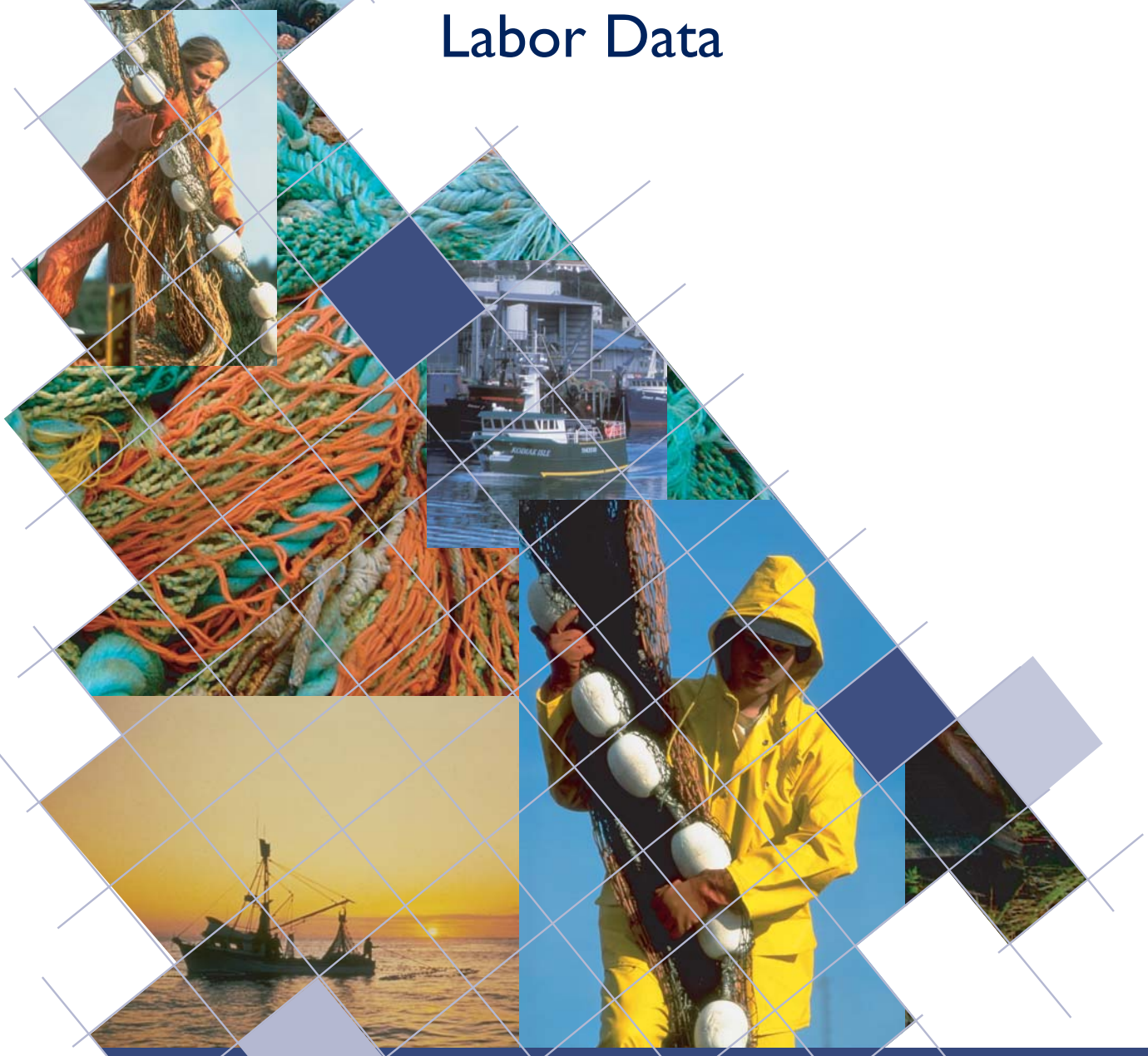
Improving Seafood Harvesting Labor Data



northern economics inc.

In association with

Jon Isaacs, URS Alaska Operations
Gunnar Knapp, Institute for Social and Economic Research, University of Alaska Anchorage

Prepared for

Southwest Alaska Municipal Conference

March 2007

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Please cite as: Northern Economics, Inc. *Improving Seafood Harvesting Labor Data Collection in Alaska Fisheries*. Prepared for Southwest Alaska Municipal Conference. March 2007.

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Abbreviations

ADCCED	Alaska Department of Community, Commerce, and Economic Development
ADF&G	Alaska Department of Fish and Game
ADOLWD	Alaska Department of Labor and Work Force Development
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BSAI	Bering Sea Aleutian Islands
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
DCPL	Daily Cumulative Production Logbook
DFL	Daily Fishing Logbook
EEZ	Exclusive Economic Zone
EDR	Economic Data Report
ER	Electronic Reporting
FT	Fish Ticket
FTE	Full Time Equivalent
IERS	Inter-agency Electronic Reporting System
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
LOA	Length Overall
NIOSH	National Institutes for Occupational Health and Safety
NMFS	National Marine Fisheries Service (NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
PSMFC	Pacific States Marine Fisheries Commission
SSN	Social Security Number
SWAMC	Southwest Alaska Municipal Conference
TAAC	Trade Adjustment Assistance Center
USDA	United States Department of Agriculture

Executive Summary

This report examines the importance of seafood harvesting labor data, outlines a roadmap for improving that data for SWAMC's constituents, and identifies roadblocks likely to prevent the development of comprehensive system for collecting seafood harvesting labor data.

Alaska's seafood harvesting and processing sector provides more direct jobs than oil and gas, mining, agriculture, and forestry plus their associated primary processing industries combined (Northern Economics, Inc., 2003). In some regions areas of the state, such as the Aleutians and Pribilof Islands, Bristol Bay and Kodiak regions, jobs in the seafood industry account for around half of all employment. These jobs are generated in fisheries under state management, fisheries under federal management, and jointly-managed fisheries, which are primarily fisheries in federal waters managed by the State of Alaska under federal delegation.[1]

Problem Statement

As shown in Figure ES-1, crewmembers differ from other groups involved in harvesting and processing seafood in terms of the amount of data collected on their activities, and these differences result in less overall information being available for stakeholders. For example, individuals working in Alaska's shore-based fish processing sector are wage-and-salary employees. This classification means that the number of processing jobs is recorded in the annual average monthly employment statistics reported by the Alaska Department of Labor and Workforce Development. Commercial fish harvesters are exempted from unemployment insurance and other employment reporting requirements because these crewmembers are classified as self-employed. Consequently, detailed information on harvesting workers is generally not available for most Alaskan fisheries. Currently, we know the number of crew license holders by community each year. We do not know:

- The number of active crew license holders by community or in total each year
- The number of active crew license holders by fishery
- The number of days active crew license holders work in total, by community, or by fishery
- The income of active crew license holders in total, by community, or by fishery

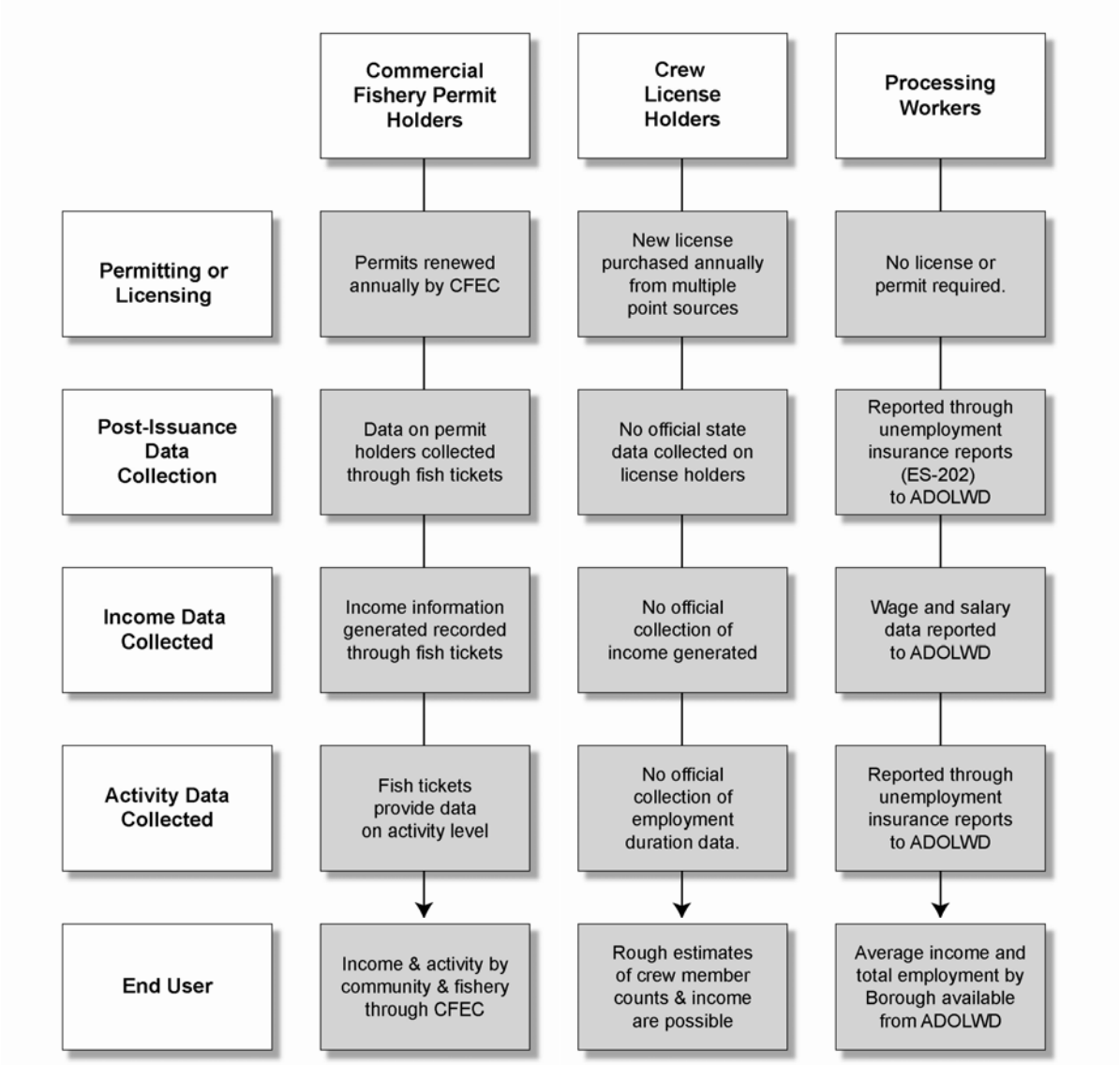
At the same time, this information is available for permit holders. Thus, those dependent on crew data for public policy-making must make do with lesser quality data.

The dilemma created by the lack of adequate seafood harvesting employment is succinctly summarized in a recent report issued by the Alaska Department of Fish and Game:

> …crewmembers cannot be linked to a particular fishery or area because their licenses are general to all commercial fisheries. Using the existing data, it is not possible to know if the crewmember fished at all, where they fished, how much they fished, how many crew fished from a vessel, or how much they earned. Because crewmember identification is not recorded on fish tickets, it is not possible to associate crew sizes or crew earnings with a particular fishery or area using fish ticket data (Shirley 2005).

[1] The federal government has primary jurisdiction over EEZ groundfish, halibut, and most sablefish fisheries, and joint jurisdiction is found in king crab and tanner crab fisheries in the areas from Dutch Harbor to Norton Sound, as well as the Southeast Alaska Chinook troll fishery. The state manages inshore (non-EEZ) sablefish fisheries in Southeast Alaska and a portion of the Pacific cod fishery, with primary jurisdiction over all other fisheries.

Figure ES-1. Seafood Harvesting and Processing Data Flow[2]



The lack of crew data has real world implications for SWAMC constituents as well as for the crewmembers themselves. During key informant interviews, constituents indicated that the largest problem arising from the lack of seafood labor harvesting data was difficulty applying for federal grant monies and programs. Constituents indicated repeatedly that improved seafood harvesting labor data are needed simply to place constituent communities on equal footing with communities that are not dependent on the seafood industry for labor and, therefore, are able to provide accurate descriptions of their communities to grant reviewers. Additionally, interview participants indicated that equivalent data are needed to place crewmembers on equal footing with permit holders when it comes to proving their historical participation in fisheries. This type of proof is often critical when applying for federal programs or when trying to influence fisheries management decisions.

[2] We note that confidentiality rules affect the development of aggregate reporting standards by community, fishery, borough, or census area.

