fair" and a negligible amount (2 responses, or 1.9%) considered it "poor." When asked how well the training prepared them, answers correspond to the quality of the training; nearly half (45%) considered it "good," 41% answered "very good" and only 2 responses were "poor."

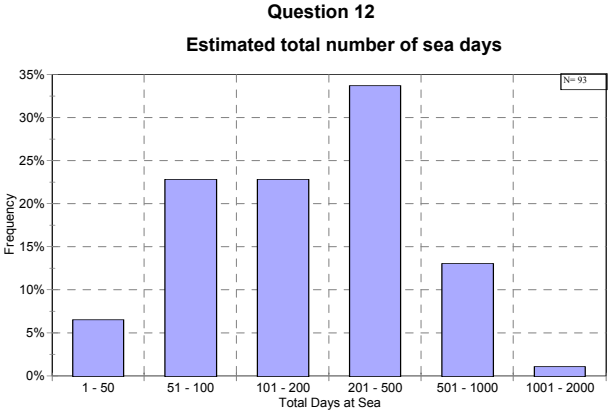


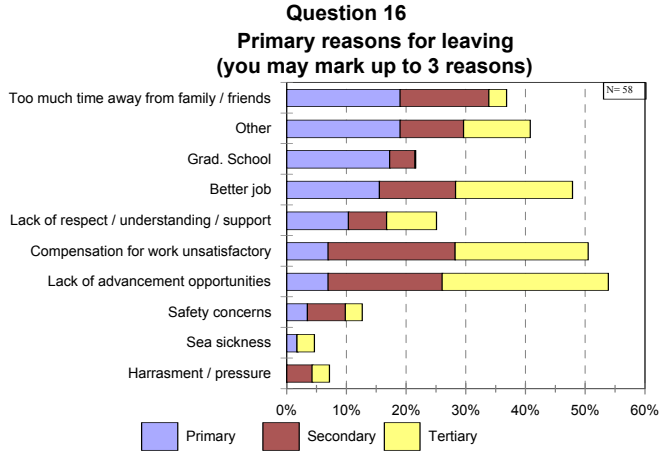
Sixty percent of the observers were briefed in Seattle, and 39% at the NPFOTC in Anchorage. Nearly half of the respondents (42%) rated the overall briefing as "good," 29% said it was "very good," and a minimal amount of (4%) claiming it to be "poor." When asked how well the briefing prepared them, answers also corresponded to the quality of the briefing, as nearly half (48%) responded "good," 20% answered"very good," and only a few (3%) answered "poor."

c. Work history

The third section of the survey asked the observers about their work history (questions 10 - 20), and if they no longer worked as an observer, why they left, and what they did now. Over half (63%) of the respondents were former observers and do not currently work as an observer while 36% considered themselves current observers.

The majority of respondents (37%) had worked only 1-2 contracts, 23% worked 3-5 contracts, and 30% worked 6-10. Approximately 22% of the observers estimated they have worked 51-100 sea days, and another 22% have worked 101-200 sea days. Nearly one third (33%) estimated their total sea days to be between 201-500 and 13%) have worked 501-1000 sea days. Only one respondent said that he/she had worked between 1000-2000 sea days.





For Question 13, the majority of respondents (90 total responses) felt that the maximum contract length of 90 days was appropriate (71%). Only 11% felt the 90 day contract was too short (half of these prefer contracts up to 120 days), and 18% felt contracts were too long. Of the latter, the majority (11 of 15 responses) preferred 60 day contracts.

Of the 58 responses that indicated they no longer work as an observer, the survey asked them to chose up to three reasons for leaving, in order of priority. Eighteen percent

indicated that the primary reason for leaving observer work was “too much time away from family and friends,” and another 18% checked “other” reasons. Attending graduate school followed closely behind with 17%, 15% left for a “better job,” and 10% chose the “lack of respect/understanding/ support for my work.” For this latter option, respondents where asked to list “by whom” and responses included NMFS (9 responses), observer companies (2), industry (2), the observer program (1), scientific agencies (1) and debriefers (1). Specific comments offered by respondents who answered “other” included references to observer work being too difficult for too many hours, or boredom resulting from the required routine observer duties. Health reasons were also mentioned, describing the vessels as too isolating or citing lack of physical exercise as a concern. One respondent also claimed that their certificate had expired. Respondents indicated secondary and tertiary reasons as well.

