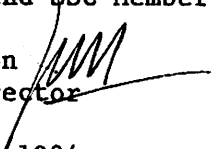


M E M O R A N D U M

TO: Council, AP and SSC Members

FROM: Jim H. Branson 
Executive Director

DATE: September 19, 1984

SUBJECT: Groundfish Data Monitoring

ACTION REQUIRED

Approve groundfish data monitoring contract with ADF&G.

BACKGROUND

Last May the Council's Interagency Workgroup on Alaska Groundfish Fishery Data Collection met in Juneau to review fishery data bases, develop a consensus on data needs, and give further direction on how to improve the U.S. domestic data base in light of the eroding foreign data base. The Committee recommended that a technical team composed of the two groundfish plan teams combined and several economists meet to examine data needs species by species, fishery by fishery.

The technical team met on June 26-27 in Seattle and fully reviewed state and federal data programs and a report on economic data needs that was drafted at an earlier meeting of economists. A report of the technical team's meeting is under item C-5(a).

The team concludes that the current stock assessment surveys must be reinforced with a comprehensive domestic data gathering program. This will be especially critical as the foreign fisheries diminish.

The team strongly recommends fish tickets, logbooks, observers, and processor reports as primary methods of obtaining data needed for managing the groundfish fisheries. Fish tickets must be collected from both joint venture and domestic at-sea processors. Obtaining tickets from shoreside processors is currently not a problem. Tickets can be collected from offshore processors by observers as they pass through the fleet. Logbooks are important because of the variety of information they can provide given proper fleet coverage and vessel cooperation. And finally, the observer program is considered critical in fulfilling most of biological and economic data needs, especially rendering estimates of total removals.

Finally, the team recommends expanding the domestic data gathering program immediately. Data accessibility will be a very important aspect of program development. Current plans by ADF&G include measures to standardize methods and provide centralized information from such projects as fish tickets, logbooks and observers.

The technical team's report has been sent out to the Interagency Workgroup for their review, which will meet during the coming months to structure a program to respond to the domestic groundfish data needs.

In the mean time we need to draft a contract to support ADF&G's data efforts using the \$145,000 approved from programmatic funds. A proposed contract will be available for Council and SSC review and approval. It will be placed under C-5 Supplemental.

Interagency Workgroup on Alaska Groundfish Data Collection

Groundfish Data Technical Team Meeting

June 26-27, 1984

At the request of the North Pacific Council's Steering Committee for the Interagency Workgroup on Alaska Groundfish Data Collection, the Groundfish Data Technical Team, which is composed of both groundfish plan teams and other support staff, met in Seattle on June 26-27, 1984 at the Northwest & Alaska Fisheries Center. The purpose of the meeting was to review existing data gathering programs, both biological and economic, and to determine what data is essential for management of groundfish in the North Pacific Ocean. The participants at the meeting were: Clarence Pautzke, Steve Davis, Jeff Povolny, and Doug Larson, NPFMC; Dorothy Lowman, PFMC; Loh Lee Low, Joe Terry, Janet Smoker, Jim Wilson and MacGill Lynde, NMFS; and Barry Bracken, Phil Rigby, Fritz Funk, and Fred Gaffney, ADF&G.

I. OVERVIEW OF CURRENT BIOLOGICAL DATA SYSTEMS

The meeting began with an overview of current data gathering programs used by state and federal management agencies. Though the scope of the meeting was limited to fishery-related data, it was the team's consensus that groundfish surveys must be continued at least at their current level to provide critical stock assessment information.

National Marine Fisheries Service

Dr. Low, NMFS, presented a report on the existing sources of foreign fishery data. The three basic sources are:

1. Weekly catch estimates by management area reported directly to NMFS by foreign vessels. The purpose of this data is to monitor catch for management purposes (i.e., monitoring achievement of quota inseason).
2. Monthly catch-effort data by vessel gear types, by small statistical areas. This information is primarily used as a status of stock data base.

3. Daily catch-effort data and biological samples collected by U.S. observers aboard foreign vessels. This information is used to evaluate status of stocks and fishery performance. As the observer program expands, this data base has become more important in status of stock evaluations than the monthly catch-effort database.

