

5 Sablefish Longline Survey and Combined Logbook Program

5.1 Introduction

The evaluation of the sablefish longline survey (Survey) and combined logbook program (Logbook) is one part of a set of case studies performed by the National Fisheries Conservation Center and intended to assist NMFS and industry in designing more effective cooperative data gathering efforts. As with the other case studies, we relied primarily on interviews and a review of the available written record (see Tables 5.1 and 5.2 and the Methods chapter (chapter 3) for more detail). This review examines both the Survey and the Logbook because both focused on improving data input to the stock assessment and annual quota setting. In addition, recent efforts to improve the Survey and develop the Logbook were motivated in large part by the implementation of the IFQ fishery and consequent concerns about the accuracy and completeness of the Survey data.

Table 5.1. Interviewees.

Name	Title & Organization	NMFS	Fisher	IPHC
Dr. Phil Rigby	Alaska Science Center	X		
Dr. Mike Sigler	Survey Project Leader, Auke Bay Lab	X		
Dr. Jeff Fujioka	Former Survey Project Leader, Auke Bay Lab	X		
Patsy Bearden	NMFS Operations	X		
Lori Gravel	Records Management Officer, Sustainable Fisheries Div.	X		
Jonathan Pollard	Attorney, Office of NOAA General Counsel	X		
John Winther	Owner of survey vessel Ocean Prowler		X	
Arne Fuglvog	Executive Director, Petersburg Vessel Owners' Association		X	
John Gauvin	Executive Director, Groundfish Forum		X	
Dr. Bruce Leaman	Director, International Pacific Halibut Commission			X
Heather Gilroy	International Pacific Halibut Commission			X
Janet Smoker	Consultant, Fisheries Information Services, Inc.			

Table 5.2. Additional sources. IPHC refers to the International Pacific Halibut Commission and NMFS to the National Marine Fisheries Service.

Source	Description
Arne Fuglvog	Personal file on Survey and Logbook, including letters, notes, faxes
IPHC	Staff regulatory proposals and annual meeting summaries
NMFS	Survey cruise reports, available from www.afsc.noaa.gov/abl/sablecruise.html
NMFS	Special notice of the IFQ program, February 1999 re Logbook
NMFS	Administrative record on Logbook, including emails, letters, faxes
Publication	Low, L. L., G. K. Tanonaka, and H. H. Shippen. 1976. Sablefish of the Northeastern Pacific Ocean and Bering Sea. Northwest Fisheries Science Center Processed Report. 115 p.

5.2 The setting

The sablefish longline fishery is active in the Bering Sea and the Gulf of Alaska, and was primarily a Japanese fishery until the passage of the Magnuson Fisheries Conservation and Management Act (MFCMA) in 1976. Sablefish quotas began by bilateral agreement with Japan

in 1975 (Low et al. 1976) and the longline survey was conducted by the Japanese as part of the “fish and chips” provisions of the MFCMA, which traded fishery research in U.S. waters for access to U.S. fishery resources. The Japan-U.S. cooperative survey was conducted annually from 1978 to 1994, with the first year (1978) as an experimental survey to establish methods.

NMFS began longline experimentation at the Auke Bay Lab in 1985 as groundwork for a domestic longline survey, assuming the Japanese would discontinue their participation once they no longer had access to sablefish (the last year of access was 1987). At about this time, John Winther, an Alaskan fisherman, began to push for more American participation in the Survey and, according to Winther, Congressional intervention was required to open the Survey to bidding by domestic fishermen. The domestic survey has been conducted annually since 1987, with standard methods adopted in 1988; thus, the two (Japanese and domestic) overlapped for several years. (See Table 5.2 for location of Survey reports).

The sablefish fishery became an IFQ fishery in 1995, which tied individual fishermen’s income directly to the size of the TAC and highlighted concerns about accuracy and completeness of survey data. Since some sablefish fishers fish for halibut and other groundfish, they were aware of the International Pacific Halibut Commission’s stock assessment procedures and used this as a model of how more a greater range of data types and sources (survey, logbooks, port sampling) could support stock assessment. Thus, efforts by industry and NMFS scientists to improve the database for stock assessment focused on two targets – the longline survey and the vessel logbooks.