Question 17 asked (yes or no) if there were any incentives or changes in the program that would encourage their return to observer work. Of the 62 total responses, just over half of the respondents (54%) answered in the affirmative, and 45% said there were no incentives. Of the 33 that answered positively, the majority (20) cited an increase in observer remuneration as the incentive they would require. Seven indicated that the problem was also the lack of respect and trust with which they were treated when they were observers.

Thirty eight percent of prior observers said that their current employment is still associated with fishing in some way, and 61% said it was not. If they said yes, they were asked to indicate what type of work they do. More than half (56% of 23 total responses) chose the category “scientific - government” as the one which most closely describes their current employment. Nearly one quarter (21%) chose “scientific/research- academic/university,” 8% work with the fishing industry (“active fishing/processing plant”), 8% work in “marine/environmental conservation,” and 4% are involved in enforcement. No respondents chose the category “fishing industry- management and support services.”

Question 20 asked respondents if they no longer work as an observer, nor in a job related to fishing, to indicate the category which most closely describes their current employment. Twenty- six percent of the 45 total responses answered “science/resource management”, 24% pursued graduate school, 20% checked “other,” 8% responded “medicine,” 6% answered “education,” 6% said “retail,” 4% said “computer/software development” and very few (2%) responded “business/banking.” Of the 20% who responded “other,” no trends are evident. Written comments included that they now work for “industry,” “the military,” “social work,” “engineering and surveying.”

d. Prior Experience

The fourth section of the survey (questions 21-26) asked about prior experience of the observers, including major in college, experience aboard sea-going vessels and types of vessels, field sampling experience and possible work in other fisheries. Of the respondents surveyed, most observers (60%) had college degrees in Biology/Zoology, 19% in Marine Science, 18% in “other natural science” and only 2% said “other” majors.

Responses were fairly equal regarding prior experience aboard sea-going vessels (question 22). Nearly half (47%) answered that they did have experience aboard sea-going vessels prior to working as an observer, and slightly more (52%) said they did not have experience. A comparison of those respondents with sea experience and the dates in which they were last trained shows that the vast majority (76%) were trained during the last four years (28% in 1999, 18% in 1996, 10% in 1997, and 10% in 1998). Another 10% were trained in 1995, and 20% were trained between 1990 and 1994. Additionally, a large majority (72%) responded that they did have field sampling or field research experience prior to working as an observer (question 24).

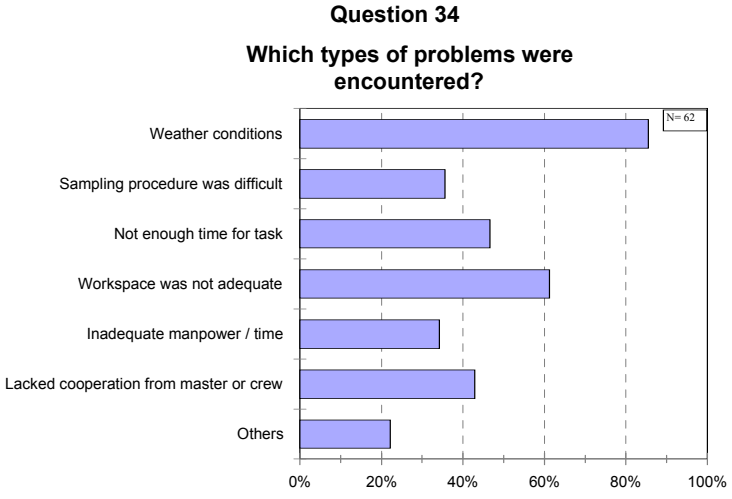
Only 25% of respondents had experience working in other observer programs. Of those, 33% worked in ADF&G crab/shellfish, 11% in "MMPA in Alaska," and 55% answered "other fisheries." Overall, the majority of observers with experience in fisheries other than the north Pacific groundfish have worked approximately 51-200 total days at sea.

e. Experience Aboard Vessels and Shoreside

The fifth section of the survey (questions 27-34) asked respondents about their experiences aboard vessels and at shoreside plants, to indicate what they considered the most important tasks, if they had enough time to complete these tasks and if they had any problems which made completing these tasks difficult.