Alaska Department of Fish and Game

Phil Rigby and Fritz Funk presented a report on Alaska's groundfish data gathering program. The state currently obtains groundfish data from the fishery by four methods:

1. Fish tickets provide information on species composition, statistical area fished, weight of catch by species, and price paid for each species. This information is used to monitor catch and manage the fishery during the season and provides historic catch data best for post-season analysis.
2. Port sampling produce two types of data. First, CPUE is obtained from skipper interviews which provide information on CPUE. This information is very important for inseason management (for example, in managing the sablefish fishery off S.E. Alaska). It is used in conjunction with fish ticket data. Second, length-weight measurements are taken from samples of the catch. These data provide information on age distribution, year-class strengths, etc.
3. Onboard sampling provides estimates of total catch (landed catch plus discard) and biological information on the total catch as well as providing managers a better understanding of fisheries inseason.
4. Logbooks provide effort information on a tow-by-tow (for trawl) or set-by-set (for longline or pots) basis and estimated "hail" weights for each tow or set. The quantity of effort expended and estimated catches are used to calculate CPUE.

The State of Alaska is planning to expand both the logbook program and its port sampling efforts in the near future. It is hoped that fleet coverage by a logbook data gathering system can be increased to 50% of the fleet and that economic data can be added to the current biological data base obtained from port sampling.

Pacific Fishery Management Council

Dorothy Lowman, PFMC staff economist, reported that the Pacific Council relies primarily on PacFIN data for monitoring and management of their groundfish fisheries with some port sampling data being used. Managers also use a "trip limit" concept where vessels are allowed to deliver a specified amount of a certain species per trip. This procedure helps to regulate the rate of harvest, and obtain individual trip information through sampling programs. A problem with this procedure is that the data is provided by trip and it would be more useful if it were provided by haul or set.

II. REPORT FROM ECONOMIC STEERING GROUP

A report from the economic steering group was presented by Doug Larson and Jim Wilson (see Attachment 1). The steering group identified economic data needs and priorities of data now required to support management decisions. Economic data is needed from two sectors; harvesting and processing. Specific data needs, in rough order of priority, are as follows:

A. Harvesting Sector

1. Catch data must be made available on a disaggregated, vessel-by-vessel and tow-by-tow basis. With respect to catch data, economists and biologists require estimates of total removals from a fishery (i.e., catch and discards) in addition to landings.
2. Factors of production is a term referring to the components of effort. There are two categories from economic theory: labor statistics (i.e., crew size) and capital (i.e., vessel characteristics, value of electronics used, etc.).

3. Prices paid to fishermen by size, condition and species. Some of this information is already being collected from fish tickets, but more specific information is needed and could be made a part of the fish ticket.
4. Harvesting cost information is necessary to develop a knowledge of the impacts of management activity on industry supply. This data is needed when preparing Regulatory Impact Review/Initial Regulatory Flexibility Analysis documents.
5. Employment statistics are needed when studying community-type impacts as a result of fishery regulations. This data would be most useful if collected and presented by sector (harvesting or processing).

B. Processing Sector

It was noted that many of the processing sector data needs are analogous to those for the harvesting sector; that is, data is needed at the individual firm level on:

1. product prices
2. input prices and costs of production, by product form;
3. employment; and
4. numbers of processors.

The economic steering group report ended with the recommendation that a study of the institutional arrangement of crew shares be proposed for future Council programmatic funding.

III. DISCUSSION OF DATA NEEDS

This part of the meeting began with Jeff Povolny stating for the Technical Team that our data gathering discussion is based on the assumption that we continue to manage groundfish with a quota, open-access system. If we had a limited-access system, we may not need all the information required to manage an open-access fishery.

Biological and economic data will be needed to manage the developing domestic fishery. Biological data is needed for both inseason management and stock assessment. Economic data is necessary for the thorough analysis of options that the Council must consider when making management decisions. The team then examined specific data requirements. The team is generally satisfied with the data gathering programs that support management of the foreign fishery. These data also provide adequate management of the domestic fishery which up to this year has taken less than 30% of the groundfish harvest off Alaska. However, as the domestic share increases, foreign data will become more and more inadequate for management purposes.

A. Biological Data Needs

1. Inseason management (data in order of priority):
 - (a) Catch by species by management area by week.
 - (b) Vessel check-in, check-out report. To provide information on who is fishing. This should be required for vessels with trips longer than one week or which deliver to processors offshore (either joint-venture or catcher-processor).
 - (c) Intent to operate information from both harvestors and processors, to provide effort data prior to operation.
 - (d) Catch per unit of effort to determine relative stock abundance.
 - (e) Age, weight and size distribution of catch to determine year-class strength and perform cohort analysis.
 - (f) Species composition of catch and discard information to determine total fishing and handling mortality rates by species or species group.
2. Stock assessment data generated from the fishery. It is very important to initiate a domestic observer program for stock assessment

purposes. Observers would provide CPUE, age/weight/length, species composition, discard data, and biological sampling. This information is needed for cohort analysis, age and size distribution of the catch, analysis of impacts on incidental and prohibited species, and computing relative abundance of selected stocks.