5.3 The story

This story has two intertwined parts. The first is the effort to adapt the Survey to American fishing techniques (in 1987 and 1988) and reduce the interactions with groundfish fleets that might bias the Survey’s results (1995). The second is the more recent success in developing a more efficient and biologically useful logbook reporting system. Both efforts focused on improving the database for stock assessment and quota setting and involved many of the same people within NMFS and industry.

5.3.1 Longline survey

History of the Survey. The Survey began in 1978 as a cooperative U.S. / Japanese effort. It samples the Gulf of Alaska, Bering Sea, and Aleutians. Sampling currently occurs annually in the Gulf of Alaska and alternate years in the Bering Sea and Aleutians. The survey data have been the primary information used to track changes in sablefish abundance. Primary objectives for the most recent survey were to:

- determine the relative abundance and size composition of the commercially important species: sablefish, shortspine thornyhead (*Sebastolobus alascanus*), and roughey and shortraker rockfishes (*Sebastes aleutianus* and *S. borealis*) and Greenland turbot (halibut) (*Reinhardtius hippoglossoides*); and
- determine the relative abundance and size composition of other groundfish species caught during the survey: Pacific cod (*Gadus macrocephalus*), arrowtooth flounder (*Atheresthes stomias*), grenadiers (*Macrouridae*), and the relative abundance of Pacific halibut (*Hippoglossus stenolepis*).

Two significant subsequent events altered the history of the survey.

First, the passage of the Magnuson Act in 1976 stimulated greater participation of American fishers in the fishery and, by 1986, interest in bidding on the Survey contract. John Winther, a sablefish fisherman in Petersburg, AK, submitted the first American bid to NMFS in 1986. It was rejected, but, after obtaining the support of the AK Congressional delegation, Winther was subsequently awarded a contract to perform the domestic Survey in 1987 and has performed it every year but three since then. The Japan-U.S. cooperative survey, conducted with a Japanese fishing vessel, ran in parallel through 1994.

Winther, and the others who occasionally have participated in the Survey, do so as a money-making proposition, with their profit coming from the right to keep and market fish caught during the survey. According to Winther, gross income from the Survey has ranged from \$1 million to \$2.4 million over the years. However, costs can also be high. Beginning in 1999, the federal government retains 30% of any income over \$1.2 million. According to Winther, the Survey vessel is also responsible for \$60,000 to \$70,000 for gear and a similar amount for two contract biologists to collect data on board. The responsibility for some costs, such as those for biologists, has recently been transferred directly to the Survey contractor. Again according to Winther, total costs in 1998 amounted to more than \$900,000, with the bulk of that going to cover operational costs to keep the vessel, with its crew of 18, at sea for over 100 days. In 1992, the Department of Commerce's procurement agency began requiring a cash payment from the winning bidder, but this payment formula was modified in 1999 (30% payment of income over \$1.2 million referred to above) partly to reduce the risk to the bidder of unforeseen changes in market prices and fish abundance.

Participation in the Survey involved a learning curve during 1987 and 1988. In addition to basic familiarization with the sampling stations and scientific methods, the Survey shifted from Tara hooks used by the Japanese to circle hooks used by American fishers. This required a comparative survey with side by side fishing with each kind of hook to obtain a conversion factor that would maintain the integrity of the Survey's time series. As Mike Sigler remembers, "Nobody had all the answers. The vessel captain and the scientists needed to work together over a period of years to improve the survey, finding ways to improve efficiency, and integrate the scientists and the crew to reduce labor on the boat." (This involved mostly Dr. Mike Sigler of the Auke Bay Lab, Harold "Skip" Zenger (Alaska Fisheries Science Center, Seattle) and Jerry Kennedy Sr., captain of the Ocean Prowler.)

Thus, the Survey from 1987 to 1995 was essentially a continuation of past practices, with some minor adjustments to the Survey's station locations, the shift to American fishing technology, and improvements in efficiency. The conversion of the sablefish fishery to an IFQ system in 1995, however, had more far-reaching effects. The first of these was logistical and stemmed from interactions between the Survey and fishing fleet, whose activity during the lengthened season (March 15 to November 15) overlapped the Survey period and could bias the Survey results. The second was more structural. It reflected industry's increased awareness that, under the IFQ system, NMFS' stock assessments directly impact individuals' catch quotas and earnings. This led to an effort to improve the data going into the stock assessment by expanding the data collected in the logbook.