In question 28 respondents were asked to indicate their most important tasks in order of priority (1-4) while working on vessels or shoreside. A majority (75%) said that "providing in-season reports of total catch and species composition was the most important," 14% answered "collection of biological data," and only 4% each responded "sampling for bycatch of prohibited species" and "monitoring the activities of vessels for violations of regulations" (these are discussed in more detail in Section 3.2.1.2, of the main report) Responses were similar while working at shoreside plants. Of the 43 total responses, more than half (60%) indicated "in-season reporting" to be their most important task, 20% chose "collection of biological data," 13% responded "sampling for bycatch of prohibited species" and only 2% answered "monitoring the activities of vessels for violations of regulations."

When asked if respondents had the proper amount of time to complete their tasks while either on longline/trap vessels, trawl vessels or at shoreside plants, overall, the majority of the respondents said they had the right amount of time or more than enough time (question 23). However, for both longline/trap vessels and for shoreside plants, 19% said they "did not have enough time," and 28% answered they did not have enough time on trawl vessels.



An overwhelming majority, (87%) responded that they have encountered problems aboard a vessel that made carrying out their responsibilities difficult (question 33). Respondents were asked to check all selections that applied for this question. Of those who answered yes, problems included "weather conditions" (85%), 60% answered "inadequate work space," 46% responded "not enough time for the task," 42% said "lack of cooperation from the master or crew," 35% said that "the sampling procedure was difficult" and 34% said "there was inadequate manpower and time."

f. Work Experience Overall

The sixth section of the survey (questions 35-42) asked respondents about their degree of satisfaction working with different Observer Program stakeholders and membership in observer

organizations. Half of the respondents (50%) said that they were a member of the Alaska Fishermen's Union and 42% said they were members of the Association for Professional Observers.

Responses to the observer survey indicated a reasonable level of satisfaction amongst the observers with the level of support provided by observer companies (see Section 3.6.1 of the main report). Sixty-six percent of observers indicated that their level of satisfaction was good, and a further 27% were adequately satisfied. The same question was asked for NMFS. In this case only 37% had a satisfaction level of good; 45% were adequately satisfied and 18% were poorly satisfied. Only 2% of respondents were poorly satisfied with the level of support provided by the fishing vessel master and crew.

g. Observer Debriefing

Questions 43-66 concerned the observer debriefing process, the treatment of observers by observer program staff, the observer evaluation system and affidavits. Respondents were also asked about sampling interference from harassment, intimidation and pressure and the influence of problems on the reporting of information. Debriefing responses are depicted and discussed in Section 3.6.1.2 of the main report.

When asked if they had ever filled out an affidavit for a fishing violation or infraction, about half (53%) said they had and 46% answered that they had never filled one out. A great majority (88% of 54 responses) said they were unaware of the outcome (disposition) of their affidavits while a small group (11%) said they were aware of the outcome. Of those who were unaware, 73% are interested in knowing the outcome of these affidavits.

Respondents were asked if they had ever been intimidated, pressured, harassed or had their sampling interfered with in a manner that effected the quantity or quality of their work (question 58). More than half (57%) said they had not and 42% answered that they had had their work effected in these ways. Of those who were affected, more than half (65% of 43 responses) said they had not filled out an affidavit(s) for sampling interference, intimidation, harassment, or any similar activity. Only one third (34%) had filled out an affidavit(s).