B. Economic Data Needs

The Technical Team discussed the economic data needs in light of existing data gathering programs and the requirements of federal law. As was noted in the Economic Steering Group's report, Economic data are needed from both harvesting and processing sectors. The following information from both sectors is critical for the economic analyses required by federal law (listed in order of priority):

1. Catch. Fishery removals (including discards) and landings are needed from all vessels.
2. Effort/factors of production such as gear type, vessel characteristics including crew size and number of tons, hours spent fishing, hours in transit and length of trip.
3. Prices at the ex-vessel and wholesale level, to conduct cost/benefit analysis.
4. Harvest costs of vessel operation and maintenance.
5. Employment. Data in this category could be improved.
6. Processing level data would provide valuable insight into employment, numbers of processors, product prices and costs associated with processing.

IV. DISCUSSION OF PRIMARY DATA GATHERING METHODS

The prior discussion has summarized existing data gathering programs and needs as identified by biologists and economists. Data needs have been assigned priorities which may be used when agency funds and manpower are limited. The following section focuses on ways to collect the needed data, and their advantages and disadvantages.

1. Fish tickets document landed catch and provide weight of catch by species or species group by unique vessel, date of landing, area of catch, initial ex-vessel value, and gear type. The ADF&G has identified several inadequacies of the current fish ticket system used for groundfish, particularly the problem of a vessel delivering fish harvested from multiple areas during its trip. Other problems include the delivery of a dressed or preprocessed product (ex. sablefish or salt cod), whereby calculating round weight from dressed weight is a time-consuming process, and the considerable time required to process fish tickets and report the information to the managers. The state is attempting to solve these problems by expanding its fish ticket form to better identify catch areas, and by supplying local area offices with microcomputers to process fish ticket data. The Technical Team agrees that the fish ticket program is a necessary, relatively inexpensive source for these data. The team also recommends that the fish ticket be expanded to include price and effort data (amount of gear fished, amount of time spent fishing, amount of time in transit per trip).
2. Port sampling is a multifaceted program involving skipper interviews, catch composition sampling and logbook collection. Skipper interviews provide information on CPUE and catch composition data provide an estimation of age distribution of the catch.
3. Logbook Programs can provide information on a tow-by-tow (for trawl) or set-by-set basis (for longline or pots). The quantity of effort expended is used to calculate CPUE. Fishermen are requested to enter an estimated "hail" weight for each tow or set by area in the logbook. This allows total catches to be more accurately allocated among areas than would be

possible from fish tickets alone. Logbook data are also valuable supplements to groundfish stock assessment surveys. Surveys provide more quantitative abundance estimates of all species, not just those which are targeted, and good year-class and recruitment information, but they often have gaps in time/area coverage that can be filled by log data. Logbook and fish ticket data can also be used inseason to either withhold reserves or provide for additional harvest if stock abundance departs from preseason estimates based on survey data. The primary disadvantage of a logbook program is that it relies heavily on fleet cooperation. The costs of such a program are also high, and are incurred in the processing, analyzing and reporting of the information by the responsible agency.

4. Observer Programs are designed to obtain fishery information from the commercial fleet not obtainable with a degree of confidence through any other source, such as estimates of total catch (including targeted species, discards and prohibited species), age/weight/length distribution, sex ratio of the catch and effort in terms of amount of gear fished, time fished and time traveling between grounds and port. Observers also provide verification of other data sources (e.g., fish tickets and logbooks), estimates of product recovery, and can do special at-sea sampling.

The Technical Team discussed the degree of coverage required for managing the domestic groundfish fishery. While observer programs have many objectives, estimating total catch, including discard and prohibited species, will determine the required minimum sample sizes. Experience in the foreign observer program indicates that fleet coverage of 20% to 40% of vessel days is necessary to adequately estimate total catches. However, 100% vessel coverage may also be desirable to estimate among-vessel variance and to establish observer "presence" in the fishery. Observer coverage will also be limited by size of vessels. For example, the sablefish and rockfish longline fisheries may not have sufficient space for observers. Some fisheries, such as the midwater trawl pollock fisheries, may contain relatively homogenous catches and require only 5% to 10% coverage. If catches are not sorted at-sea or trawl cod-ends are towed to shore-based processing facilities, sampling can be more economically done at the dock at time of landing.

Table 1 shows estimated observer effort required by fishery and area, based on 1- to 3-year projections of the number of participating vessels, duration of fishery, and of observer coverage required. Using these guidelines, 43-86 observer months would be required for the Bering Sea, and 64-127 observer months would be required in the Gulf of Alaska, for a total range of 107 to 213 observer months in both areas.