Concerns about interactions and bias. The IFQ fishery is open for much of the year, rather than being restricted to a season of as little as 10 days in any one area. Whereas in the past the Survey vessel was alone on the fishing grounds, there is now the potential for direct interaction between longline fishing vessels and the Survey. There was also interaction with trawl fishing vessels beginning in 1995 due to a short rockfish fishery opening about July 1. Thus fishing activity in the Survey area just prior to the Survey could locally diminish sablefish abundance and bias the

Survey results downward, resulting in a somewhat lower TAC. Fishermen refer to the pattern of fishery catches since the IFQ system was put into place (increasing abundance for every species on the blackcod grounds except sablefish, declining sablefish TAC but steady catch rates) as evidence that the Survey is underestimating actual abundance. As a result, according to both NMFS staff and industry, “people are starting to not trust the Survey.”

This problem was identified as the IFQ regulations were being developed but a solution was not included in the regulations at that time. Since then, NMFS staff at the Auke Bay Laboratory and the leaders of industry associations have worked hard to document and then reduce interactions. These efforts include letters each year to all permitted fishermen, distributing the Survey schedule on the internet and in NMFS notices, radio messages from the Survey vessel, articles in association newsletters, and face-to-face meetings with individual fishermen in a variety of situations. Fishing vessels are requested to stay at least five nautical miles away from each Survey stations for seven days before and three days after the planned sampling date (to allow for survey delays). However, these efforts have not been entirely successful and interactions between the sablefish fleet and the Survey continue to occur. The fleet is large (several hundred vessels) and widely dispersed, with many isolated operations. It is therefore difficult to directly contact every member of the fleet. In addition, in any large group, there are a few individuals who, as one fisherman characterized it, “will fish in a survey spot... some guys are just greedy and short sighted.”

The persistence of this problem led in 1996 to a North Pacific Fishery Management Council request to evaluate alternative measures to solve the problem, including a system of rolling closures that would bracket the Survey as it progressed through the Gulf and the Aleutians. This regulatory solution would have closed large areas of the Gulf ahead of the Survey vessel to ensure that there was no fishing in the survey area for eight days prior to the survey. This would have affected both the sablefish fleet and the groundfish trawl fleet that targets primarily rockfish. These broader impacts caused the Groundfish Forum, an association of groundfish factory trawlers, to approach NMFS staff at Auke Bay to negotiate a non-regulatory solution that would have much less impact on the groundfish trawl fleet. They were primarily concerned that the need to avoid the Survey stations would have disrupted a short, but carefully timed, opening, leading to economic impacts on the fleet. Representatives of Groundfish Forum met with NMFS staff in February 1997, “got out the maps,” and examined the specific sites and areas needing to be closed. They developed a solution based on revising the Survey schedule beginning in 1998 to minimize interactions with the trawler fleet, as well as impacts on the trawler fleet. To date, there has been 100% compliance from the relatively small (less than 20 vessels) trawler fleet. While this solution removed interactions with the trawlers, it did not resolve the problem of interactions with sablefish longliners.

Some interactions with the longline fleet remain, along with the potential of some downward bias in the Survey’s abundance estimates. However, the size of any such bias cannot currently be verified. In addition, any such bias would not contribute to overfishing, since it would tend to reduce the allowable catch. Thus, NMFS science staff found they had no basis to recommend regulatory rolling closures and that attempts be made to identify and work with individuals who disregard the voluntary Survey closures.

The search for additional sources of data. The second result of the shift to an IFQ fishery was that many in industry became much more directly concerned about the accuracy of the stock assessments underlying the yearly TAC. This was because their individual quotas, and therefore their incomes, are directly related to the overall TAC. There is no longer the opportunity to make up for a smaller overall TAC by fishing faster than others in the fleet. An important missing piece

of information was reliable catch rate data. However, as Mike Sigler put it, “We were skeptical about catch rate data. Because fishermen concentrate on schools of fish, the catch rate can remain the same even as schools get smaller.”

Despite this concern, NMFS staff at the Auke Bay Laboratory felt obligated to try to verify the information they were hearing from fishermen and to respond directly to their concerns about the Survey. Together with a few key fishermen, they began to think about gathering other kinds of information to feed into the stock assessment.