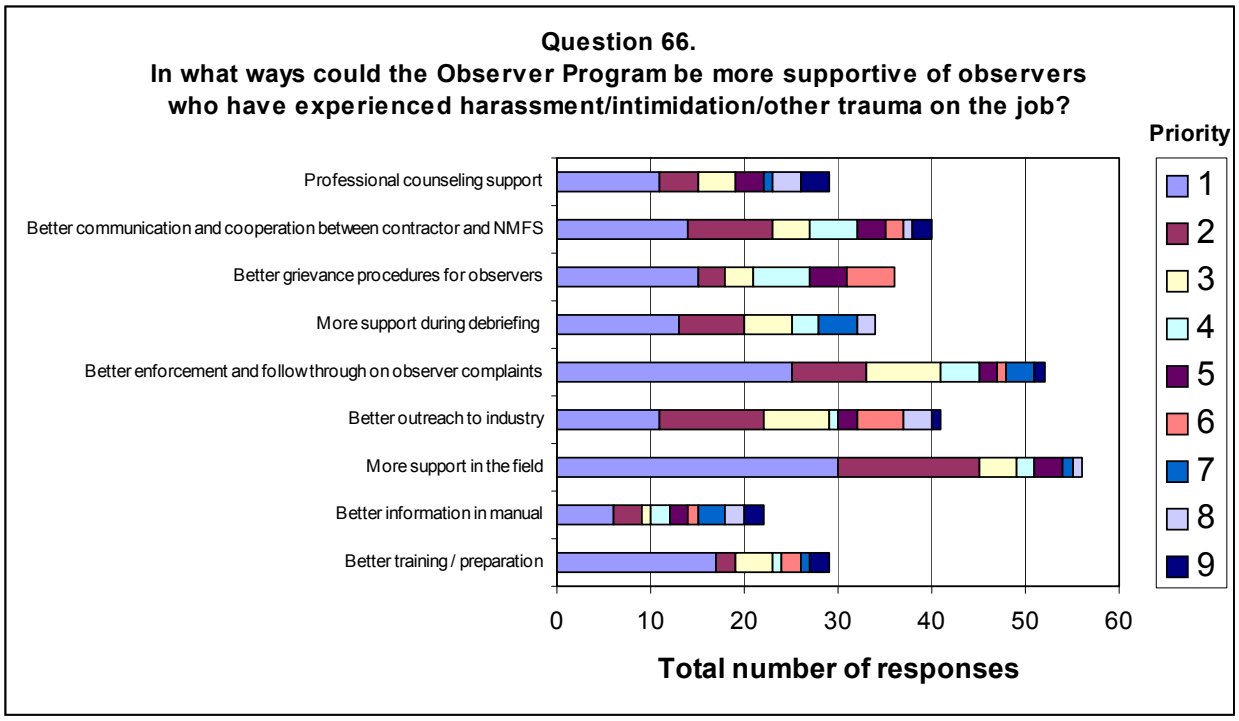
Respondents were also asked if they had concerns that information which they share with the observer program may be accessed by the fishing vessel or fishing industry. Only 29 responded, of which 72% said that this did not affect their reporting of information; 27% said that it did affect reporting.

Finally, the questionnaire asked in what ways could the Observer Program be more supportive of observers who have experienced harassment/intimidation/other trauma on the job (question 66). Nine options were provided and observers were asked to indicate which options they considered to be the most important, by numbering them (one to nine). Several observers just marked crosses next to those options they considered important. For the purposes of data analysis it was assumed these observers considered all of their selections to be equally important and they were allotted priority one. Twenty one out of a total of 107 respondents did not indicate any ways that the Observer Program could be more supportive of observers who had experienced harassment, intimidation or other trauma. The results are plotted in the following graph.

Observers were also asked to list any ways other than the nine options provided. Fourteen observers provided additional answers. In summary these covered issues of:

- better information and mentoring for new observers (including training in conflict resolution);

- improvement in the debriefing and evaluation process;
- establishment of clear rules, and consequences for breaking them, for vessel masters and crew when dealing with observers;
- better communication with vessel crews;
- reduction in the enforcement role for observers; and
- development of a process by which observers can discuss their experiences without fear that the information provided will be used against them.



A4.2 Survey questionnaire

The survey questionnaire distributed to observers as part of this review is presented on the following pages.

November 1999

Hello,

MRAG Americas Inc. is conducting an in-depth, independent review of the North Pacific Groundfish Observer Program. The purpose of this effort is to determine whether the overall program is meeting its goals and objectives, and if it is not, to make recommendations for changes so that objectives can be better met.