Project Goals

The overarching goal of this project is to outline the hurdles in creating improved seafood harvesting labor data systems and to determine what facets of an improved system are most important to stakeholder groups. Specific objectives of the project include the following:

- Further explore the issues associated with seafood harvesting labor data
- Collect information on current data collection and past estimation efforts
- Define unfulfilled organizational needs for seafood harvesting labor data
- Suggest new data collection methods or systems that would eliminate the unfulfilled needs
- Evaluate potential systems from multiple perspectives and identify the positive and negative attributes of each system as well as the potential hurdles to implementing each system

Project Process

The project involved a multi-step process to accomplish the objectives outlined above. The process began with client meetings and culminated in a work group session of seafood harvesting labor data stakeholders and the recommendations contained in this report.

The aim of the first phase of the study involving meetings with the client was to define all the issues related to the collection of seafood harvesting labor data in Alaska fisheries. Concurrently, the study:

- Examined the current state of seafood labor harvesting data
- Identified sources of past and current estimates of seafood harvesting labor in Alaska fisheries, examined the strengths and limitations of the various sources, and presented the results in a comparative format.

After reviewing current seafood harvesting labor data and efforts to improve that data, the study conducted a series of key informant interviews with the goal of adding depth to our understanding of the human cost of problems with seafood labor harvesting data. Additionally, the information gathered in these interviews formed the basis for the initial action options presented to the work group of seafood harvesting labor data stakeholders.

When the study completed the steps above, SWAMC convened the work group. The results of the study were communicated to work group participants in a document that SWAMC provided to each participant prior to the work group session.

Results of the Work Group Session

Work group participants did not reach a clear solution to the issues discussed in this report. While participants generally acknowledged the need to improve fisheries employment data, they did not agree on:

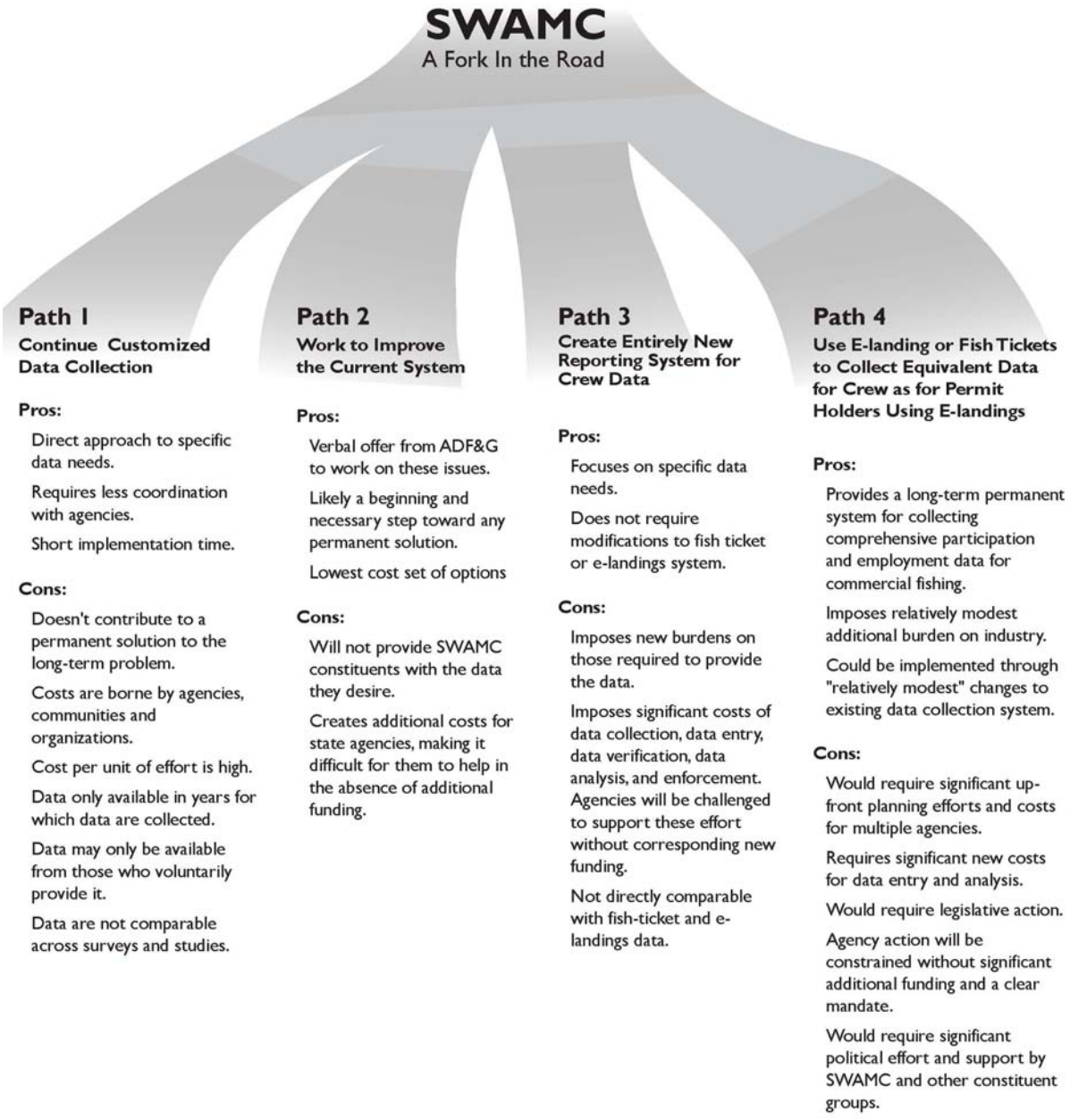
- How much change is needed
- Whether the change needed could be accomplished by upgrading the current system or would entail creating a new system

However, the work group session identified several options for improving Alaska fisheries employment data, and described the advantages, disadvantages, practical challenges and uncertainties associated with each option. In addition, convening the work group served to initiate a

discussion of these options among a variety of stakeholders, including agencies and individuals who would play a key role in implementing any of the options.

Based on the work group discussion and our past experience with the process by which changes have been brought about to systems of data collection, analysis and dissemination, we see four broad "paths" which SWAMC and others might pursue to achieve the goal of improved fisheries employment data. We discuss these paths below. Each of these four paths comes progressively closer to meeting SWAMC's needs and objectives, but also would require progressively greater commitment, coordination, and effort by SWAMC and other organizations. In moving forward, SWAMC needs to decide which of these paths will best serve its short and long-term needs. Figure ES-2 summarizes these paths.

Figure ES-2. Four Paths to the Goal of Improved Fisheries Employment Data



Path One: Continue Customized Data Collection Efforts (Status Quo)

The first path is essentially the status quo path. Under this path, there would be no changes to the current system with regard to regular fisheries-related data collection, analysis and dissemination. Rather, agencies, communities and organizations desiring more employment data than the system currently provides would collect that information through ad hoc studies and surveys—as is currently done.

There are some advantages to this approach in that it does not require any broad-based, long-term planning or development of consensus among different agencies. Studies can be implemented within a relatively short period of time and tailored to collect the specific data needed.

The essential drawback to this approach is that it doesn't solve the long-term problems that SWAMC has identified. There would continue to be significant gaps in fisheries employment data; the costs of additional data collection would continue to be borne by individual agencies, communities and organizations, with a high cost per unit of effort; the additional data would only be widely disseminated if the people who collected it chose to do so; and data would not necessarily be comparable across surveys and studies.

Path Two: Work to Improve the Current System

Making minor modifications to the current system based on crew licenses is the easiest path to getting better employment data. Specific potential improvements include collecting more information with crew licenses, improving the completeness and accuracy of data obtained from crew licenses, and expanding analysis of crew license data. As discussed in Section 6, the work group identified key questions related to the completeness and accuracy of the data presently obtained from crew licenses, as well as what might be involved in addressing these issues. Answering these questions is critical to establishing the extent to which employment data could be improved by changes to the existing crew license system.

The work group discussion also revealed that more fundamental changes to the fisheries employment data collection system (Path 3 or 4) would require incurring additional costs as well as addressing these key questions. Work group participants from state agencies indicated that any substantial new efforts requiring more personnel or materials would also require some new level of funding or the scaling back of other agency efforts. While agencies acknowledge the need for change, they also recognize that legal, policy, and budgetary frameworks constrain their ability to respond.

Path Two is unlikely to meet the needs of SWAMC, other constituent groups, or management agencies for comprehensive information on seafood harvesting employment by fishery and community. Further, even relatively small changes would impose at least some additional costs on the agencies that administer the current system and would require investment of political effort on the part of supporting stakeholder groups.

Path Three: New Reporting System for Crew Data

A third path involves the creation of an entirely new reporting system for the specific purpose of improving crew employment data. Examples of potential approaches include (but are not limited to) regularly-scheduled fisheries employment surveys, an annual permit holder report, or an annual crewmember report. Regional solutions are also possible, such as requiring permit holders in the Bristol Bay salmon fishery to list crew numbers on fishing district registration cards—this would provide information on employment and participation, but only for a specific fishery.

The advantages of developing a new crew employment reporting system, either statewide or regionally, is that it could be tailored to meet specific data needs and would not require changes to existing, complex systems such as crew licensing, fish tickets, or eLandings.

However, there are numerous disadvantages to this path. Any new reporting system would impose additional burdens on those required to provide the data, and would impose significant costs on the agencies responsible for data collection, data entry, data verification, data analysis, and enforcement. Agencies would be hard pressed to develop and implement a new data collection system without a substantial increase in funding. Surveys are expensive, difficult to conduct correctly, and typically collect limited information. Further, data collected by a new system may not necessarily be directly comparable with fish ticket and eLandings data.

Path Four: Create a System Collecting Equivalent Data for Crew as for Permit Holders

This path would go beyond the minor modifications of Path 2 but stop short of developing an entirely new system as with Path 3. It would provide a system for collecting essentially the same information for crew as is presently collected for permit holders in Alaska fisheries—thus providing a way to collect comprehensive information about participation and employment information for all persons participating in Alaska fisheries. This could be done by recording crew identifiers—permanent crew license numbers—on eLandings records and/or fish tickets. In effect, the collection of crew employment information would be built into the system at its most basic level.

This path would impose a relatively modest burden on fishery participants. However, implementing such a change would require significant up-front planning efforts for multiple federal and state agencies, and would require significant new costs for data entry and analysis. It would require legislative action to implement, and agencies would be unlikely to support it without significant additional funding and a clear mandate. As previously noted, these agencies acknowledge the need for change, but they also recognize the legal, policy, and budgetary frameworks that constrain their abilities to respond. SWAMC and other stakeholders interested in change must also recognize these and establish goals that enable state and federal agencies to address these issues. This path would likely require significant political effort and support by SWAMC and other constituent groups.

How to Keep Building Momentum

In whatever direction SWAMC chooses to move, it is clear that a key component of success will be building and maintaining momentum. We believe the following recommendations will help SWAMC continue to move forward. As shown in Figure ES-3, moving forward is a multi-step commitment.

Pick a Path and Decide What Information is Most Important—The Best Information is also the Most Difficult to Acquire