Key among these were analysis of longline catch rate data collected by observers since 1990, the collection and reading of otoliths from the observer program, and the establishment of a port sampling program. Although industry pushed for programs to collect these additional data types, a major constraint on the development of such new data gathering programs is the limited budget for sablefish assessment work. In an attempt to redress this, industry leaders contacted Senator Ted Stevens requesting a decision that the 3% IFQ assessment fee be made available to support stock assessment research. Senator Stevens replied positively, however, no funds from this source have yet been made available. In addition, the Auke Bay Laboratory submitted a sablefish research proposal for funding from the national \$2.25 million MSA funding initiative and were successful in 1998 in obtaining \$179,000 to fund sablefish research and assessment.

Their first step was to analyze past observer data on catch rate. Data collection began in 1990 but the data were not examined in detail until fishermen requested that additional sources of data be used in the stock assessment. While potentially useful, observers are present on only a portion of the boats in the fleet. The next step was an attempt to modify the logbooks fishermen are required to fill out to include more biologically useful information. As Mike Sigler describes it, “I was trying to listen to fishermen and this seemed like a way to listen to them on paper... There is a huge amount of information out there, though it can be hard to interpret.” While the actual changes to the logbook format turned out to be relatively simple, the effort to overcome institutional barriers and get these changes incorporated in the regulations would take almost five years.

5.3.2 Combined logbook program

The old logbook system. The logbook reporting system in place prior to the beginning of 1999 was somewhat complex and also subject to occasional adjustments. The following description outlines its main features.

Logbook data were used for enforcement of fishing regulations and for management of catch totals. They were not used in any way in stock assessment. When the U.S. fishery started in 1989, originally all catcher and catcher/processor vessels filled out a groundfish logbook. However, this was changed in 1996/97 so that only catcher vessels over 60 feet in length and all catcher/processors were required to do so. Presently, catchers, catcher/processors, motherships, buying stations, and shoreside processors all have separate logbooks.

All the groundfish (not IFQ, but more on this later) logbooks have a similar procedure. A yellow sheet is sent in quarterly to NMFS Enforcement to check compliance with fishing regulations and document proper observer coverage. These data are not used for quota management. The vessel maintains a daily logbook (white sheet), which accounts for each day of the year. This white sheet remains in the logbook, either on the vessel or at the shoreside buying/processing facility for the

entire fishing year. Catcher vessels have a blue sheet, termed a discard copy, which is submitted to the processor with the fish and reports what discards occurred at sea.

Superimposed on this system were the IFQ reporting requirements. Because sablefish is both a groundfish and an IFQ species, vessels were required to conform to both sets of reporting requirements. While there was no sablefish IFQ logbook prior to the combined logbook, there was a card swipe system that deducted the catch immediately from that fisherman's quota and provided an electronic record of measured catch weight. Finally, if a vessel had a federal permit and fished in state waters, it was also required to fill out a state logbook for sablefish, in addition to the NMFS logbook. In the view of industry representatives and the biologists at the Auke Bay Laboratory, this system did not provide information useful for stock assessment because catch data were not broken out by species or catch area for earlier logbook versions and because detailed effort information necessary for standardizing effort was not available. Catches were only broken down to species in the processor logbooks, but by then it was impossible to match catch totals to specific catch areas.

While halibut is not considered a groundfish species, vessels 60 feet and over fishing for halibut were still required to maintain a NMFS groundfish logbook and report halibut catch numbers in the discard section. In addition, IPHC regulations for many years have required all vessels 25 feet and over fishing for halibut to complete a logbook, separate from other records on the vessel (some enforcement officers allowed the NMFS logbook /others did not). As an IFQ species, halibut catches are also managed for the IFQ program by the same card swipe system used for sablefish. In 1998, IPHC required skippers (for vessels 25 ft or over) to complete an official logbook, either the NMFS logbook, the IPHC logbook, or the PVO/ALPFA logbook. IPHC allowed the NMFS logbook to be used as they did not want to burden the fleet with duplication of effort. IPHC port samplers gathered additional information needed for stock assessment directly from vessel captains if the NMFS logbook was used as it was missing the gear information. The lack of a combined NMFS/IPHC logbook left IPHC with the options of moving forward with its own logbook (resulting in duplicate reporting requirements) or using the NMFS logbook and asking its port samplers to gather the additional data needed for halibut management (resulting in increased costs and poorer data).