As part of this effort, we are working to reach as many stakeholders (individuals and groups) involved in this observer program as possible. The input of observers, like yourself, is critical to our effort. Therefore, developing a mail survey appeared to be one of the best mechanisms to get this needed input from both ***current*** *and* ***past*** *observers.*

I realize you may not like surveys. But I can't stress enough how important your honest and thoughtful feedback will be as we develop our recommendations. You may have seen reference to this survey and our review effort in a newsletter of the APO, or in one of the past North Pacific Fishery Management Council mailings. We have worked hard to make this survey as thorough, unambiguous, and objective as possible, and it has already been reviewed by several observers.

Therefore, please grab a pen and make yourself comfortable. We estimate it will take you approximately 20 minutes to complete this survey. If you wish to add comments, there is extra space at the end, or use an additional sheet of paper, remembering to reference the specific question number.

You may receive two copies of this survey if we had two addresses for you, due to our attempt to reach as many of you as possible. Please only fill out one survey, and feel free to give extra copies to other observers who may not have received one.

Please mail or fax this survey back to the address/phone number below as soon as possible, preferably by December 10. We will accept surveys after this date, but no later than December 17.

MRAG Americas, Inc.
5445 Mariner Street, Suite 303
Tampa, Florida 33609-3437
Fax: 813-639-9425

If you have questions, please feel free to contact Heidi Lovett at 813-639-9519 (we can call you back so you do not incur charges), or via email at HeidiLovett@compuserve.com. Thank you for your time and input.

Sincerely,
Heidi Lovett, Projects Manager

NPGOP Observer Survey - Nov 1999

All answers are provided in strictest confidence

A. BECOMING AN OBSERVER

1. How did you originally learn about the observer program and observer jobs? (Check most appropriate answer)

   a. _____ Friend
   b. _____ Announcement at College
   c. _____ Advertisement in paper, magazine
   d. _____ Word of mouth
   e. _____ Prior observer
   f. _____ Other (Please specify)_____

2. What were the primary and secondary reasons for your interest in being an observer? Please write 1 and 2 next to your choices.

   a. _____ Work on fishing vessels
   b. _____ Work out of Alaska
   c. _____ Scientific or field experience
   d. _____ Money
   e. _____ Other (Please specify)_____

3. Was the observer pay level an attractive incentive to first becoming an observer ?

   a. _____ Yes
   b. _____ No

4. How was your job interview conducted?

   a. _____ Over the telephone
   b. _____ Conference call
   c. _____ Personal meeting
   d. _____ None of the above
   e. _____ Other (Please specify)_____

B. OBSERVER TRAINING

5. When were you last trained and last briefed as an observer (list month/year):

   Training _____/_____ Briefing _____/_____

6. Where were the training and briefing conducted? (Check)

	Training	Briefing
a. Seattle	_____	_____
b. OTC, Anchorage	_____	_____

7. Overall, how would you rate the training and briefing?

	Training	Briefing
a. Very Good	_____	_____
b. Good	_____	_____
c. Fair	_____	_____
d. Poor	_____	_____

8. Overall, how well did the training and briefing prepare you?

	Training	Briefing
a. Very Good	_____	_____
b. Good	_____	_____
c. Fair	_____	_____
d. Poor	_____	_____

9. Comments:

   a. What portion(s) of the training and briefing prepared you the best?

   Training_____
   Briefing_____

   b. What portion(s) of the training and briefing needs improvement?

   Training_____
   Briefing_____

   c. Other comments:

   Training_____
   Briefing_____

C. WORK HISTORY

10. When was your most recent observer contract? Include current one if under contract now. Fill in start and end time by month/year.

    Start _____/_____ End_____/_____

11. How many contracts have you worked as an observer? Please circle:

    1 2 3 4 5 6 7 8 9 10
    11 12 13 14 15 16
    More? _____

12. Please estimate your total number of sea days (write number) _____ .

13. Do you think the maximum contract length (90 days) is: (Check one)

    a. _____ Appropriate.
    b. _____ Too short, should be longer; (preferred # of days_____)
    c. _____ Too long, should be shorter; (preferred # of days_____)

14. During which years have you worked as an observer (past and current)? Please circle.

    1990 1991 1992 1993 1994 1995
    1996 1997 1998 1999

15. Do you currently work as an observer?

    a. _____ Yes (If Yes, skip to #21, Section D)
    b. _____ No

16. If you no longer work as an observer, please indicate your primary reason for leaving. If you had more than one reason, you may mark up to 3 reasons in order of priority (use 1, 2, and 3).