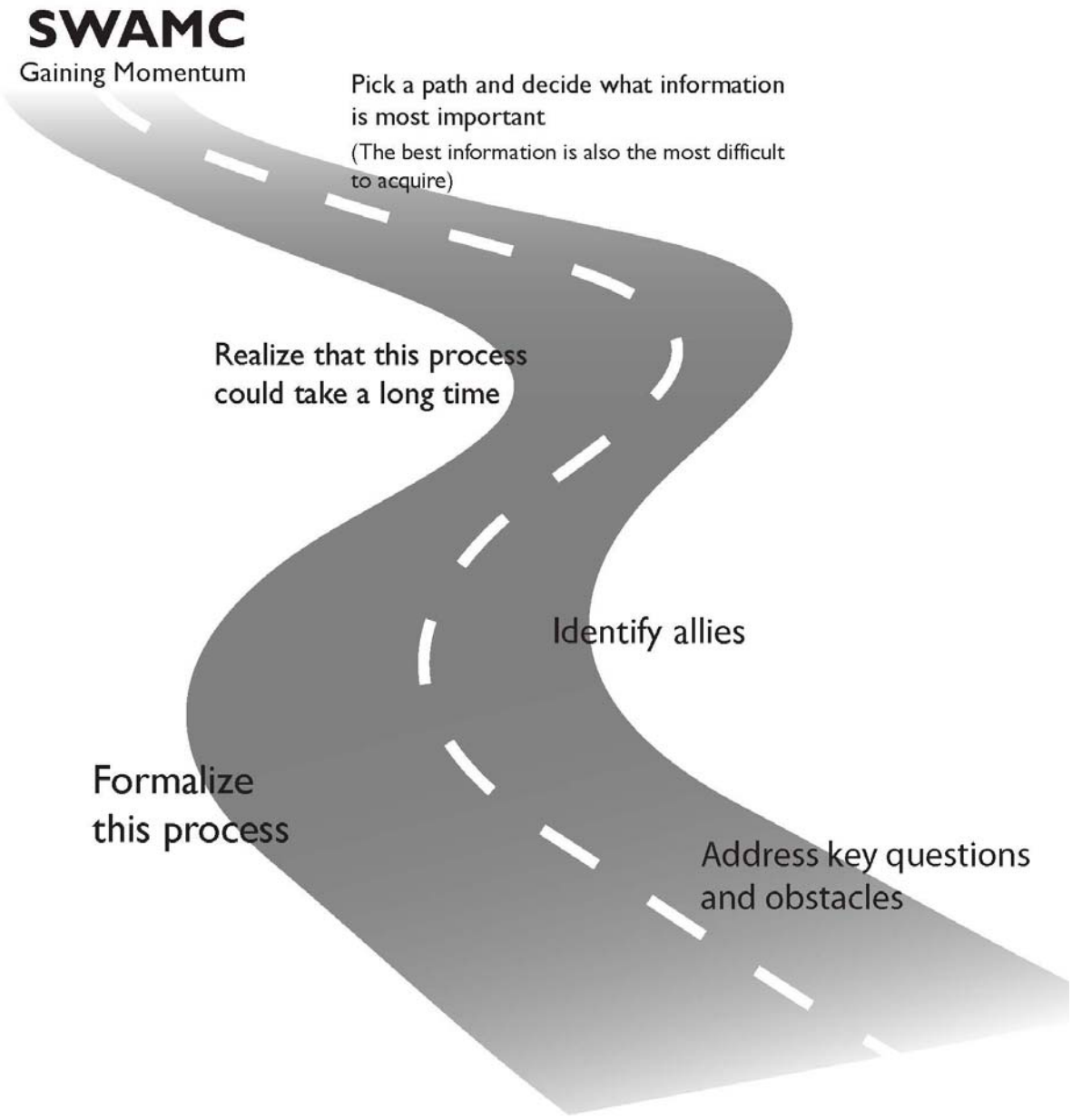
By commissioning this project, SWAMC has already taken the first steps toward adopting this recommendation. This project affirmed that SWAMC and its constituents need reliable annual data on seafood harvesting labor on a fishery and community level. The project also affirmed that the best information will be the most difficult to acquire because it requires the greatest time and money. It is now in SWAMC's hands to decide whether the pursuit of a long-term solution that meets constituent needs is worth the effort it will take to change the current system.

Realize that This Process Could Take a Long Time

SWAMC needs to realize that the path toward an acceptable permanent solution could take a long time. Work group discussions clearly showed that these sessions were simply the first step in what is

likely to be a lengthy process. Changing the fishing employment data collection system will require long-term coordinated efforts that start by convincing key stakeholders that the system needs to be changed.

Figure ES-3. Steps to Building Momentum



Identify Allies

SWAMC and its constituents need to identify allies that can assist them in this process of changing the fishing employment data collection system. One benefit of the work group session was that faces and names came together. Additionally, the session clarified stakeholders' needs. The stage is now set for SWAMC to work on identifying stakeholders that would make good partners in this process and build bridges to those stakeholders. Again, the work group session was a positive start along this road;

however, SWAMC must also work toward recruiting from outside the work group. Work group size limits and other factors prevented the involvement of potential allies in this initial meeting.

We also suggest reaching out to potential allies outside of Alaska. For example, Jon Isaacs, the work group moderator, noted that staff members of the NOAA Fisheries Pacific Regional Office are facing many of the same crew data collection issues. Identifying allies on a national level could help force change through the federal system.

SWAMC legislators and other legislators interested in fishing employment data issues will be key allies in the process of change. Participants in the work group session repeatedly indicated that state and federal agencies do not have a legislative mandate (or funding from the legislature) to address these issues. We believe that a legislative mandate will be a key component of a permanent solution.

Formalize the Process

Once allies have been identified and recruited, the next step may be to formalize the process of improving fishing employment data through a continuing working group. The more that this group can secure commitments of staff and staff time from state and federal agencies, the higher the likelihood of long-term change. The authors believe that formalizing the process is the best way to ensure that this issue keeps moving forward. Without formal commitments and regular meetings, the process is likely to stall and the benefits of this project will likely waste away.

Begin Eliminating Obstacles

Another key step toward maintaining momentum is to begin addressing the key questions and issues outlined in the section below. These questions will delay progress toward a permanent solution until they are addressed. ADF&G representatives at the work group session made verbal commitments to explore these issues. Their efforts will be more successful if they receive support from a formalized working group and the legislative branch.

That said, it has been clear throughout the project that the specific information desired by SWAMC will only be provided by a clear, long-term solution that moves the collection of accurate crew data to the same level of effort that government currently places on permit-holder data.

Addressing Key Questions and Issues

The study group believes that SWAMC has been interested throughout the project in either Path 3 or Path 4, which would lead to the development of a permanent solution that accurately and consistently provides desired data on seafood harvesting labor on an annual basis. This study identified key questions and issues that must be addressed before the long-term solution envisioned in Path 4 is possible. The most important of these questions and issues are discussed briefly below. Note that many of these questions and issues also apply to Paths 2 and 3, and that Paths 2 and 4 could be pursued concurrently.

There are differences in perceptions about what the current system is capable of accomplishing

There was disagreement among work group participants about what the current data collection system based on crew licenses is capable of accomplishing. Some participants who had worked with the data in the past indicated that they believed they firmly understood the limitations of the current system, and concluded that it was not possible to achieve the kind of employment data that are needed solely by improving the current system (Path 2). Others said that they felt the capabilities and limitations of the current system are not completely understood, and that changes to the system might

address many of the perceived data gaps. Clearly, key stakeholders must agree about the capabilities and limitations of the current system and the need for an improved system before significant progress can be made.

Thus, a key effort to resolving this issue is finding a mechanism that generates a consensus on the need for significant change. The work group session was a first step in building that mechanism. By the end of the work group session it was clear that many parties recognized the current system's limitations. That said, unofficial acknowledgement in a small work group is not the same as official and public recognition. The latter will be needed to move any substantial effort for more extensive change (Path 3 or 4) forward.

We need to clarify implications of confidentiality laws and inclusion of crew information on fish tickets

Several of the long-term options discussed during the work group session included the idea of including crew identifiers on fish tickets or eLandings records as a way of recording crew participation in fisheries. This change would be at the heart of most approaches to Path 4.

While there was broad support in the work group session for this concept, several participants raised concerns about confidentiality issues. The key question is whether including crew identifiers and other information on fish tickets and/or eLandings would necessarily give crew legal access to information on the fish tickets and, if so, to what information. This question will have to be answered by legal counsel and may require a court decision in the long run. If crewmember data are treated in the same manner as vessel owner data, crewmembers will not automatically have access to harvest and price information included on fish tickets. However, if crewmembers are treated like permit holders, they would have access to harvest and value data that they are not currently able to access. Thus, there are important unanswered questions regarding the use of fish tickets to record crew data:

- Will crew be able to access fish ticket data beyond their own participation?
- What is the functional effect of allowing access to more than just participation data?
- Is potential access by crewmembers to more than participation data a political obstacle that would stop forward progress in developing any new system of data collection?

Path 4, which involves including unique crew identifiers to fish tickets and/or eLandings, raises a variety of practical issues relating to how difficult this change would be. Examples of these issues include, but are not limited to, the following:

- Can fish tickets physically hold more information? Some participants indicated that the fish ticket has reached its functional limit in the amount of information it can collect.
- How much time and effort would be required of permit holders and/or crew to include this information?
- What additional burden would be placed on processors who, at present, bear responsibility for the accuracy of the information on fish tickets?

These issues were raised by the work group, and were cited as potential arguments against this approach. Without more information, the extent to which they are valid or significant concerns is unclear.

We need to ensure accuracy and completeness of current data first

The work group expressed varying levels of faith in the accuracy and completeness of data currently collected from crewmembers. However, there was consensus within the work group that a logical and

prudent first step in any process to improve crew data collection would be to ensure that the current system collects accurate and complete data. One fact that came to light during the work group session was that license holders are not required to show photo identification when purchasing a license. While checking an individual's driver's license or other means of identification would seem to be a logical step in ensuring the accuracy of collected data, there was some concern from ADF&G work group participants that vendors would be unwilling to demand that applicants provide some means of personal identification.[3]

The work group discussed several steps to ensuring the accuracy and completeness of current data:

- Checking the photo identification of crew license applicants to ensure that data recorded on licenses are accurate
- Automating the current license application system to include better online options and encourage more online participation
- Creating a professional crew license containing a barcode that could be used to record participation in fisheries

Understand how the current vendor system is important to stakeholders

The work group repeatedly heard concerns about the current vendor system for issuing commercial crewmember licenses. The system is composed of many small and large retail vendors. Licenses are recorded on paper and copies are forwarded to ADF&G for data processing. Although this low-tech approach makes licenses easy to acquire and replace even in the most remote locations, it requires extensive labor both for the vendor and ADF&G. Key questions that need to be answered include:

- Is the state willing to allow the vendor system to change? Does the system serve the licensing program or does the licensing program serve the vendor system?
- How expensive would it be to replace or modify the vendor system with a system that would issue more durable licenses that can interact with modern technology?
- Would there be long-term cost savings by replacing paper licenses that need hand data entry with an all electronic system?

In recent years, licenses have also been available on the Internet. If an applicant purchased a license in previous years, the Internet application automatically completes the applicant's address if he or she enters the exact name and birth date used in prior years. Thus, ADF&G is already using an option that could affect the current vendor system. The authors note that if the system is capable of retaining an individual's address from year to year than it also might be capable of retaining a permanent identification number from year to year.

[3] The same vendors also sell recreational fishing licenses and photo identification is required to purchase these licenses.

1 Introduction

Fisheries management has moved away from an early preoccupation with the fish to a greater concern about the livelihoods of the fishers and their families (Welcomme, 2003). This increased social and economic dimension has given rise to the need for other categories of information than the simple fisheries statistics that formed the traditional basis for management.

This report examines the importance of quantifying the contribution of Alaska fisheries to employment. Alaska's seafood harvesting and processing sector provides more direct jobs than oil and gas, mining, agriculture, and forestry combined plus their associated primary processing industries (Northern Economics, Inc., 2003). In some regions of the state, such as the Aleutians and Pribilof Islands, Bristol Bay and Kodiak regions, jobs in the seafood industry account for around half of all employment. These jobs are generated in fisheries under state management, fisheries under federal management, and jointly-managed fisheries, which are primarily fisheries in federal waters managed by the State of Alaska under federal delegation.[4]

Individuals working in Alaska's fish processing sector are wage-and-salary employees. Consequently, the number of processing jobs is recorded in the annual average monthly employment statistics reported by the Alaska Department of Labor and Workforce Development. However, these labor force estimates do not include commercial fishing harvesters, as employment data are collected only for those jobs that are subject to employment regulation. Commercial fish harvesters are exempted from unemployment insurance and other employment reporting requirements. These jobs are generally classified as self-employed.

The dilemma created by the lack of adequate seafood harvesting employment data is succinctly summarized in a recent report issued by the Alaska Department of Fish and Game:

> …crewmembers cannot be linked to a particular fishery or area because their licenses are general to all commercial fisheries. Using the existing data, it is not possible to know if the crewmember fished at all, where they fished, how much they fished, how many crew fished from a vessel, or how much they earned. Because crewmember identification is not recorded on fish tickets, it is not possible to associate crew sizes or crew earnings with a particular fishery or area using fish ticket data.
>
> In the past, some economists have assumed that crewmembers are hired from the permit holder's home town, and they therefore attribute the crew's earnings or tax information to the permit holder's home town. This assumption may not be correct for all fisheries (Shirley, 2005:13).

Increasingly, the Southwest Alaska Municipal Conference (SWAMC) and other constituent organizations find that the seafood harvesting labor data are neither sufficiently current nor adequate in quantity or quality for analysis to support decision-making. Therefore, these entities are trying to change the way data are collected and compiled. The primary objective of this report is to assist SWAMC in this effort. To meet this objective, the report examines why existing data fail to meet the needs of SWAMC, and defines those problem areas that only can be addressed by expanding the current data collection programs and by establishing additional programs.

[4] The federal government has primary jurisdiction over groundfish, halibut, and most sablefish fisheries, and joint jurisdiction is found in king crab and tanner crab fisheries in the areas from Dutch Harbor to Norton Sound, as well as the Southeast Alaska Chinook troll fishery. The state manages inshore sablefish fisheries in Southeast Alaska and a portion of the Pacific cod fishery, with primary jurisdiction over all other fisheries.