The impetus for change. The NMFS logbook reporting system in place prior to 1999 produced data that, while sufficient for compliance and some management purposes, was not useful for stock assessment. The desire for improved data on the part of the sablefish industry and NMFS's Auke Bay biologists combined with the IPHC's desire for improved reporting to create the incentive for a combined logbook that would serve the needs of the major regulatory agencies and also provide improved scientific data for stock assessment. This desire for a streamlined reporting system that also captured biological information quickly ran into two key obstacles.

The first was the fact that the NMFS groundfish logbooks were first and foremost a management tool for tracking compliance. Because additional reporting requirements must pass a review by the Office of Management and Budget under guidelines of the Paperwork Reduction Act (PRA), there is a natural pressure within the system to avoid asking for any information (e.g., scientific data) that is outside the boundaries of the agency's prime mission. Given the perception that industry was already burdened with reporting requirements, requests for adding scientific data to the logbook were declined because of the lack of space on existing log sheets, the cost of gathering such data, and the fact such data were not needed for quota management. NMFS scientists then contacted IPHC and asked for information available through IPHC's port sampling program. Though this provided some useful data, it was hit or miss process because the port samplers did not always collect sablefish data

The second obstacle appeared almost immediately (see timeline below). Language in the MFCMA prohibits NMFS from providing to other agencies any information collected under its regulatory regime. The only exceptions are agencies specifically named in the Act. Since IPHC was not so named, the Act thus prevented NMFS from sharing logbook data with IPHC, effectively dooming the original idea of simply having a joint logbook for both agencies.

An uphill battle. The basic concept underlying the desire for a combined logbook was to incorporate into one reporting mechanism the interests of IPHC, NMFS quota management and regulatory enforcement, and the science needed for sablefish stock assessment. As the timeline in Table 5.3 shows, this effort extended from December 1994 to February 1999. Resolving the technical details of the new logbook required only two meetings (in March of 1996 and June of 1998) and phone conversations, faxes, and emails among the participants. The administrative record for this effort documents that the actual level of effort involved was not extreme and that there were no major differences among the parties' respective suggestions on how to modify the logbook.

The record also documents that the lengthy period of time required to actually define and implement these changes was due primarily to legal and institutional concerns, rather than more straightforward technical issues. The overall process fell into three phases. The first, from December 1994 through March 1996 included the original development of interest in the project and the first technical working meeting. During the second period, from April 1996 through the end of 1997, legal and institutional issues became dominant, resulting in the termination of the effort in May 1996. Following this decision, industry attempted to implement a voluntary sablefish logbook program and IPHC, NMFS, and industry exchanged a series of letters laying out their respective positions. Despite concerted effort by industry association leaders to implement the voluntary logbook, there was very poor participation by the fleet (17 boats in 1997, 22 in 1998, and perhaps 25 in 1999, out of a total of approximately 200 eligible boats). In late 1997 and early 1998, direct requests from industry leaders to the NMFS Regional Director at a council meeting apparently restarted the process, as indicated by the February 1998 letter from the Regional Director to IPHC. The third period, extending from February 1998 through February 1999, saw the effort conclude. A single workgroup meeting, in June 1998, finalized the new logbook format, clearing the way for the necessary regulatory review prior to implementation.

The shape of a solution. While the documents officially ending the effort in May 1996 cite several shortcomings of a combined logbook, it appears from the record of the third phase that the legal issue of confidentiality was paramount.

The new, combined logbook for both catcher and catcher/processor vessels includes additional data fields of interest to both IPHC and the NMFS scientists responsible for stock assessment. It also includes a new green sheet, in addition to the existing white, yellow, and blue sheets. This green sheet is to be provided voluntarily to IPHC port samplers who then forward the logbook sheets from longliners fishing for sablefish to NMFS scientists responsible for stock assessment. The new NMFS regulations concerning the combined logbook, as well as the documentation required for the PRA review, emphasize that these additional questions are optional and not required by federal law. Because the data are not formally required under federal regulations, and because captains voluntarily submit the green sheets to IPHC, the Magnuson Act's constraints on transferring data are not triggered. However, IPHC regulations required the vessels to complete the information, so it is the skipper's choice to use the NMFS logbook or complete the halibut information in a separate book for IPHC (i.e., completing two books for one trip). Both NMFS and IPHC have encouraged the relevant vessels to voluntarily submit the green sheets to IPHC,

whose port samplers interview the skippers and pick up the sheets. The skippers sign the logsheet agreeing the IPHC could mail a copy to NMFS' Auke Bay Lab. This new system does not affect either the card swipe system for IFQ species or the weekly production report from the processors that summarize the logbook catch data and that are used for quota management.