    a. _____ Too much time away from family/friends
    b. _____ Sea Sickness
    c. _____ Safety concerns
    d. _____ Better Job
    e. _____ Grad School
    f. _____ Compensation for work unsatisfactory
    g. _____ Lack of advancement opportunities
    h. _____ Lack of respect/understanding/support for my work
       By whom?_____
    i. _____ Harassment/pressure; from:_____
    j. _____ Other (Please list)_____

17. Are there any incentives/changes in the program that would encourage you to return to work as an observer in the future ?

    a. _____ Yes, please describe: _____
       _____
    b. _____ No

18. Please indicate if your current employment is associated with the fishing in any way (including research, management, etc. in any part of the country) :

    a. _____ Yes
    b. _____ No (If No, skip to #20)

19. If Yes, please indicate which category most closely describes your current employment: (Check one)

    a. _____ Fishing industry - active fishing/processing plant
    b. _____ Fishing industry - management and support services
    c. _____ Marine/environmental conservation
    d. _____ Scientific/research - academic/university
    e. _____ Scientific - government (ADFG/NMFS/USFW..other)
    f. _____ Enforcement-Coast Guard/ NOAA corps/State

20. If you no longer work as an observer, nor in a job related to fishing, please indicate the category which most closely describes your current employment: (Check one)

    g. _____ Graduate school
    h. _____ Science/Resource Management
    i. _____ Business/Banking
    j. _____ Telecommunications
    k. _____ Law/Criminal justice
    l. _____ Medicine
    m. _____ Education
    n. _____ Computer/Software development
    o. _____ Retail/Service industry
    g _____ Other - please describe:_____

D. PRIOR EXPERIENCE

21. What was your major in College? (Check one)

    a. _____ Biology/Zoology
    b. _____ Marine Science
    c. _____ Chemistry
    d. _____ Physics
    e. _____ Other Natural Science (please list)_____
    f. _____ Mathematics/statistics
    g. _____ English
    h. _____ Political Science
    i. _____ Humanities/Social Science
    j. _____ Other (please list)_____

22. Did you have experience aboard sea-going vessels prior to working as an observer ?

    a. _____ Yes
    b. _____ No (If No, skip to question 24)

23. If yes to #22 above, on what type and approximate size? Fill in all that apply:

		Under 30'	30-120'	120 '+
a.	Commercial fishing vessel	_____	_____	_____
b.	Recreational fishing vessel	_____	_____	_____
c.	Research vessel	_____	_____	_____
d.	Sailing vessel	_____	_____	_____
e.	Merchant/shipping vessel	_____	_____	_____
f.	Other	_____	_____	_____

    Please describe_____

24. Did you have field sampling or field research experience prior to working as an observer?

    a. _____ Yes
    b. _____ No

    If yes, of what type? Please explain:

    _____

    _____

25. Do you have experience working as an observer in fisheries other than the north Pacific groundfish?

    a. _____ Yes
    b. _____ No (Skip to #27)

26. If yes, please give details (where or which fishery, and how many days)

    a. ADF&G crab/shellfish _____

    b. MMPA in Alaska_____

    c. Other _____

E. EXPERIENCE ABOARD VESSELS AND SHORESIDE

27. Please indicate which type of vessels (and/or at shoreside processing plant) you have worked on as an observer (Check all that apply):

Categories	Approximate size/length 60-125'	125-300'	300+'
a. Trawler catcher	_____	_____	_____
b. Trawler catcher/processor	_____	_____	_____
c. Longliner catcher	_____	_____	_____
d. Longliner catcher/processor	_____	_____	_____
e. Pot vessel catcher	_____	_____	_____
f. Pot vessel catcher/processor	_____	_____	_____
g. Mother ship	_____	_____	_____
h. Floating processor	_____	_____	_____
i. Shoreside processing plant	_____		

28. What did you consider your most important tasks while working on vessels and at shoreside processing plants? Please check 1, 2, 3, 4 for vessels and for plants, regardless if your answer is the same or different.