The primary disadvantage of an observer program is its high cost, due to the number of observers required and the time spent processing data and planning the logistics. Substantial increases in funding will be required to provide statewide coverage at levels which produce results with small enough confidence intervals to be meaningful. The Technical Team discussed this problem and alternative methods of obtaining similar quantitative data. They decided that the only alternative which would meet this standard would be a supplemental survey (a survey in addition to the standard surveys already being conducted). This survey probably would cost more than an observer program.

The team concluded that if an observer program is not feasible, special supplemental surveys should be fully funded instead.

V. TECHNICAL TEAM RECOMMENDATIONS

The team concluded that the current stock assessment surveys must be reinforced with a comprehensive domestic data gathering program. This will be especially critical as the foreign fisheries diminish.

The team strongly recommends fish tickets, logbooks, observers, and processor reports as primary methods of obtaining data needed for managing the ground-fish fisheries (Table 2). Fish tickets must be collected from both joint venture and domestic at-sea processors. Obtaining tickets from shoreside processors is currently not a problem. Tickets can be collected from offshore processors by observers as they pass through the fleet. Logbooks are important because of the variety of information they can provide given proper fleet coverage and vessel cooperation. And finally, the observer program is

considered critical in fulfilling most of biological and economic data needs, especially rendering estimates of total removals.

Finally, the team recommends expanding the domestic data gathering program immediately. Data accessibility will be a very important aspect of program development. Current plans by ADF&G include measures to standardize methods and provide centralized information from such projects as fish tickets, logbooks and observers.

TABLE 1
ESTIMATED OBSERVER EFFORT REQUIRED FOR DOMESTIC FISHERIES

	No. of Boats	Duration (Mo.)	% Coverage		Expected Observer Months
			of Boats	of Days	
A. Bering Sea					
1. Catcher Processor					
a. Pacific Cod	10	9	100%	20%-40%	18 - 36
2. Shore Based					
a. Pacific Cod	15	4	100%	20%-40%	12 - 24
b. Pollock					
1) Catch sorted onboard	5	3	15%	10%-20%	0.2 - 0.5
2) Catch not sorted onboard	5	3	0%	0%- 0%	0 - 0 ^{1/}
3. Joint Venture (Catcher Boats)					
a. Yellowfin Sole	15	6	100%	5%-10%	5 - 9
b. Pollock	15	5	100%	5%-10%	4 - 8
c. Atka Mackerel	15	5	100%	5%-10%	4 - 8
d. Rockfish	5	3	100%	5%-10%	1 - 2
Total Bering Sea:					43 - 86
B. Gulf of Alaska					
1. Catcher Processor					
a. Pacific Cod					(Included in Bering Sea)
b. Pollock					(Included in Bering Sea)
2. Shore Based					
a. Pacific Cod	10	4	100%	20%-40%	8 - 16
b. Pollock					
1) Catch sorted onboard	10	3	15%	10%-20%	0.5 - 1
2) Catch not sorted onboard	10	3	0%	0%- 0%	
c. Flatfish	10	9	100%	20%-40%	18 - 36
d. Rockfish					
1) Trawl					(Included in flatfish)
2) Longline *	75	6	100%	5%-10%	15 - 30
e. Sablefish *	150	6	100%	5%-10%	15 - 30
3. Joint Venture (Catcher Boats)					
a. Pollock (Shelikof)	30	2	100%	5%-10%	3 - 6
b. Flatfish (Kodiak-Taiwan)	5	9	100%	5%-10%	2 - 5
c. Pollock/Atka Mack./Rockfish (Western Gulf)	10	4	100%	5%-10%	2 - 4
Total Gulf of Alaska:					64 -127

* Subject to space limitations of vessels

TOTAL: 107 -213

^{1/} assume adequate port sampling

TABLE 2
METHODS OF OBTAINING BIOLOGICAL AND ECONOMIC DATA NEEDS
(Ranked if applicable on a 1 to 5 scale of quality; 1 being best, 5 poor)^{1/}

Methods of Obtaining Data

Data Needs	Fish Tickets	Port Sampling	Logbooks	Observers	Suppl. Survey	Processor Annual Reports	Radio Reports	Intent to Operate	Vessel Check In/ Out
Catch	1		2	3	4				
Discard of Prohibited Species				1					
Other Discarded Catch			2	1	3				
CPUE		3	3	1	4				
Age/Weight/Length		3		1	2				
Species Composition			4	1	3				
Effort/Factors of Production	3	2	2	2				4	2
Prices	1					2			
Harvest Costs		2	2	3					
Employment						1			
Wholesale Production						1			

^{1/} Ranking of methods is based on technical team's preliminary assessment of the quality of data likely to be obtained from each method.