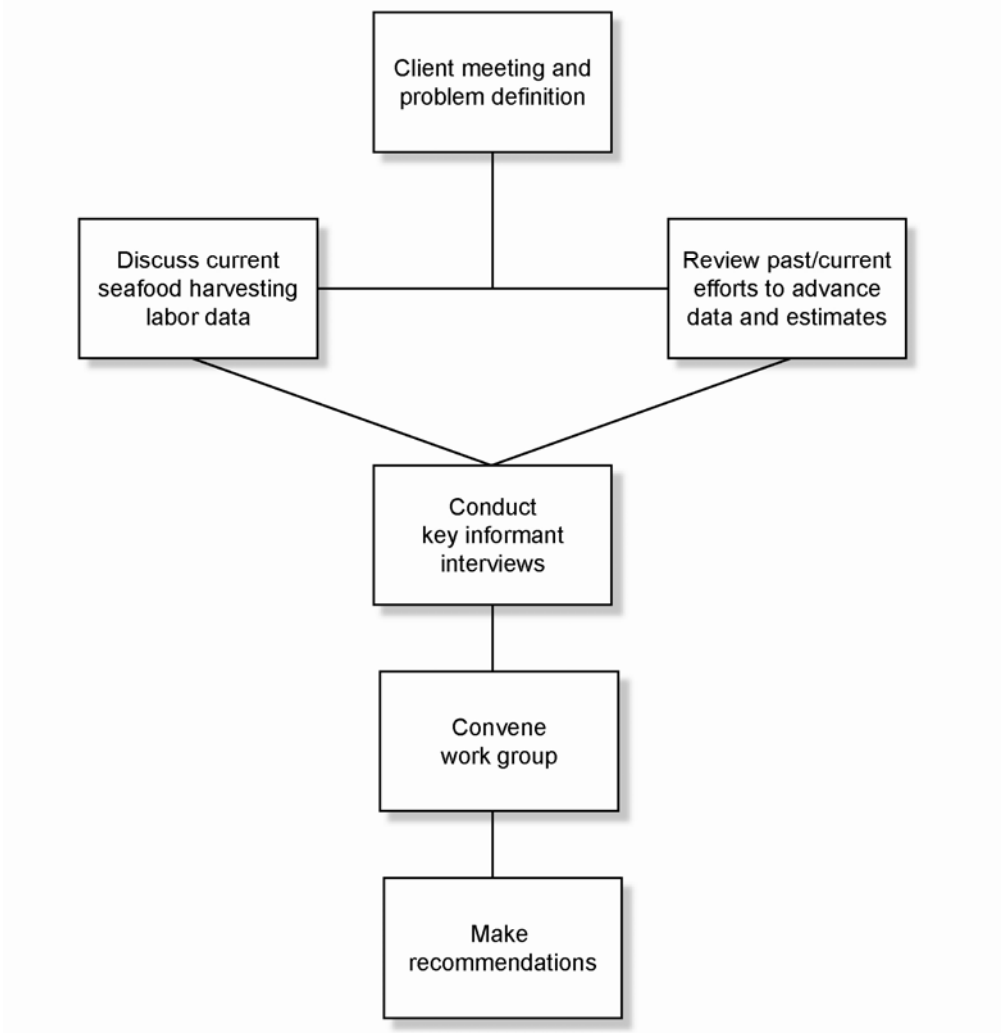
1.1 Project Process and Report Organization

The overarching goal of this project is to outline the hurdles in creating improved seafood harvesting labor data systems and to determine what facets of an improved system are most important to stakeholder groups. The broader goals for the project are:

- Further explore the issues associated with seafood harvesting labor data.
- Collect information on current data collection and past estimation efforts.
- Define unfulfilled organizational needs for seafood harvesting labor data.
- Suggest new data collection methods or systems that would eliminate the unfulfilled needs.
- Evaluate potential systems from multiple perspectives and identify the positive and negative attributes of each system as well as the potential hurdles to implementing each system.

The project involved a multi-step process to accomplish the goals outlined above. The process began with client meetings and culminated in a work group session of seafood harvesting labor data stakeholders and the recommendations contained in this report. This process is outlined in Figure 1.

Figure 1. Project Process



The first phase of the study included meetings and discussion with the client to define the issues with current seafood harvesting labor data. The results of this work are contained in Section 2.

Concurrently the study then:

- Examined the current state of seafood labor harvesting data. This discussion is contained in Section 3.
- Explored sources of past and current estimates of seafood harvesting labor in Alaska fisheries. The discussion focuses on the strengths and limitations of various sources of both primary and secondary data in a comparative format. Section 4 contains this information.

After review of the current data and efforts to advance that data, the study conducted a series of key informant interviews with the goal of adding depth to our understanding of the human cost of problems with seafood labor harvesting data. Additionally, these interviews formed the basis for the initial action options taken before the work group. The interviews are discussed in Section5.

When the study completed the steps above, SWAMC convened the work group of seafood harvesting labor data stakeholders. The study communicated the information collected in the preceding steps to work group participants in a document that SWAMC provided to each participant prior to the work group session. Section 6 contains a discussion of the work group process.

The last step of this particular study identifies key issues and obstacles discovered during the rest of the study, discusses SWAMC's options for moving forward, and methods for building and maintaining momentum should SWAMC choose to continue addressing this issue through a formal process. Section 7 contains these recommendations.

2 Problem Statement and Project Objective

Alaska's seafood harvesting and processing sector provides more direct jobs than oil and gas, mining, agriculture, and forestry combined (Northern Economics, Inc. 2003). In some regions of the state, such as the Aleutians and Pribilof Islands, Bristol Bay, and Kodiak regions, jobs in the seafood industry account for around half of all employment.

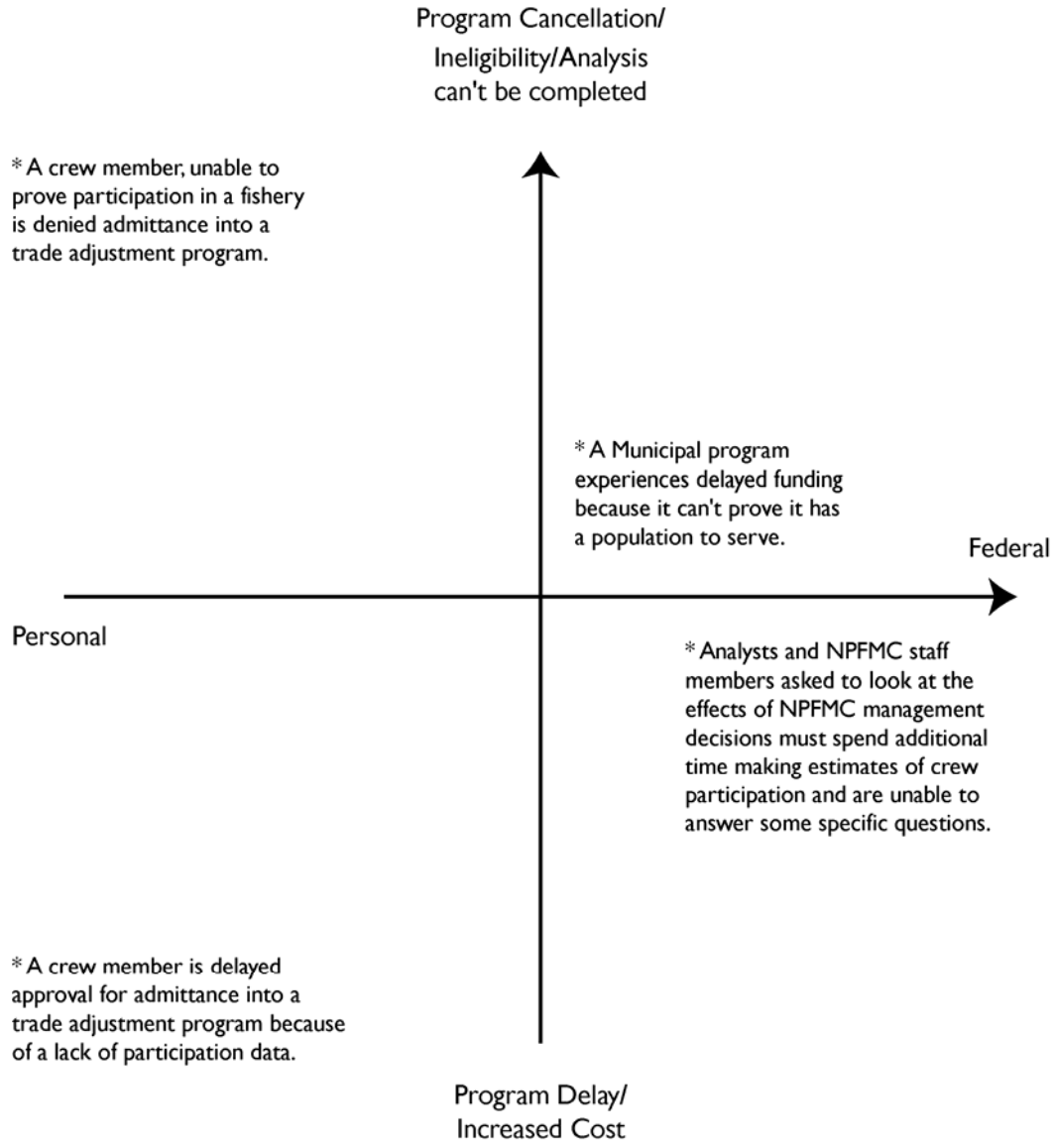
In spite of the importance of this sector, the current labor data collection system does not allow for an accurate accounting of the number of crew harvesting jobs that are created. All of the numbers regarding harvesting jobs in the industry are at best reasoned estimates, but more typically they are wild guesses. In a recent article the Anchorage Daily News Wesley Loy (2006), stated that at *"the height of the summer season, more than 20,000 commercial fishermen chase salmon and other types of fish…."* This number is derived from an estimate developed by Alaska Department of Labor and Workforce Development. In reality, there are no data that actually count the number of fish harvesters in Alaska. There are data that count the number of fish processing workers in each borough and indicate the total and average wages earned. There are also data that provide counts of the number of active permit holders at any time any over the course of the year, along with data that indicate total landings and revenue generated by that activity (as well as the permit holder's name and place of residence). There are similar data for owners of active fishing vessels. But there are no data that provide counts of the number of active fishing crewmembers, no data that relate individual crewmembers to particular fisheries or vessels, and no data that link active crewmembers to particular communities.

In short, there is no reliable way to say with any degree of certainty how many people actually earn some part of their livelihood from participating on fishing crews in Alaska, nor can we say who those people are and where those people live.

The primary objective of the Seafood Harvesting Labor Data Project is to outline a roadmap to creating a seafood harvesting crewmember data collection system that will allow accurate reporting of the participation of active individual crewmembers by community, provide an indication of the level of participation on a fishery-by-fishery basis, and determine the relative quality of seafood harvesting jobs over time.

The potential effects associated with a lack of reliable data on crewmembers range from the personal level all the way to the federal level, and the magnitude of these effects can stretch from increased costs and program delay to program cancellation and the inability to answer certain questions. Figure 2 shows hypothetical examples of the potential range of effects of not having specific crew data. The vertical axis measures the magnitude of the disruption (e.g., program delay to program cancellation) while the horizontal axis measures the distribution of the effect (e.g., personal to federal). The further right and up an effect is listed, the greater the magnitude and breadth of the potential disruption.

Figure 2. Examples of the Potential Range of Effects



The following paragraphs briefly describe several real world examples of how the lack of an effective harvesting crewmember data system has affected various agencies and stakeholders.

Trade Programs: The Trade Adjustment Assistance Act of 2002 authorized training benefits for Alaska salmon fishermen who received lower incomes because of imported salmon. In some cases, crewmembers who wanted to take advantage of the program found themselves shut out because they couldn't prove that their employment and income was affected by foreign farmed salmon or that they were Alaska salmon fishermen. No one argued with the fact that prices for wild salmon had been affected, but making a claim based on employment was made very difficult by the lack of seafood harvesting data (Kuhar 2006).

Grant Applications: Federal and state grant application processes often require counts of the target populations to be served by a proposed program or proof that prior grants have resulted in increasing

jobs or job retention. For example, job creation and retention are the top criteria for the Economic Development Administration and USDA Rural Development, two of the most frequent funders in fisheries-dependent communities. However, currently collected public data do not count crewmembers in employment estimates and the lack of tracking system for crewmembers means that when programs do create jobs by keeping commercial fishing permits in the area, there is no legal proof that these program also result in increased local crew employment.

Fisheries Management and Research: The lack of crew data means that researchers and fisheries managers must employ "best estimate" methods. For example, as noted by Knapp, 2006, the quality of information available to estimate the change in number of jobs and days works for Kodiak-based crab fisherman because of the 2005 BSAI Crab Rationalization was quite low because there were "no reliable data on where crew live, or "average days spent in transit, in port between landings, or working for vessels before or after the season."

3 The Current State of Seafood Harvesting Labor Data

The existing seafood harvesting labor data collection system has a number of components which provide different levels of information across different fisheries. This section summarizes these components.