Table 5.3. Timeline for development of the combined IPHC/NMFS groundfish logbook.

Date	Event
<i>Initiation</i>	
12/94	Council's enforcement committee expresses interest in combining IPHC and NMFS logbooks; first contact between IPHC and NMFS.
7/95	NMFS Enforcement identifies confidentiality issue as potential problem.
12/95	NMFS and IPHC set goal of implementing joint logbook by 1/97.
3/96	1 st workgroup meeting, with representatives of IPHC, ADF&G, USCG, NMFS (Observer Program, Economics, Enforcement, Auke Bay Lab, IFQ Program, Operations).
<i>Complications</i>	
4/96	Internal NMFS issues arise re confidentiality of data and the location and control of logbooks and data entry. Office of NOAA General Counsel becomes involved.
5/96	IPHC staff state their position in favor of joint logbooks and offer to collect and process all data and distribute them to other interested agencies.
5/96	NMFS Regional Director formally ends effort, citing the complications that have arisen. Subsequent memo from NMFS Operations cites lack of benefit to NMFS, increased printing and Paperwork Reduction Act costs, and confidentiality issues.
6/96 – 3/97	Industry begins voluntary sablefish logbook effort, which ends in disappointment.
8/97 – 11/97	Exchange of letters among NMFS Regional Director, IPHC, and industry reiterating their respective positions; little evidence of flexibility.
<i>Implementation</i>	
2/98	NMFS Regional Director asks IPHC to resume joint effort on logbook due to industry request.

Date	Event
6/98	Meeting to finalize logbook format.
6/98	NMFS Regional Director formally announces new combined logbook format in letter to Council.
2/99	NMFS Operations announces logbooks have been mailed.
2/99	Formal NOAA bulletin announces combined logbook format.

5.4 Conclusions and lessons learned

Several conclusions are readily apparent from the story described above. We describe these and assess the degree to which these might be applicable in other situations.

5.4.1 Performing field work together builds relationships

Adapting the Survey to American vessels, a process that occurred in 1987 and 1988, was fairly straightforward. The presence of NMFS scientists aboard the survey vessel facilitated communication and problem solving about needed modifications to sampling gear and methods. Based on our personal experience and that of many contacts in academia, government agencies, industry, and conservation organizations, we consider working at sea together an effective way to break down communication barriers between representatives of these groups. This was facilitated by the Auke Bay scientists' awareness that a primary means of establishing credibility among commercial fishermen in Alaska is to spend time at sea. Their willingness to do so was matched by Winther's and Kennedy's (owner and captain, respectively, of the survey vessel *Ocean Prowler*) understanding that performing the survey necessarily involved a learning curve about scientific sampling procedures. It may be worthwhile consciously searching for, or creating, opportunities to perform field work together in the early stages of cooperative programs.

5.4.2 Institutional issues can be more difficult than technical problems

Similarly, the development of the specific revisions to the Logbook format proceeded smoothly. The identification of and agreement on these revisions required only two working meetings and a relatively small number of emails, faxes, and phone conversations among the key participants. The bulk of the four-plus years from inception to final implementation (see Table 5.3) was taken up with administrative and/or institutional issues. As with the Survey, effective communication among the core group of participants (Sigler, Fuglvog, Bearden, Gilroy (see Table 5.1 for affiliations)) smoothed the way for agreement on these technical details. However, it was insufficient, by itself, to overcome institutional hurdles. This is not a unique or unusual finding; it is almost a truism among managers and others involved in organizational change that institutional, rather than technical, issues are typically the "deal breakers." According to both Mike Sigler and Arne Fuglvog, the fact that the technical solution was essentially complete was important in persuading NMFS managers to restart the effort. While this was a lucky accident in this situation, a deliberate strategy of developing technical solutions prior to resolving institutional problems may provide useful leverage in other situations.