DRAFT REPORT

ECONOMIC STEERING GROUP OF THE INTERAGENCY WORKGROUP
ON ALASKA GROUND FISH FISHERY DATA COLLECTION

The Economic Steering Group met on June 20, 1984, in the Regional Office of NMFS in Juneau. Attending were: Greg Baker, Alaska Department of Commerce and Economic Development; Bill Beardsley, Alaska Department of Commerce and Economic Development; Ron Berg, NMFS; Joe Farrell, NMFS; Doug Larson, North Pacific Fishery Management Council; Rich Marasco, NMFS; Chris Miller, Alaska Department of Labor, Ben Muse, Alaska Commercial Fisheries Entry Commission, Clarence Pautzke, North Pacific Fishery Management Council; Kurt Schelle, Alaska Commercial Fisheries Entry Commission; Thorn Smith, NMFS; Janet Smoker, NMFS; Kathleen Thomas, Alaska Department of Labor, Guy Thornburgh, Alaska Department of Fish and Game; and Jim Wilson, NMFS.

I. INTRODUCTION

Thorn Smith opened the meeting by introducing the problem at hand and the purpose of the meeting, which was to evaluate existing sources of economic data on groundfish fisheries, and to develop a set of data needs and priorities for improving the extent and quality of economic data that are collected for domestic groundfish fisheries. He also touched on some of the requirements for the collection and use of economic data in the federal fishery management process, requirements that are expressed in laws such as the Regulatory Flexibility Act, the Magnuson Act, and Executive Order 12291, as well as in NMFS agency guidance on the preparation of economic analysis to satisfy the requirements of the laws.

II. STATE AGENCY GROUND FISH ECONOMIC RESEARCH AND DATA BASES

Representatives of state agencies described data bases that they maintained and work with, and their interest in and involvement in groundfish data collection. Chris Miller from the Department of Labor described the ES202 Report put out by his department, which is a summary of employment and wage data by industry, broken down to small communities. This series has been produced since statehood. He noted that in 1987 the federal Department of Commerce and the Bureau of Labor Statistics is planning on revising the Standard Industrial Classification (SIC) codes for product definitions. He noted that there should be an opportunity to provide advice on how these codes should be reformulated to better meet the needs of this group, and comments should be sent to the research section of the Alaska Department of Labor. In fisheries, they produce employment counts and wage counts by industry and by month. They are governed by confidentiality constraints similar to those which apply for other state agencies (within a particular geographic area, aggregations of less than four firms may not be released), though they cannot release data in small geographic areas where more than 80% of the market is controlled by a single firm. Cathy Thomas noted that she also works on projecting harvesting employment, working with CFEC data on landings and applying crew factors.

Kurt Schelle summarized the Entry Commission's research work to monitor the economic health of the limited fisheries, to lay the ground work for the determination of optimum numbers in limited fisheries, and to evaluate the prospects for buy-back programs. They do reports on changes in the distribution of permit ownership in the limited fisheries. The preponderance of questions that they field has to do with goals other than national income accounting and efficiency; impacts on Alaska are particularly important to the public they serve. The Entry Commission has borrowed from the methodology used by the Department of Labor to generate estimates of employment in the harvesting sector by residence of operators, by fishery, and by area. He also described the Entry Commission's work in estimating harvest costs for certain of the limited fisheries. They are surveying three salmon fisheries per year, censusing permit holders with a questionnaire designed to obtain information on

costs of operation and fishing effort, in addition to fishing income. They have achieved response rates considerably higher than those done with more conventional economic questionnaires, surpassing 50% on a previous survey, and in a current ongoing study surpassing 60%. With any mail survey, verification of the quality of information and potential reporting biases is difficult, but with the high response rates they're achieving non-response bias may be a less significant problem.

The fiscal modeling approach used by the Entry Commission relates information from the cost surveys to variables in files that are collected annually for administrative purposes, which permits an adjustment of the cost variables based on changes in the administrative file variables from year to year. Schelle noted that one limitation of the model is that the effort measures on administrative files, such as the fish ticket files, are not very good. Thus, any effort that can be undertaken to improve the quality of that effort indicator would be beneficial to their work.

Guy Thornburgh noted that ADF&G is starting a logbook program for domestic operators, which complements the program that they have had for joint ventures for some time. They are also starting a port sampling program; the technical committee should make recommendations of needed economic data.

Ben Muse of the Entry Commission mentioned the difference that their surveys have shown in crew share arrangements, noting that for some fisheries crew payments can be the largest single operating costs, amounting to upwards of 40% of the gross earnings from the fishery. He thought it might be worthwhile to study the institutional arrangement of crew shares, in an effort to discern systematic variations in the "interior logic" that is used in each particular crew share arrangement. The group felt that this might well be a worthwhile topic for programmatic funding by the Council.