3.1 Current Seafood Harvesting Labor Data

At the heart of the current system are the state commercial fishing regulations, which require any person engaged in commercial fishing to hold an Alaska Department of Fish and Game commercial fishing crewmember license or to a current Commercial Fishing Entry Commission (CFEC) commercial fishing permit (limited entry or interim-use permit).[5] According to state regulations, the term "commercial fisherman" means an individual who fishes commercially for, takes or attempts to take, fish, shellfish or other fishery resources of the state by any means, and includes every individual aboard a boat operated for fishing purposes who participates directly or indirectly in the taking of these raw fishery products, whether participation is on shares or as an employee or otherwise. Crewmembers that do not directly or indirectly participate in the taking, such as vessel cooks and engineers, are included in the definition. However, many of these crewmembers also pull double duty as harvesting crewmembers. In addition, the definition includes the crews of tenders or other floating craft used in transporting fish to land and offshore processors. However, the definition does not apply to anyone aboard a licensed vessel as a visitor or guest who does not directly or indirectly participate in the taking. Processing workers aboard catcher/processors are also excluded in the definition.

ADF&G commercial fishing crewmember licenses are available for purchase at the same outlets that sell recreational fishing and hunting licenses, and are issued in a similar format. The forms are filled out by the vendor in duplicate and a paper license is issued to the applicant on the spot, with the original sent to ADF&G for eventual entry into the ADF&G fishing and hunting license database. The application for the ADF&G commercial fishing crewmember license requires information on the applicant's physical location of residence (city/state/zip code), Social Security Number (SSN), and residency status (Alaska resident/nonresident and U.S. citizen/alien).[6] However, because a person's SSN also allows access to an individual's financial information, distribution and use of SSNs are strictly limited to state agency personnel.

The ease of obtaining an ADF&G crewmember license and their wide availability—they may be obtained in nearly every community in Alaska—are important positive attributes of the current system. Fishing crewmembers are often hired at the docks on very short notice, and often for very limited periods. They need to be able to obtain licenses quickly and easily, and the current system facilitates these hiring practices.

With the current ADF&G crewmember data, in combination with CFEC permit holder data, it is possible to determine the number of people who are eligible to work in the fisheries as crewmembers in a given year. CFEC has developed these estimates for years 2000 and 2002 – 2005. These reports may be accessed electronically (http://www.cfec.state.ak.us/fishery_statistics/permits.htm). Due to problems with the data, the reports are unavailable for 2001. While the CFEC reports allow the users

[5] All current CFEC Permit Holders are exempt from the requirement to hold a current ADF&G crewmember license.

[6] Notwithstanding the requirement to include their SSN licenses are in fact issued to persons that do not report their SSN.

to estimate the upper bound of the number of persons engaged in commercial fishing in any community or in all Alaska fisheries, it is not possible to determine whether a particular license holder actually participated in any fishery. Table 1 shows the CFEC permit holder and crewmember counts for 2005. Not counting ADF&G license holders that did not report their SSNs, a total of 30,649 persons were eligible to participate in harvesting activities in Alaska fisheries in 2005. Of these 19,940 were Alaskans, and 10,709 were non-Alaskans.

Table 1. CFEC Permit Holder and Crewmember Counts, 2005

Borough or Census Area	CFEC Permits	ADF&G Licenses	All
Aleutians East Borough	203	222	425
Aleutians West Census Area	99	243	342
Anchorage Municipality	873	1,015	1,888
Bethel Census Area	1,104	654	1,758
Bristol Bay Borough	179	172	351
Denali Borough	3	2	5
Dillingham Census Area	645	643	1,288
Fairbanks North Star Borough	138	67	205
Haines Borough	114	85	199
Juneau City And Borough	454	346	800
Kenai Peninsula Borough	1,396	1,463	2,859
Ketchikan Gateway Borough	348	296	644
Kodiak Island Borough	680	801	1,481
Lake And Peninsula Borough	173	273	446
Matanuska-Susitna Borough	256	279	535
Nome Census Area	230	151	381
North Slope Borough	9	5	14
Northwest Arctic Borough	149	58	207
Prince Of Wales-Outer Ketchikan Census Area	352	295	647
Sitka City And Borough	574	531	1,105
Skagway-Hoonah-Angoon Census Area	250	147	397
Southeast Fairbanks Census Area	19	14	33
Valdez-Cordova Census Area	414	391	805
Wade Hampton Census Area	642	643	1,285
Wrangell-Petersburg Census Area	790	617	1,407
Yakutat City And Borough	161	45	206
Yukon-Koyukuk Census Area	143	15	158
Unknown Alaska	69	0	69
Alaska Total	10,467	9,473	19,940
Non-Resident Total	3,634	7,075	10,709
Overall Total	14,101	16,548	30,649

Note: ADF&G license holders that did not report their SSN are excluded from this report.
Source: CFEC Permit Holder and Crewmember Counts at www.cfec.state.ak.us/cpbycen/2005/Mnu.htm. Accessed on November 1, 2006.[7]

[7] The authors note there are significant limitations with these reports in that they represent one-time snap shots of available data. Individual reports are not updated as the data are cleaned and the data are left in a provisional form.

3.1.1 Shortcomings of Commercial Crew License Data System

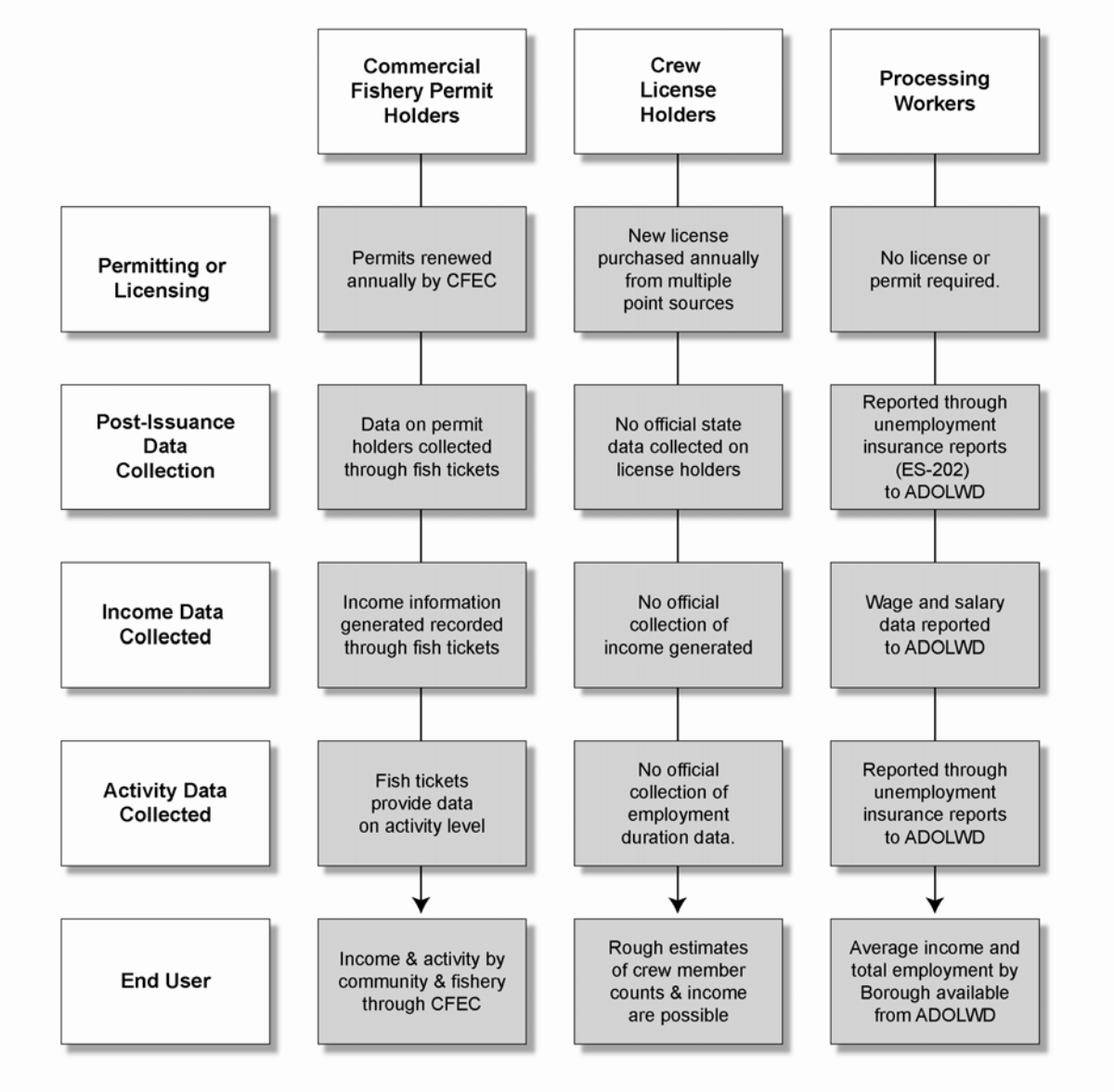
From a data perspective, there are three principle shortcomings of the ADF&G crewmember license system: 1) Licenses are issued annually—there is no linkage between previously issued licenses and currently issued licenses; 2) Once the license is issued, there is no mechanism for reporting whether the holder actually participated in the fishery; 3) There are limited demographic data collected.

As shown in Figure 3, the data flow for crewmember licenses is substantially different for the other major groups of individuals involved in harvesting seafood and results in less overall information being available to the end user. For example, individuals working in Alaska's shore-based fish processing sector are wage-and-salary employees. This classification means that the number of processing jobs is recorded in the annual average monthly employment statistics reported by the Alaska Department of Labor and Workforce Development. Commercial fish harvesters are exempted from unemployment insurance and other employment reporting requirements because these crewmembers are classified as self-employed. Consequently detailed information on harvesting workers is generally not available for most Alaskan fisheries. Currently, we know the number of crew license holders by community each year. We do not know:

- The number of active crew license holders by community or in total each year
- The number of active crew license holders by fishery
- The number of days active crew license holders work in total, by community, or by fishery
- The wage and income of active crew license holders in total, by community or by fishery

At the same time, we know this information for permit holders. Hence, there is an asymmetrical flow of data between commercial permit holders and commercial crew license holders.

Figure 3. Seafood Harvesting and Processing Data Flow[8]



3.1.1.1 Annual Issuance

The fact that licenses are issued annually and there is no link between previously issued licenses and current licenses, significantly increases data entry requirements and makes it very difficult to track license holders over time. This also limits the general usefulness of the data because in order to track license data accurately a unique identifier is required. With crewmembers, the SSN is the only unique identifier available, but because a person's SSN is highly confidential, it cannot be provided to persons outside the state agencies responsible for management. If licenses were renewed annually, the overall data entry burden could be reduced, and individuals could be permanently associated

[8] We note that confidentiality rules affect the development of aggregate reporting standards by community, fishery, borough or census area.

with a single unique license identifier. This would allow significantly wider use of license data even if other data shortcomings are not overcome.

3.1.1.2 No Mechanism for Reporting Activity

Any individual with a valid ADF&G crewmember license is eligible to be a member of a harvesting crew for any commercial fish harvesting operation in Alaska. In addition, any individual with a valid CFEC commercial fishing permit is also eligible to participate as a harvesting crewmember. Currently however, there is no mechanism for reporting activity. While regulations require that all landings and revenues be reported by vessel and by permit holder, there are no regulations that require members of the crew to be identified or reported. In part, the lack of a reporting requirement is due to the fact that fish harvesting crews are hired as self-employed contractors rather than as wage and salary employees. In general, state and federal regulations require businesses to identify their wage and salary employees by SSN and place of residence and to report their earnings every quarter.[9] There is no similar requirement for employers to report contract workers, and because harvesting crewmembers are self-employed contractors, there is no reporting of harvesting crew.

3.2 What Else Do We Know About Seafood Harvesters?

3.2.1 Seafood Harvesting Labor Composition

The fishing industry in Alaska is a diverse business encompassing everything from large catcher/processors (factory trawlers) with crews of over 100 workers to small two-man gillnetting boats (JobMonkey, Inc., 2006). Employment aboard fishing vessels may include a number of different types of jobs depending on the size of the vessel and other factors (U.S. Bureau of Labor Statistics, 2006). Large boats, especially those with on-board processing facilities, require a crew with a wide range of specialized skills. Smaller vessels typically depend on two or three individuals to operate, maintain and repair on-board fishing gear and machinery as well as perform all other vessel duties.