5.4.3 Continuity of participation helps overcome delays

We asked participants in the Logbook effort whether, in hindsight, they thought the effort could have proceeded more quickly. Their judgment was that, given the legal and regulatory constraints, and the complexity of NMFS' management structure, the process probably could not have been accomplished faster. As a result of the length of time required to complete this effort, the continuity of the key participants (Sigler, Fuglvog, Bearden, Gilroy) was extremely important. Removing any one of them would have very likely derailed the effort because each represented an essential interest group and provided that group's perspective. As a result of this continuity, they were able to immediately resume the effort in early 1998 and quickly conclude it, without the necessity of bringing new participants up a learning curve. Maintaining continuity of participation over this period of time requires people with unusual stamina and a certain degree of stubbornness, elements not usually considered when choosing people to take part in cooperative efforts. Sigler, Bearden, Fuglvog, and Gilroy all agreed that the obvious benefits of a combined logbook were key in maintaining their interest. In cases such as this, where there is no regulatory driver for change, the identification of and agreement on clear benefits are essential to sustaining involvement.

5.4.4 Industry participants can play unique roles unavailable to others

Industry representatives played key roles, in both the Survey and Logbook efforts, in identifying problems and solutions to these. In both instances, they provided realistic and first-hand information about what approaches were likely to be most successful. As the IFQ fishery was being implemented, Arne Fuglvog and the Petersburg Vessel Owners' Association helped clarify and draw attention to the potential for increased interactions between the Survey vessel and the fishing fleet. Industry associations have since made a concerted effort to reach their members through newsletters, radio messages, and personal contacts to stress the importance of having an unbiased estimate of sablefish abundance. In another example, members of the sablefish longline fleet realized that the absence of better biological information (e.g., from analyzing observer data, collecting otoliths, etc.) was largely due to lack of funding for NMFS scientists. They were then able to go directly to higher-level NMFS managers and to members of Congress to help obtain additional funding. Similarly, in early 1998, industry was able to approach the NMFS regional director directly with a request to revive the Logbook effort and to present evidence that the revised Logbook format was essentially complete.

In both instances, industry was able to use avenues of influence not open to the NMFS scientists and managers directly involved in the two efforts. In these other decision-making arenas, industry's voice carries more weight than does that of NMFS staff. This case thus illustrates how a strategic partnership between NMFS staff and industry can together have more impact on the system, especially in terms of breaking administrative logjams, than either might have alone.

5.4.5 An absence of "us" vs. "them" behavior

Conversations with all participants in both the Survey and Logbook efforts were marked by a complete absence of the "us vs. them" attitude prevalent in other situations. In contrast, one contact in another case study commented, "I hate to tell you this, but it really is 'us' and 'them.'" Instead, we found substantial evidence of deliberate attempts to bridge gaps and overcome stereotypes. These include:

- Auke Bay scientists' willingness to spend time at sea to help establish their credibility with industry;
- the ability of the sablefish longline fleet's leaders to develop empathy for NMFS scientists, to understand that their failure to incorporate additional data types in the sablefish stock assessment was due to lack of funding (not incompetence), and to realize they were doing the best they could with limited resources;
- industry's readiness and ability to work through alternate channels to achieve their goals;
- NMFS scientists cooperative support of such industry efforts; and
- Groundfish Forum's initiative in approaching NMFS staff to develop a non-regulatory solution to the problem of trawler interactions with the Survey.

5.4.6 Four sources for cooperation

All is certainly not "sweetness and light." For example, some members of the large and geographically dispersed longline fleet disregard requests to stay clear of the Survey area, illustrating the difficulty of achieving full voluntary compliance from a large, dispersed, and diverse fleet. Nevertheless, participants in this case exhibited a notable level of cooperation and mutual understanding. Participants and knowledgeable observers have proposed four possible explanations.

First, the U.S. sablefish fishery is relatively new, having developed only after passage of the MFCMA in 1976. As a result, there has been little time for negative history and deep-seated resentments to develop. Second, the fishery has been relatively healthy, and NMFS stock assessment staff have not become the target of anger over declining quotas. Third, establishment of the IFQ fishery in 1995 provided a compelling motivation for individual fishers to become more interested and involved in the science underlying the stock assessment. Finally, quiet leadership through persistence, communication, and example contributed to effective working relationships. The question of how to first identify and then enlist and sustain the participation of such leaders cuts across all the case studies and is discussed in the Summary chapter.

5.4.7 Summary

To summarize, the absence of negative past history, combined with the existence of clear benefits from revised procedures, the IFQ system's incentives for improving the stock assessment, cooperative working relationships, and effective leadership provided the ingredients for the successful Survey and Logbook efforts.