III. FEDERAL PERSPECTIVE ON DATA NEEDS AND PRIORITIES

Rich Marasco presented views on data needs and priorities that had been formulated by federal economists. In rough order of importance, taking into account both utility of the data and feasibility of improving it with existing or proposed new groundfish data collection programs, these priorities were:

A. Harvesting Sector

1. Catch data. Catch data must be made available on a disaggregated, vessel-by-vessel basis. With respect to catch data, the economists are interested in removals in addition to landings; this is necessary and desirable because of the joint product problem in fisheries. Three broad categories of operational modes were defined: joint venture operations, wholly domestic onshore processing, and wholly domestic offshore processing (e.g., catcher/ processors). Conversion factors are needed for different product forms. Timeliness is important; the preferred catch data reporting system would make final data available six months after the close of the fishing season, with preliminary data available and accessible two months after the fishing season closed. It was noted that in some circumstances, where in-season management is required because of unanticipated changes in the fishery, a two-month delay would be the maximum tolerable.

2. Factors of production. Broadly, this term refers to effort, but the term "factors of production" was chosen to avoid confusion with the definition of effort employed by biologists. The two "classified" categories are:

Labor - Information is needed on crew size, as well as some measure of quality (for example, experience) of both crew and skipper. Definition of factor inputs was recognized to be a crucial one, but it was felt that this might be better taken up later in the process.

Capital - In this category, it would be desirable and necessary to have vessel characteristics (such as length, tonnage, and horsepower) and value, including the electronics that the vessel carries. (Additionally, value of other capital items used in the business would be necessary as well.)

With the trip as the basic unit of measure, the group felt it would be necessary to have the trip broken into time spent fishing, time in transit, and time spent prospecting, and the number of tows or number of

units of gear fished. The spatial resolution must be decided upon at some point, since reporting should be in sufficiently fine detail to enable analysis of regional impacts, but there is a real question about accuracy if reporting area are too detailed.

3. Prices. The fish ticket form proposed by the Alaska Department of Fish and Game in their report, "A Preliminary Review of Groundfish Fishery Data Needs," (ADF&G staff meeting April 23-27, 1984) is very good. The group noted several aspects of that form that are very important. In addition to the elements which all fish tickets contain (vessel name, processor name, species, statistical area, landed quantity, and price), three important items were "gear type used," "delivery condition and use," and price breaks for species (such as sablefish), where ex-vessel price depends on size of the landed fish.
4. Harvesting Costs. The group noted that conducting surveys is an expensive proposition; this is particularly true for personal interview surveys. Mail surveys, while considerably less expensive than personal interview surveys, may be subject to nonresponse bias, so the question of their efficacy remains unanswered. It was noted that fiscal modeling is a potentially useful avenue, since it extends the utility of a single year survey. The Commercial Fisheries Entry Commission is doing modeling of that type, and some of the effort-type data that the economists will request for groundfish would help them in their fiscal modeling efforts.
5. Employment. Much of the work that is currently done in analyzing the impact of regulation focuses on the harvesting sector. If it were possible to get employment by sector, one could use fairly rudimentary techniques to analyze regional incomes and impacts.

B. Processing Sector

In many ways, the processing sector data needs are analogous to those for the harvesting sector; that is, data is needed at the individual firm level, on:

- (1) product prices;
- (2) input prices and costs of production, by product form;
- (3) employment; and
- (4) numbers of processors.

It is very difficult to obtain cost information from processors; perhaps other forums might be more appropriate for obtaining data for analysis of that market sector. Efforts to expand and improve data collection in the processing sector, while important, should be considered subsidiary to efforts to improve the harvesting sector data.

Greg Baker emphasized that analysis of processing-related activities shouldn't be downplayed, because of the importance of such activities to the region and the state. State decision makers are concerned about how best to allocate public spending and the nature of its (primarily regional) impacts.

IV. DISCUSSION OF DATA NEEDS AND PRIORITIES

Within the three broad modes of operation (offshore catcher/processors, onshore domestic processing, and joint ventures), economists should be able to provide estimates of the distribution income and employment impacts; it is then up to the Council to make the policy decision regarding emphasis on development. It was pointed out that the Council often makes choices implicitly through inaction, and that often lack of action can favor one outcome over the another as much as taking action does. The accounting stance is important to decision making on a State or a Council level; that is, each body may have a different view of the weights to place on the distribution of costs and benefits among users. It was agreed, however, that the important thing for the economist to do is get the options laid out on the table and analyzed.