Most workers aboard fishing vessels begin as deckhands. Deckhands perform a variety of manual tasks on commercial fishing voyages: they prepare nets, lines and other fishing tackle to catch fish and other marine life; they sort and pack fish in ice; they handle mooring lines and may steer the vessel; they also repair nets, splice ropes, maintain fishing gear and clean surfaces. Deckhands who acquire experience and whose interests are in ship engineering—maintenance and repair of ship engines and equipment—can eventually become licensed chief engineers on large commercial vessels, after meeting the Coast Guard's experience, physical, and academic requirements. Experienced, reliable deckhands who display supervisory qualities may become boatswains. Boatswains may, in turn, become second mates, first mates, and, finally, captains. Fishing boat captains plan and oversee fishing operations—the fish to be sought, the location of the best fishing grounds, the method of capture, the duration of the trip, and the sale of the catch. Almost all captains become self-employed, and the overwhelming majority eventually own, or have an interest in, one or more fishing vessels.

In addition to fishing and vessel maintenance crew, catcher/processors carry a large array of factory workers, including entry-level processors (also known as "slimers"), roe-sorters and freezer crew as well as more experienced production line foremen and quality controllers.

[9] Businesses report employees every quarter by submitting an ES-202 report to the Department of Labor for the state in which they operate.

Used collectively in this report, the term "crewmember" applies to the captain and all individuals engaged in service on deck or in engineering departments or capacities aboard a fishing vessel. The term also includes processing-line workers aboard catcher/processors or floating processors.

Some analysts have argued that certain land-based jobs should be included as commercial fishing employment. The financial and technological complexities of the corporate-owned fishing fleets that operate in the waters off Alaska require shore-side offices staffed by financial mangers and accountants, communications specialists and other personnel. Although these workers are not crewmembers, they play an essential role in the management of fishing operations and their wages are part of the day-to-day costs of running a fishing business; therefore, they can be considered part of the seafood harvesting labor force. However, these individuals are captured in standard ES-202 labor reporting systems.

3.2.2 Seafood Harvesting Labor Characteristics

Fishing vessel crewmembers as a population have certain characteristics which make it difficult to fully estimate the participation of regional residents in seafood harvesting, particularly on a community and fishery level.

- Traditionally in many fisheries, crewmembers have been co-venturers in the fishing enterprise, sharing in both the risk and reward. Wages are often based on a share or percentage of harvest earnings.[10] As such, these jobs are generally classified as self-employed. Minimum wage laws do not apply to crewmember jobs, and workers are exempted from unemployment insurance and other employment reporting requirements.
- Most of the small, near-shore fishing vessels, such as those engaged in the herring and salmon fisheries, are independently owned and operated (DOLWD, 2006). Crews often consist of family members, and many of these family members—including children,[11] spouses and older adults—are not paid directly. Instead they're working toward a household wage. Unpaid labor remains a unique feature of the agriculture, forestry, and fishing sector and constitutes a significant part of the sector's workforce (U.S. Bureau of Labor Statistics, 2006). Most unpaid family workers assist fishing, but some also do bookkeeping, purchase supplies, or arrange the sale of the catch. While these individuals are required to have crew licenses their participation isn't captured in labor force participation rates or unemployment estimates.
- The occupation of seafood harvesting has the same proportion of full-time workers (persons who work 40 hours or more per week) as in the average for all occupations. However, few crewmembers hold fishing jobs year round. This reflects the seasonal nature of fishing work. The majority of crewmembers supplement their annual fishing income with shore-based jobs. In addition, for many Alaskans, full-time engagement in subsistence activities at certain times of the year represents an important element of their lifestyle (National Research Council, 1999). The seasonality of fishing employment makes it essential to obtain information regarding both the number of crew and the number of days fished per fishery to paint a complete picture of employment (Office of Management and Budget, 2003). For example, Fishery A may have 100 people employed in it, but only for two weeks out of the year (for 1,400 crew days). Fishery B might employ 50 people, but operate for 26 weeks (for 9,100

[10] Many boats charge a share of the operating expenses to crewmembers. These expenses may include food, fuel, bait and ice (DOLWD, 2006).

[11] A substantial proportion (11%) of Alaska resident ADF&G commercial fishing crewmember license holders between 1993 and 2003 were children aged 14 and younger (Carothers and Sepez, 2005).

crew days). Without information about the days of operation, it would appear that Fishery A provides more employment; however, it is clearly Fishery B that supports a higher level of employment.

- In addition to fishing (i.e., traveling to and from the fishing grounds as well as operating in the fishing grounds), crewmembers are often expected to perform work on their vessel and its associated gear while in port (DOLWD, 2006; McDowell Group, 1989). This non-fishing work may include helping off-load fish, maintaining fishing vessels while in port, and preparing for the next trip (Ingles, 2004). Crewmembers may or may not be compensated for this additional work. In addition to non-fishing work during the fishing season, there may be preseason preparations and postseason activities. For example, the skipper/owner of a salmon troller may actually fish only during the two to three month season, when in fact he typically devotes six months or more a year to essential work such as boat repair and maintenance, gear preparation and other activities directly related to commercial fishing (McDowell Group, 1989). Some crewmembers may receive off-season hourly wages to assist in these activities.
- Many crewmembers are very transient—they fish in many geographical areas and switch from boat to boat when space becomes available (e.g., to avoid problems with captains or other crew—getting along with shipmates is crucial for a crew that live within feet of each other for weeks at a time, sharing a single cabin) (Ingles, 2004).[12] Some crewmembers don't have a permanent address; they stay with friends, in hotels, or on the boat when on shore.
- Many people from states other than Alaska participate in the Alaska seafood harvesting sector as crew and sole proprietors. Participants include residents of Washington, Oregon, California and many other states. Carothers and Sepez (2005) reported about 7,800 unique U.S. communities listed as residences for ADF&G commercial fishing crewmember license holders for the period 1993-2003. The majority of these communities (83 percent) drew ten or fewer license holders. About 1,300 communities had more than ten crewmembers; just over 300 had more than 100. Only 66 unique communities supplied over 100 crewmember license holders in any single year.
- Both fishermen and vessels often participate in more than one fishery over the course of a year.[13] As such, fishery-specific surveys do not capture information about employment on a vessel in a fishery other than that being surveyed. To estimate total employment, it is necessary to collect average crew per trip per fishery as well as the number of days spent fishing in each fishery. Relying on existing information from a single fishery could lead to under- or overestimates of employment, depending on the degree of mobility of employment in that fishery.
- There may be overlap between crewmembers participating in fisheries on multiple permits. In other words, while it may take five crew per permit to harvest under five separate permits, these 25 possible crew positions could be filled by the same five people (or not) (McDowell, 2006).
- Individuals may be vessel owners (CFEC gear operators) in one fishery and deckhands in another (McDowell, 2006).
- There is a high turnover rate, especially among entry-level crewmembers. Some individuals have a strong commitment to fishing; they start as deckhands, stay in the fishing industry their

[12] On the other hand, crewmembers are reluctant to leave vessels that offer good jobs (DOLWD, 2006).

[13] Alaska fishermen do not necessarily participate in a full "suite" of fisheries over the course of a single year. Rather, they may "roll" in and out of fisheries over a multi-year cycle (McDowell Group, 2006).

whole working lives and eventually captain their own vessels (other committed fishermen make a career out of being a deckhand). However, most fishermen have a short-lived career; they briefly engage in fishing for the monetary reward, unique work experience or some other reason and then depart. Vessels often pick up additional crew who work for only a few days; for example, at the peak of a salmon run a vessel may need to add another crewmember or two on a temporary basis to maintain the quality of the fish (Maw, 2005). Moreover, the reduced financial rewards for crew in salmon fisheries have made it difficult to keep one crew for the entire season (Widmann, 2002).[14] Carothers and Sepez (2005) found that, of the 31 percent of ADF&G commercial fishing crewmember license holders during the 1993-2003 period for whom a unique identifier was available, the mean number of years that an individual held a license was 1.8 years. Only 20 percent held licenses for three or more years; and only 0.35 percent bought licenses in eight or more years.

- Some crewmembers may have reasons for preferring that their identity and work activity not be disclosed. In some fisheries a substantial proportion of crewmembers may be foreign nationals who are working aboard U.S. fishing vessels illegally (EnviroWatch, Inc., 2000; Ingles, 2004). Other crewmembers may wish to maintain a low profile because they have been avoiding paying income taxes or meeting other financial obligation (Ingles, 2004).[15] While the notion that the typical crewmember is someone "running from something" is undoubtedly a gross stereotype, one survey has shown that fishing is one of the easier jobs to obtain for individuals who have had problems with the law (Ingles, 2004).

[14] Widmann (2002) describes the current crew situation in Alaska's salmon fisheries as follows: "The era of returning professional fishing boats crews has come to an end. It seems like the only people available for most crews are young inexperienced people who are either college or high school students. Their school schedules often make them unavailable for parts of each fishing season. This makes it necessary for boat skippers to hire multiple crews if they want to fish entire seasons."

[15] The ADF&G matches each commercial fishing crewmember licensee against Child Support Enforcement's outstanding child support list. If the licensee is behind on child support payments, the license is null and void at the time of purchase, and the licensee is subject to criminal sanctions for participation in any commercial fishing crewmember activities.

4 Summary of Currently Employed Means to Estimate Crewmember Activity

This section summarizes recent efforts of the Alaska Department of Labor and Workforce Development (ADOLWD) and the National Marine Fisheries Service (NMFS) to estimate Alaska fish harvesting employment. It should be noted that this summary is not comprehensive, and looks only at the selected efforts of ADOLWD and NMFS. Other agencies and stakeholder groups have ongoing processes or have undertaken studies to estimate commercial fish harvesting employment. The study group heard repeatedly through key informant interviews a wide-spread acknowledgement that these studies have provided critical information to stakeholders, but also that the long-term costs of these repeated estimation projects must be greater than the costs of a more efficient system designed to provide needed data on a regular basis.

4.1 ADOLWD Crew Factor Estimation Process

During the past few years, ADOLWD has estimated the number of fish harvesting jobs in Alaska using a methodology similar to that developed by ADOLWD in earlier efforts; the results to date are reported in Olson and Robinson (2004) and Patton and Robinson (2006). The series of employment estimates goes back to 2000.

The ADOLWD employment calculations are based on the landings made by individual CFEC commercial fishing permit holders in Alaska's fisheries. For the purposes of the estimation method, the permit holders are considered employers, and their records of landings indicate employment activity by month in specific fisheries. The landing data information is primarily obtained from ADF&G fish ticket reporting. Because the records of landings do not specify the number of jobs and people involved in the fish harvesting, the ADOLWD used a "crew factor" methodology to estimate the average labor needed to fish specific permits, given their associated region, species and gear type. For example the crew factor for a Bristol Bay Drift Gillnet permit might be 2.5, while the crew factor for Bering Sea King Crab permit might be 6.7. The ADOLWD crew factors include the permit holder.

ADOLWD developed crew factors based on information from earlier, similar studies, conversations with fishermen and processors, and from staff in ADOLWD and other departments with broad knowledge of fisheries. In addition, a stratified sample of 5,000 permit holders in 117 different fisheries was surveyed. Just over 1,000 permit holders replied and this information was also used in the development of the crew factors. The original survey has evolved into an on-going survey process that will regularly update crew factor estimates for all Alaska fishery types.

In ADOLWD's process for estimating monthly employment, the crew factor indicated by the permit is applied when a permit holder makes at least one landing in a month. The crew factor is only applied once no matter how many landings are made per month. The total employment in each fishery is then calculated by multiplying the number of active permits by crew factor. When estimating total employment over all fisheries, ADOLWD's methodology attempts to reduce double counting that could occur if someone has several permits and makes landings on more than one of them. In these cases, the permit with the greatest associated harvest value determines which crew factor is activated for that particular permit holder.

ADOLWD assigns crewmember jobs to the place of work rather than the employee's residence. Most of the permits issued have a geographic designation to where specific species can be harvested and with what type of gear. For example the Area M seine salmon fishery takes place off the coast of the Aleutians East Borough, and thus the jobs generated in the Area M seine salmon fishery are assigned

to the Aleutians East Borough. For permits that allow for harvesting anywhere in the state, ADOLWD assigns employment using a special harvest area code that denotes that general area in which fish were harvested.

ADOLWD also estimates annual employment fish harvesting operations. These estimates annualize crew factors based on the number of months a given permit is active. Thus, if a permit is active all 12 months of the year, the crew factor for that permit is multiplied by 1. Alternatively, if a permit is active for six months, the crew factor is multiplied by 0.5, and so forth. As with total monthly estimates, the permit with the greatest associated value is used for permit holders with landings on multiple permits in any month.

Patton and Robinson (2006) list two reasons why ADOLWD's estimates might undercount fishing employment. First, the time spent for preparations and for completing operations at the end of the season, until the permit holder makes a landing, is not counted. To address this limitation, ADOLWD has started surveying permit holders to find out how much time is spent on preparations in each fishery. This time will be included in future estimates. Secondly, when a permit holder makes landings under two different permits in one month, only the permit with the highest value catch is assigned employment in that month. The assumption is that crewmembers who work for the same permit holders and fish different fisheries in the same month are analogous to employees who perform different duties for one employer during a month. This assumption ignores the fact that some permit holders may hire different crewmembers to fish their different permits. Since crewmembers are not specifically identified in the fish tickets that record landing data, turnover of this type can't be captured.