	Vessels	Shoreside Plants
a. Providing in-season reports of total catch and species composition	_____	_____
b. Collection of biological data (lengths, sex, otoliths, etc)	_____	_____
c. Sampling for bycatch of prohibited species (including mammals and birds	_____	_____
d. Monitoring activities of vessels for violations of regulations	_____	_____

29. Please list in your own words up to three tasks for an observer in descending order of priority (i.e. most important first), while working aboard **vessels**:

a. _____
b. _____
c. _____

30. In your own words, list up to three tasks for an observer, in descending order of priority (i.e. most important first), while working at **shoreside plants**:

a. _____
b. _____
c. _____

31. Did you generally have more than enough time, the right amount of time, or not enough time to complete your tasks on vessels and at shoreside plants? Chose one for each.

	Longline/ Trap	Trawl (both c/p)	Shoreside Plants
a. More than enough	_____	_____	_____
b. Right amount of time	_____	_____	_____
c. Not enough time	_____	_____	_____

If you answered “a” or “b,” skip to # 33.

32. If you felt you did not generally have enough time to complete all tasks, which ones did you feel were compromised? Please list:

Longline/Trap Vessel

a. _____
b. _____

Trawl, catcher/processor

c. _____
d. _____

Shoreside Plant

e. _____
f. _____

33. Did you ever encounter problems aboard a vessel that made carrying out your responsibilities difficult?

a. _____ Yes
b. _____ No (If No, please skip to question 35)

34. If yes, check which applied:

a. _____ Weather conditions
b. _____ The sampling procedure was difficult
c. _____ Not enough time for the task
d. _____ Work space was not adequate
e. _____ Inadequate manpower/time
f. _____ Lacked cooperation from the master or crew
g. _____Others? - please describe:

_____

_____

F. WORK EXPERIENCE OVERALL

35. Please describe your degree of satisfaction with the level of support provided by the following organizations:

Your employer
a. _____ Good
b. _____ Adequate
c. _____ Poor

36. National Marine Fisheries Service
a. _____ Good
b. _____ Adequate
c. _____ Poor

37. Fishing vessel master and crew (in general)
a. _____ Good
b. _____ Adequate
c. _____ Poor

38. Are you a member of Alaska Fisherman's Union?

a. _____ Yes
b. _____ No

39. Please describe your level of satisfaction with the level of support provided by the Alaska Fisherman's Union:

a. _____ Good
b. _____ Adequate
c. _____ Poor

40. Are you a member of Association for Professional Observers?

a. _____ Yes
b. _____ No

41. Please describe your level of satisfaction with the level of support provided by the Association for Professional Observers:

a. _____ Good
b. _____ Adequate
c. _____ Poor

42. In you own words, please describe ways in which your experience as an observer could have been improved (use additional sheet if necessary):

_____

_____

_____

_____

_____

G. OBSERVER DEBRIEFING

43. Where have you been debriefed? Fill in the month/year of your most recent debriefing at each location (approximates are OK).

Location	month /year
a. Seattle	_____/_____
b. Anchorage	_____/_____
c. Kodiak	_____/_____
d. Dutch Harbor	_____/_____

44. How many days did you spend in your **last** debriefing? This is from the time **you** were ready for your first check-in with NMFS (whether or not they were ready) to the time you were completely done:

_____days

For questions 45 to 51 comment on the debriefing using the following key:

1 = Excellent/exceeded expectations
2 = Good /met expectations
3 = Fair/average/adequate but would benefit from improvement
4 = Poor/Needs improvement/did not meet expectations
5 = Unsatisfactory

45. Were debriefing instructions clear and easy to follow? _____

46. Was your debriefer able to provide adequate information you needed in a timely manner? _____

47. Where your instructions for data corrections clear? _____

48. Did your debriefing help prepare you for future cruises? _____

49. Did you feel that you could freely communicate to observer program staff, your concerns, problems, or dissatisfaction with specific vessels, contractors, or other observer staff members? _____

50. Were you treated with respect/professionally during the debriefing process? _____

51. Are you satisfied with the observer evaluation system? _____

52. How do you think the evaluation system process effects observers future work quality/moral? Check all that apply. Comments welcome.