Chris Miller indicated that there were substantial beneficial spillover effects to the Department of Labor by getting data on a two-month preliminary/six-month final basis. In some of the work that the Department of Labor does, they get landings by gear type, species and areas, and apply assumed crew factors and estimates of numbers of landings from fish tickets to make

projections of peak and average employment by month. If catch and landings data were available two months after the fishing season closed this would permit them to generate employment estimates in conjunction with other Department of Labor reporting series. A six-month delay would allow them to generate annual reports (monthly summaries of employment) more rapidly than is now possible. He noted that they have about a two-year lag now. Even though

Alaska Department of Fish and Game currently publishes average catch data by month and area in a timely fashion, these are not sufficiently disaggregated to use in the Department of Labor's employment methodology.

Guy Thornburgh spoke of efforts being made to improve the timeliness of the ADF&G reporting system. They are committing to a system of 30+ micro computers to be stationed in field areas around the State of Alaska, which should help speed up the process of automating fish tickets. Four of these machines will be dedicated to groundfish fish ticket processing. He noted that timeliness necessarily will vary with the fishery in question, since in certain fisheries (for example, Bristol Bay salmon) delays result because fish tickets come in in exceptionally high volumes for a short period of time. In contrast, groundfish fish tickets come in at low volumes at more regular intervals, which should enable a more systematic and rapid processing. Their goal is reporting of fish ticket data in a week's time.

Kurt Schelle described some of the difficulties that are involved with extracting representative price information from fish tickets. Some fish tickets do not have the price field filled out on them; sometimes settlements are not made until later so that either nothing shows up on the price field or the price that does show is biased downward, because of the existence of delayed settlements and non-price benefits. It was noted, though, that these problems may be greater for the salmon fishery than they will be for the groundfish fishery. With respect to timeliness of price decks, the processor annual reports may be somewhat of a constraint. They are due in April of the year following the close of the calendar year during which fishing took place. Though the editing required to produce final price decks may take longer, it was felt that preliminary price decks could be developed fairly rapidly, depending in part on the priority assigned. The Technical Team should

recommend that the Entry Commission assign a high priority to development of these price decks, so that they can be used in conjunction with the fish ticket catch summaries that (presumably) would be available six months after the subject fishery.

Jim Wilson and Kurt Schelle made the point that a stable definition of catch reporting areas is crucial to developing adequate time series for analyses.

Bill Beardsley observed that the data base discussion appeared to be driven by biology. From his point of view, he doesn't look at the problem as a "fishery," like the halibut fishery, rather he sees three different modes of business operations: offshore catcher/processors, onshore processing, and joint ventures. Perhaps a more appropriate approach would be to start from the top down (or at least from the middle down), focusing on the three different types of processing arrangements expected to be seen in the groundfish fishery -- catcher/processors, onshore processing and joint venture processing -- and then look at the different modes of delivery to those processing operations. He noted that his shop has taken that approach for studies in agriculture and forestry. The processor would probably be the best common denominator, speaking pragmatically, because it is a relatively easy market level to get a handle on in terms of diversity of operation types. At the consumer level perhaps the market is too fragmented and that there are several dozens of different fisheries products. Chris Miller noted that residency of process worker is important for assessing the distribution of employment impacts associated with policies.

Jim Wilson made a presentation on the existing federal data sources. He summarized the analytical requirements of the Regulatory Flexibility Act, the Magnuson Act, and Executive Order 12291. He listed Entry Commission, ADF&G, NMFS, University, and private sector reports which constitute sources of data. and referred the group to the last three pages of the Interagency Workgroup report on Alaska Groundfish Fishery Data Collection, which summarizes federal and state data bases pertinent to groundfish economic analysis.

Greg Baker also noted that English language translations of Japanese fishery trade periodicals are available from his office, and Doug Larson noted that the Japanese Ministry of Agriculture Fishery and Forestry puts out yearbooks which may have useful market data. Another source of data, though time-consuming to access, is logbooks from the observer program at NMFS. Certain of these logbooks have interesting and useful information on production by process vessels. Baker also noted that permits for processing in internal waters of the state also requested information from the applicant on markets, thought it was not always specific, detailed, or complete. Wilson pointed out that the Council permit applications are occasionally a useful source of price information, since the application does request information on prices to be paid to U.S. partners, though they are often not complete. Smith mentioned that it may be possible to enforce the collection of that data a bit more rigorously.

Doug Larson spoke of the Council perspective on groundfish data needs, summarizing the types of information that are needed for the Council to fully discharge its obligation under the laws, and described issues which have arisen or are pending which require the analysis of tradeoffs among user groups. Bill Beardsley inquired about the Magnuson Act's requirements concerning accounting stance. The Councils are required to manage for "optimum yield," which is defined as that amount of fish which results in the greatest overall benefit to the nation, with reference to commercial food production and provision of recreational opportunities. Additionally, other laws and agency interpretations of those laws provide more specific guidance that a national accounting stance is to be used.