Another limitation of the past ADOLWD fishing employment estimates is that they do not provide insight into the residency of the job holders; as noted above, jobs are counted by place of work and the focus is on the number of workers employed during a given time period rather than the identity or characteristics of the workers themselves (Olson and Robinson, 2004). This residency limitation is also common within other estimation efforts. For example, in work prepared by Northern Economics, Inc., the analyses often assume that permit holders from rural Alaska hire crewmembers from the same community as the permit holder.

We note that ADOLWD has enacted changes in its estimation program over the past year including defining the permit as the employer rather than the permit holder. Thus, if a permit holder makes landings under two different permits in the same calendar month, each landing will generate a set of jobs. Previously ADOLWD determined which landing generated the highest earnings and counted a set of jobs (i.e., applied the crew factor) only for that one.

4.2 Efforts by NMFS to Collect Employment Data

In the last several years NMFS has initiated several other primary data collection efforts that provide more information on crew labor efforts. However, none of these systems provide information across all of Alaska's fisheries. That said, it is possible that an approach to solving some of the issues with the current statewide reporting system could be found within these efforts:

- Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish Catch Accounting System
- Interagency Electronic Reporting System
- Bering Sea and Aleutian Islands Crab Fisheries Economic Data Report
- Commercial Fisheries Employment Survey
- Regional Economic Data Collection Program for Southwest Alaska

The employment data collection and estimation processes included in these programs are discussed in the sections below.

4.2.1 Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish Catch Accounting System

NMFS recordkeeping and reporting requirements require reports from vessels participating in groundfish fisheries in the U.S. Exclusive Economic Zone (EEZ) off Alaska (50 C.F.R. 679.5). Catcher vessels with an overall length of greater than 60 feet must complete a Groundfish Daily Fishing Logbook (DFL), while catcher/processors and motherships receiving groundfish must complete a Daily Cumulative Production Logbook (DCPL). Data required to be reported by vessel owners or operators include the number of crew, excluding certified observer(s), on the last day of the weekly reporting period in a mothership or catcher/processor DCPL, and in the DFL on the last day of a trip for a catcher vessel.[16]

NMFS currently operates an electronic reporting (ER) system for collection of weekly production reports (which summarize logbook data) from the groundfish fisheries (NMFS Alaska Regional Office, 2006b). The ER system allows catcher/processors and motherships to submit weekly production reports via e-mail or direct from a modem from their computer on board.[17] The benefits of the ER system include improved data quality, automated processing of data, improved process for correcting or updating information, and more timely data available to fishery managers. The ER system is gradually being replaced by the Interagency Electronic Reporting System described below. The switch between data reporting systems will become mandatory sometime in 2007 (Ackley, 2006).

4.2.2 Interagency Electronic Reporting System

Recently, an electronic data reporting system, called the Interagency Electronic Reporting System or eLandings, was developed through a collaborative effort by NMFS, ADF&G and the International Pacific Halibut Commission, with funding from the Pacific States Marine Fisheries Commission (NMFS Alaska Regional Office, 2006c; State of Alaska, 2006). The goal of the joint effort is to develop a single, Internet-based reporting system for Alaska fisheries. The eLandings system is designed to eliminate reporting duplication and increase efficiency for harvesters, processors and fishery managers. Using the system requires a computer and printer and an Internet connection with e-mail. In addition, users must request authorization and reserve a particular UserID and password. The system allows users to submit their landing report data (i.e. fish tickets and other required processing reports) to all mandated agencies through a series of eLandings Web pages.

The eLandings system was first used in 2005 in the Aleutian Islands' Western and Eastern golden king crab fisheries. Currently, eLandings is used to report landings and/or production data for the IFQ/CDQ crab and Community of Adak golden king crab, halibut and sablefish IFQ and state-wide groundfish fisheries. In the future, the system will be expanded to include landings and production data reports for shellfish, salmon, herring and other Alaska fisheries.

[16] In general, NMFS does not enter logbook data submitted by harvesters and processors into electronic databases. Logbook data are available in hard-copy format and are often used in enforcement cases or in specialized in-house research projects.

[17] The ER system consists of two principal components (NMFS Alaska Regional Office, 2006b). The ER Client software is used by personnel on a vessel to enter data and transmit data to NMFS. The ER Host software runs at the NMFS Alaska Regional Office in Juneau. The ER Host system receives and logs transmitted files, validates the data, loads the data into an Oracle database, and sends a return receipt report to the vessel or processing plant informing them of the status of their submission.

Data reported in the eLandings reporting process include ADF&G fish ticket record information,[18] IFQ fisher/processor quota harvest, and processor production information. In addition, reported data include the total number of crew (including skippers) on-board the vessel.

4.2.3 Bering Sea and Aleutian Islands Crab Fisheries Economic Data Report

Beginning in the August 2005, NMFS is requiring an annual Economic Data Report (EDR) from any owner or leaseholder of a vessel that harvested or processed crab in the Bering Sea and Aleutian Islands (BSAI) crab fisheries managed under the IFQ/IPQ program (50 C.F.R. 680). The purpose of the data collection program is to collect the employment, cost and sales data necessary to adequately examine how vessel and processing plants are affected by the BSAI crab rationalization program. The following information is recorded for crew who harvest crab and whose pay is based primarily on their harvesting work: 1) the number of crew aboard the vessel (excluding captain) who provided crab harvesting labor; 2) the total payment made to crew (excluding the captain) for their crab harvesting labor; and 3) the total payment made to the captain for his services. The total payment to the crew and captain is the amount actually paid, not the earnings before shared expenses (such as fuel, bait, or food and provisions) are deducted. Any payments to the captain or crew for their IFQ are excluded.

In addition, the report records the ADF&G commercial fishing crewmember license number or CFEC commercial fishing permit number for each vessel employee participating in any or all BSAI crab fisheries and lists the employee's location (city/state) of residence. For employees that do not have ADF&G crewmember licenses or CFEC fishing permits (processing crew for example), the report records the location (city/state/country) of residence and the number of employees that are from each residential location.

All data are collected and held by the Pacific States Marine Fisheries Commission (PSMFC). PSMFC abides by all statutory and regulatory data confidentiality requirements, and only releases the data to NMFS, North Pacific Fishery Management Council staff and any other authorized users in a "blind" format. Specifically, all identifiers associated with data submitters are eliminated and replaced with fictitious vessel and processor identifiers for purposes of analyses. Participation in the data collection program is mandatory for all participants in the BSAI crab fisheries. Should participants fail to submit the EDR, NMFS is authorized to withhold issuance or transfer of IPQ or IFQ.

4.2.4 Commercial Fisheries Employment Survey

In 2003, the national offices of NMFS developed the Commercial Fisheries Employment Survey, which is designed to collect employment data for use in descriptive analyses of the economic significance of the commercial fish harvesting sector from all US states and territories (Office of Management and Budget, 2003). The voluntary mail survey was initially fielded in spring 2004 and ran through the summer of that year (Curtis, 2006). Due to a low response rate NMFS opted to conduct a phone survey to detect potential non-response bias (i.e., bias introduced because those

[18] ADF&G fish tickets are filled out by the processor for each vessel that delivers fish to that processor. Data reported on the fish ticket include ADF&G vessel number, CFEC commercial fishing permit information, date fishing began, date landed, gear type, ADF&G statistical area where fish were harvested, landed weight (in pounds) and condition of the catch by species, weight (in pounds) of discards at sea and at the dock, number and type of prohibited species discarded at sea, price paid/received per pound for the recorded weight, and monetary amount paid/received. A fish ticket is considered a legal document and requires the signature of the vessel captain or operator and the buyer.

who responded were systematically different from those who did not). The phone survey also had the effect of bumping up the response rate significantly (the final overall response rate was 50 percent).

The survey sampled from the entire population of U.S. commercial fishing vessels (with the exception of Puerto Rico and the U.S. Virgin Islands). The potential respondent universe was any commercial fishing vessel that 1) holds a federal or state permit or license; and 2) participated in fishing activity in either state or federal waters in 2003.

The mail-out questionnaire asked each vessel owner or captain to report, for the calendar year 2003, the average number of crew taken on a trip and the number of days fished in each 2-month period in each fishery. This will allow for the estimation of: the total number of crewmembers employed (annually and by month) in all U.S. commercial fisheries, the total number of crewmembers employed by fishery (annually and by month), and the total number of days of employment by fishery and across all fisheries. Depending on the other information available regarding each vessel, it should also be possible to provide estimates of full- and part-time employment by state or by vessel characteristics such as gear type. The results of the survey are still being analyzed (Curtis, 2006).

One of the major limitations of the survey is that it will only provide a one-year snapshot of the employment situation in U.S. commercial fisheries. Repeated surveys would allow one to examine evolving trends in commercial fishing employment, but high costs may preclude the frequent administration of surveys (the proposed budget for the contract to conduct the survey in FY04 was $175,000). Another limitation with the NMFS survey and other voluntary surveys is alluded to above—the potential for a high level of non-response. According to Curtis (2006), NMFS is currently reviewing the accuracy of the survey results given the early non-response problem.

4.2.5 Regional Economic Data Collection Program for Southwest Alaska

NMFS is proposing to undertake a survey effort in 2007 to collect data required for a regional economic analysis associated with Southwest Alaska fisheries (71 FR 53668, September 12, 2006). The one-time mail-out survey will request data on employment and labor income from 2,200 vessel owners whose boats delivered fish to processors in Southwest Alaska. NMFS has hired contractors at the University of Alaska Fairbanks to conduct the data collection project (NMFS Alaska Regional Office, 2006d). Since the contractors are concerned about the low response rate of a voluntary survey, they will use an approach slightly different from those used by previous data collection studies. First, for gathering information on employment and earnings, they will rely on the survey of vessel owners. Second, for gathering information on costs of intermediate inputs used on harvesting vessels, they will survey the suppliers of the inputs rather than the vessels owners. This approach will allow the number of questions on the voluntary survey to be minimized, which will help to increase the response rate.

5 Key Informant Interviews

The project conducted a series of key informant interviews to determine the breadth and magnitude of issues associated with seafood harvesting labor data issues. The interviews targeted researchers, municipal employees, fishermen, state and federal employees, and some private enterprises. The interviews revealed that issues with associated with seafood harvesting labor data are common, but generally limited to public sector entities, researchers, and permit holders and crew involved in fisheries. Private sector firms are less affected by the lack of data; particularly outside the immediate harvesting sectors. The interviews also revealed the lack of data is a long-term annoyance more likely to delay or reduce the efficiency of programs than actually prevent programs or result in their cancellation.

5.1 Common Issues Arising from Current Data Sources

The study found that the most common issues associated with the current seafood labor harvesting data were trouble meeting grant and program requirements. Almost all of the key informant interviewees mentioned problems with grant applications and the ability to accurately describe their own personal needs, the needs of their community, or simply the composition of their community. One interviewee described the lack of data as "a multi-edge sword that cuts in many directions and in very subtle ways." These sentiments were echoed during the work group session described in Section 6. The following areas describe specific programs or issues mentioned by multiple interviewees.

5.1.1 Denali Commission Distressed Communities Criteria

Several key informant interviewees said that the lack of data on crewmembers involved in seafood harvesting hampered the ability of their communities to receive funding under the Denali Commission's Distressed Communities Criteria program. In 2000, the Denali Commission adopted the Distressed Community Criteria to ensure that qualified communities would receive federal aide. This adoption provided standard qualification requirements to ascertain how funding would be distributed to each community. The Commission developed the following criteria to determine community eligibility:

- Per capita market income no greater than 67 percent of the U.S. average
- 150 percent of the U.S. average or greater of poverty rate
- 3 year unemployment rate at 150 percent of the U.S. average or greater

Additionally, Congress mandates that eligible communities are not to receive more than 80 percent of funding for the construction of health facilities. Communities that do not qualify are not to receive funding of more than 50 percent. The interviewees indicated that the fact that seafood harvesting crew might not be included in traditional unemployment rate calculations hampered the ability of harvesting-dependent communities to qualify for these programs (Currier 2006; McClure 2006). However, interviewees also indicated that recent changes to the program had removed some of these traditional barriers.

5.1.2 Development of Comprehensive Plans

Community Comprehensive Plans are often the basis for long-term development and planning decisions in many communities. In many instances, they also serve as reference documents for citizens and supporting materials for federal and state grant applications. Communities relying on the seafood harvesting sector for employment are unable to accurately show how important that sector is to their community because current data do not allow them to describe fisheries involvement by community members that crew these boats (Bergey, 2006). The communities can include information on which fisheries are most important to commercial fishing permit holders in their communities, but their descriptions of crew involvement must rely on anecdotal evidence, their own knowledge of the communities, or assumptions that crew are involved in the same. This asymmetry of information means the comprehensive plans are less useful in planning for the needs of crewmembers and their involvement in the community than they are in planning for the needs of sectors where more complete employment information is available.