    a. _____ Useful feed back
    b. _____ Provides incentive to do good work
    c. _____ Provides incentive to limit information shared with the debriefer
    d. _____ Encourages changes to data to facilitate debriefing process/or improve personal evaluation
    e. _____ Demoralizing

    Comment:_____

    _____

53. Have you ever filled out an affidavit for a fishing violation or infraction?

    a. _____ Yes. If yes, how many times approximately? _____
    b. _____ No (Skip to #58)

54. How many days did it take to fill out the affidavit? _____

55. Were you compensated for this time?

    a. _____ Yes
    b. _____ No

56. Are you aware of the outcome (disposition) or your affidavits?

    a. _____ Yes (if Yes, skip to #58)
    b. _____ No

57. If no, are you interested in knowing the outcome of these affidavits?

    a. _____ Yes
    b. _____ No

58. Have you ever been intimidated, pressured, harassed or had your sampling interfered with in a manner that effected the quantity or quality of your work?

    a. _____ Yes
    b. _____ No (if No, skip to #64)

59. If Yes, can you approximate how frequently this has occurred? (Check one)

	On Vessels	At Shoreside Plants
a. Often	_____	_____
b. Occasionally	_____	_____
c. Rarely	_____	_____
d. Once	_____	_____

60. If Yes, have you filled out an affidavit(s) for sampling interference, intimidation, harassment, or any similar activity?

    a. _____ Yes (if Yes, please skip to 62)
    b. _____ No

61. If No, why not? _____

    _____

    _____

62. Did you feel that you had sufficient “backup” whilst on board the vessel/at the shoreside plant with regard to the noted violation(s)? (Check one)

    a. _____ Always
    b. _____ Usually
    c. _____ Occasionally
    d. _____ Rarely
    e. _____ Not at all; Comments_____

63. Was your debriefer able to adequately address harassment/ intimidation concerns you have encountered during your work as an observer? (Check one)

a. _____ Always
b. _____ Usually
c. _____ Occasionally
d. _____ Rarely
e. _____ Not at all

64. Have you had concerns that information you share with the observer program may be accessed by the fishing vessel or fishing industry generally, for example, through the Freedom of Information Act?

a. _____ Yes
b. _____ No (if No, go to #66)
c. _____ Don't know (Go to #66)

65. If so, has this affected your reporting of information?

a. _____ Yes
b. _____ No

66. In what ways could the Observer Program be more supportive of observers who have experienced harassment/intimidation/other trauma on the job? Check all that apply, the ones you consider most important, in order of importance (1=most important).

a. Better training/preparation _____
b. Better information in manual _____
c. More support in the field _____
d. Better outreach to industry _____
e. Better enforcement and follow through on observer complaints _____
f. More support during debriefing _____
g. Better grievance procedures for observers _____
h. Better communication and cooperation between contractor and NMFS _____
i. Professional counseling support for observers who have experience trauma or just need to talk through their experience _____
j. Other (please list) _____

_____

H. GENERAL DEMOGRAPHICS

67. Which state is your (most) permanent residence? _____

68. What is your age? _____

69. What is your gender? Male_____ Female ____

70. What is the highest level of education you have completed? (Check one)

a. _____ College graduate
b. _____ Some post-graduate studies
c. _____ Masters degree
d. _____ PhD degree

71. What is/was your average annual income from **all sources** while working as an observer (most recent year, check one)? The year _____

a. _____ Less than $10,000
b. _____ $10,000 - $19,999
c. _____ $20,000 - $29,999
d. _____ $30,000 - $39,999
e. _____ $40,000 - $49,999
f. _____ $50,000 - $59,999
g. _____ Over $60,000

72. Approximately what percent of this annual income was earned from observer work ? (Check one)

a. _____ Less than 25 %
b. _____ 25-50 %
c. _____ 50%-75%
d. _____ 100 %

73. What is your current average annual income, if you no longer work as an observer (do not include observer wages): (Check one)

a. _____ Less than $10,000
b. _____ $10,000 - $19,999
c. _____ $20,000 - $29,999
d. _____ $30,000 - $39,999
e. _____ $40,000 - $49,999
f. _____ $50,000 - $59,999
g. _____ Over $60,000

Space for additional comments for any question (please note question number; use additional sheet if needed):