Thorn Smith spoke briefly about the issue of confidentiality, noting that it cuts both ways and that it is a very complex problem. He emphasized that informal cooperation is best approach and that NMFS was prepared to proceed on that basis, evaluating requests for federal data on a case-by-case basis.

V. CONSENSUS ON DATA NEEDS AND PRIORITIES

A. Harvesting Sector

1. Catch. Both landings and removals are needed. Fish tickets are a good source for landings, though the group noted that timeliness was of some concern. The group would like a reporting system so that six months after the close of the fishery final statistics on catch would be available. For two of the three modes of operation (domestic onshore processing and domestic offshore processing), no removal information exists. The group concluded that the only way to obtain such removals information would be to have observers on board.

The group noted that catcher/processors pose a special problem. Timeliness of landings reporting is very poor, since often the catcher/processors may land outside the State of Alaska sometime after the season closes. Ultimately, a fish ticket will be filed with the state in which landings take place, and that will usually be forwarded to the State of Alaska, but this is very slow. Also, the fish ticket will be for a considerably longer "trip" than will fish tickets for vessels landing onshore, which doesn't lend itself to in-season monitoring. The recommended approach is to have processors fill out a fish ticket for each tow delivered (landing). Further, depending on the form in which product is landed by the catcher/processor, some transformation or conversion of product may have occurred, so there is a question concerning what market level the reported quantity and price applies to. The group also noted another area that may pose a problem: offloading at sea.

2. Effort/factors of production. The group felt that the best way to obtain information on factor inputs would be through a logbook system. Such a system would not have to involve a census; the group could live with an appropriately defined representative sampling scheme. It was noted that if the groundfish data collection program involves the use of port samplers to collect biological data, it should be possible to get certain

effort related variables through that system too. Such a system would not replace the use of logbooks, but probably would augment and verify the information contained in logbooks.

3. Prices. The group felt that the primary need for improvement of price data is to improve timeliness of reporting of prices. While there are certain data sources which report prices on a real time basis (e.g., NMFS pink sheets and Japanese market translations), these are not accompanied by estimates of the volumes transacted, so they are of limited utility in deriving weighted average ex-vessel prices. The experience of members of the group to date is that estimates of weighted average ex-vessel prices by area and gear type are not available until up to two years after the close of the fishing year. This is simply too great a lag.
4. Harvest costs. There was discussion of the various methods of obtaining data by the group, but no clear consensus emerged. It appears that fiscal modeling, extending the utility of primary surveys of the industry, is a very promising approach. However, it may be possible to get big ticket items like fuel costs and crew shares by a logbook program. Alternatively, it might be possible to derive the needed information through a port sampling program. The group was not sufficiently informed as to the nature of any logbook programs or port sampling programs to be able to provide recommendations about the adequacy of collecting cost information through these methods.
5. Employment. The group felt that projections made by the Department of Labor on harvesting and processing employment, and by the Entry Commission on harvesting employment, are probably sufficient for now. No suggestions or recommendations were made as to further collection of data in this area.
6. Processing level. The four types of information discussed earlier regarding processing were set in priority by the Economic Steering Group as follows: (1) employment information; (2) numbers of processors; (3) product prices; and (4) costs of production.

It was noted that we already have information on items (1) and (2), from information developed by the Department of Labor and the Commercial Fisheries Entry Commission. No further work or recommendation appears to be necessary to improve information from this source.

With respect to product prices, the discussion concerning prices in the harvesting sector applies. It seems that existing sources of data are adequate in terms of collection of the needed basic information; timeliness and access are the issues here. The processors annual report provides information on purchases at ex-vessel and ex-vessel prices paid, in addition to production by product type and total wholesale value, defined as the price that the processor gets for the product. Information from this source appears to be adequate for obtaining product prices, though further interaction with Fish and Game is needed to devise means for summarizing this data in ways that are useful for economic analysis.

Guy Thornburgh made a specific suggested recommendation, which the economic working group endorsed. We need to institute a reporting procedure for catcher/process vessels. Whether this reporting system should be based on a radio contact, or on electronic data transmission, and how frequently such contacts should be made, are yet to be determined. The Economic Steering Group felt, however, that there is a problem in this regard, and that a reporting system for these vessels does need to be instituted. A second step to improve the quality of information for these vessels would be to require the catcher/processors to fill out an intent to operate, such as the one currently filled out by shorebased processors which operate in the State of Alaska. The State of Alaska doesn't issue a permit to process until this intent to operate is filed, and the same sort of requirement for a federal permit to process could be posed on catcher/process vessels.