5.1.3 Federal Trade Adjustment Assistance Programs

The study heard repeatedly from key informant interviewees that one of the major issues with the current data is the inability of companies or individuals involved in seafood harvesting to prove they've been harmed by shifts in trade. For the seafood industry, labor data are the primary means of qualifying a company or individual for the federal programs managed by the Northwest Trade Adjustment Assistance Center (TAAC) and the U.S. Department of Labor. In order for companies to qualify for the program they have to show a decline in employment, while individuals have to prove they were involved in the fishery. Clearing this hurdle can be difficult for crewmembers because as independent contractors, they are not recorded in state employment figures and their involvement in specific fisheries is not recorded. In most industries the sector itself provides proof that the individual worked in that sector, but in fisheries clients have to supply TAACs with their own proof because the centers do not have a state source (Kuhar, 2006). Hence, the biggest cost due to lack of good data is paid by potential TAAC clients who are unable to qualify for the trade adjustment assistance programs even though they participated in fisheries.

5.1.4 Hospital Reimbursement and Grants

Conversations with Brenda Akelkok of Bristol Bay Area Health Corporation indicated that Bristol Bay area health providers face challenges writing grants because they can't numerically prove that their populations are in need of services. For example, the lack of fishery-specific counts on the number of crewmembers makes it nearly impossible to prove to granting agencies that the demand for services swells during specific fishing seasons and that the population influx is composed of individuals who might qualify for reduced-cost services. Thus, the care providers find it difficult not only to apply for grants which might expand services or improve the quality of existing services, but also to find full reimbursement for services they are currently providing.

5.1.5 Suggested Solutions from Key Informant Interviewees

Some key informants suggested solutions that became the basis for the initial options provided to work group participants. In general, key informants told the study that the system that would serve them best would be one that would allow them access to reliable counts of crewmembers by fishery and community. However, these same interviewees indicated that they did not think this would happen until the governor and the legislature got behind the project. As one interviewee stated, "This issue is the number one unmet priority for understanding the seafood economy, but the topic isn't

sexy enough to get the attention it deserves." Interviewees stated that it's difficult to attract the attention of decision makers because they don't understand the depth of the problem or the amount of work needed to provide them with the little information that is currently available.

Some interviewees suggested regional or partial solutions to the issues associated with tracking seafood harvesting labor. One interviewee suggested a regional solution for the Bristol Bay sockeye fishery. The suggestion included requiring that permit holders declare which crew would be fishing with them for each opening in the fishery. The declaration would be made by recording the crew license number on the permit district registration cards announcing which district the permit holder would fish in during the next opening. This solution would allow researchers to determine how many crewmembers fished in the fishery and where they came from. It would not solve issues beyond the fishery or allow the direct calculation of income derived from the fishery. Other interviewees suggested tackling the problem in a phased approach by expanding the federal eLandings system.

6 Work Group Results

A key component of SWAMC's Seafood Harvesting Labor Data initiative was the work group session that brought together agency personnel, social scientists, community leaders and other stakeholders including crew-members, vessel owners, permit holders, and processors. The primary goal of the work group session was to open a dialog that would examine existing and proposed systems that deal with fishing crew data. The work group session was held on the Southeast Campus of the University of Alaska in Juneau on November 13 and 14, 2006. A total of 20 persons (as listed in Table 2) attended the work group session. SWAMC sent each attendee a primer providing an overview of the existing situation and potential options to improve crewmember data. The primer is included as Appendix B – Work Group Primer.

Table 2 Work group session Attendees [1]

Name	Organization	Organization Type
Wanetta Ayers	Southwest Alaska Municipal Conference	Communities
Linda Freed	City of Kodiak	Communities
Debora King	Kodiak Chamber of Commerce	Communities
Chuck McCallum	Lake and Peninsula Borough	Communities
Laura Gilman	Aleutian Pribilof Island Community Development Association	Communities
Geron Bruce	Alaska Dept. of Fish and Game	State Agency
Herman Savikko	Alaska Dept. of Fish and Game	State Agency
Gail Smith	Alaska Dept. of Fish and Game	State Agency
Rachel Baker	Alaska Dept. of Fish and Game	State Agency
Kurt Schelle	Commercial Fishing Entry Commission	State Agency
Stefanie Moreland	Commercial Fishing Entry Commission	State Agency
Neal Gilbertson	Alaska Dept. of Labor and Workforce Development	State Agency
Dan Robinson	Alaska Dept. of Labor and Workforce Development	State Agency
Andy Wink	Alaska Dept. of Labor and Workforce Development	State Agency
Glenn Haight	Alaska Dept. of Commerce and Community Economic Development	State Agency
Bob Ryznar	Alaska Fisheries Information Network	Federal Agency
Jeff Hartman	NOAA Fisheries--Alaska Region	Federal Agency
Scott Miller	NOAA Fisheries--Alaska Region	Federal Agency
Stephanie Madsen	North Pacific Fishery Management Council and Pacific Seafood Processors Association	Federal Agency/ Processors
Tim Henkel [2]	Deep Sea Fishermen's Union	Crewmembers
Steve Branson	Crewmen's Association	Crewmembers
Keith Criddle	University of Alaska Fairbanks—Southeast	Research
Gunnar Knapp [3]	Institute of Social and Economic Research	Research
Jon Isaacs [3]	URS, Inc	Research
Jonathan King [3]	Northern Economics	Research
Marcus Hartley [3]	Northern Economics	Research

[1]In addition the attendees listed above, Jennifer Sepez (NOAA Fisheries), Mark Fina (NPFMC), and Joe Sullivan (Mundt MacGregor) all attempted to attend, but were unable to participate because of inclement weather conditions in Juneau.
[2]Attended via telephone
[3]Member of the consulting team

6.1 Agenda

The work group session was moderated by Jon Isaacs of URS and consisted of five basic sections:

1) Presentation by Agencies describing the data collection and estimation processes;
2) Presentations by data users describing their data needs and some of the problems they face when trying to use existing data;
3) Presentation of potential options that could improve the data that are collected;
4) A discussion of the pro's and con's of the various options;
5) A discussion of the steps necessary to keep the initiative moving forward;

The remainder of this summary contains a separate section for each agenda item

6.2 Agency Presentations

The work group session began with presentations regarding existing and planned data collection systems and methods used to estimate crewmembers in Alaska's fishing industry. Presentations were made by Geron Bruce and Gail Smith of ADF&G, who provided summaries of the commercial crew licensing system, the existing paper fish ticket system, and the soon to be implemented electronic fish ticket system, and Neal Gilbertson of ADOLWD, who discussed the current means of estimating fish harvesting crew numbers. The presentation summaries that follow were developed from notes taken by study team members. While the team has made every effort to accurately summarize the discussions, they were not transcribed verbatim and are paraphrased from the original language.

6.2.1 Geron Bruce of ADF&G on Crew Licenses and the Existing Fish ticket System

Geron Bruce of ADF&G provided the presentation that described the current systems for collecting crewmember licenses and the existing paper-based fish ticket system for collecting landing information.

According to Mr. Bruce, commercial crew licenses are assigned using the same system that licenses recreational fishing and hunting. The system, which annually issues 2.6 million annual licenses, uses approximately 230 vendors, most of which are located in Alaska.

In 2005 Commercial Crew Licenses generated $1.9 Million in license fees. Revenues from Commercial Crew Licenses are distributed to the ADF&G Division of Commercial Fisheries (51 percent or approximately $970,000) to license vendors (10 percent or $190,000) and to the Fishermen's Fund (39 percent or approximately $740,000).[19] While the revenue to both the state, the Fishermen's Fund and to vendors is important, Mr. Bruce indicated that crew licenses were not used by the state to track fishing activity of crewmembers. He did however indicate that crewmembers are often asked to show their licenses when the fishing vessel is being inspected by state or federal enforcement personnel.

[19] The Fishermen's Fund (administered by ADOLWD provides for the care of Alaska licensed commercial fishermen who have been injured while fishing in Alaska. See http://www.labor.state.ak.us/wc/ffund.htm for more information on the Fishermen's Fund

In general, the license application form is very similar to that used for recreational fishing and hunting. It is a paper form that is filled out in triplicate by the vendors.[20] The crewmember receives a paper copy of the license and one copy goes to ADF&G and the other is retained by the vendor. ADFG seasonal staff enters the data from the forms into the computerized database on an annual basis.

Mr. Bruce stressed that it is important that crewmember licenses are widely and quickly available in nearly any location where commercial fishing is likely to take place. He also stressed the importance to vendors of revenue from license sales and the importance that ADFG places on having vendors in most locations. Finally, Mr. Bruce noted the expense of converting to an alternative system.

Mr. Bruce also provided the work group session an overview of the current paper-based fish ticket system that serves as the basis tracking shore-based commercial fish landings throughout the state. Mr. Bruce indicated that in 2005, 213,000 Fish tickets were received from 466 different processors. The Fish ticket system has an annual cost of approximately $350,000.

Each processor that completes an "intent to operate" application (the equivalent of a license for processors), they are issued blank fish tickets for use in the upcoming season. Like the crew licenses, the fish tickets are paper forms with several carbon copy duplicates attached. When the Fish ticket is issued, a copy is given to the permit holder, the processor keeps a copy and others are sent to ADF&G and to other management agencies (e.g. the International Pacific Halibut Commission or IPHC, and the National Marine Fisheries Service or NMFS).

The fish tickets indicate the ADF&G Vessel Identification number, the Processor Identification number, the Permit Holder Identification number and the type of permit on which the landing is made. The Fish tickets also list the pounds of each species landed along with the fishing location, the type of gear used, the date of the landing, and other important data. The Fish ticket currently does not have a place that could accommodate information on crewmembers.

Finally Mr. Bruce asserted that confidentiality is a key factor in gaining the participation of permit holders and processors in the Fish ticket System—the state guarantees confidentiality of records to enhance the cooperation of permit holders and processors in providing landing information.

6.2.2 Gail Smith of ADF&G on the eLandings System

Ms. Gail Smith provided the work group session with a summary of the eLandings System, which is more formally known as the Inter-agency Electronic Reporting System or IERS. Development of IERS began in 2000 in a cooperative effort by ADF&G, NMFS and IPHC. To date the effort has cost these agencies $1.6 million, but eventually will contain all of the data that is currently going into the FT and IFQ monitoring systems.

Ms. Smith pointed out that rationalization of the sablefish, halibut, crab fisheries has been the primary impetus for development of the system. In 2007 landings in the sablefish, halibut and rationalized crab fisheries in the Bering Sea and Aleutian Islands will be required to use the IERS. [21] For the rationalized fisheries, the IERS will completely replace fish tickets. In addition, it may be voluntarily used for other fisheries, and eventually according to Ms. Smith it is hoped the IERS will be used in nearly every fishery in the state.

[20] Though not mentioned in the presentation, it should be noted that in recent years it is possible to obtain a Commercial Crew Licenses (as well as recreational fishing and hunting licenses) over the Internet. No identification or verification is required, and while applicants are mailed a license, a temporary license can be printed and used immediately.

[21] Additional information on IERS (eLandings) can be found at https://elandings.alaska.gov.

Ms. Smith indicated that the IERS does ask permit holders to submit information on the number of fishing crewmembers (as opposed to processing crew) and on the number of observers on board. Ms. Smith also indicated that there are no current plans to ask that fishing crewmembers be identified using Alaska Commercial Crew License numbers.

6.2.3 Neil Gilbertson of ADOLWD on the Estimation of Alaska Fishing Crew Jobs

Mr. Gilbertson provided the work group session with a summary of the process used by ADOLWD to estimate the number of fishing crew jobs in Alaska by month. Mr. Gilbertson began the presentation by contrasting that process with the process used to estimate wage and salary employment for most other job types in Alaska.

In 1960, the Employment Security (ES) system began collecting employment information across the US with each state's labor department responsible to produce estimates for their particular state. The primary means to provide those estimates is through the ES-202 form that is required to be submitted quarterly by all employers with 3 or more employees.[22] Because fishing crewmembers are generally independent contactors and not wage and salary employees of the permit holder or vessel owner, the ES-202 form does not capture fish harvesting employment.

Mr. Gilbertson also pointed out that the information reported on the ES-202 is workplace based and therefore doesn't specifically indicate the residence of the employee. In other words, a system for crewmembers that actually reported residence would be a step beyond what is required currently for wage and salary employees. The ES-202 forms requires that employers report the individual SSNs of all employees as of the 12th of each month, and this allows ADOLWD, in combination with Permanent Fund Application information, to estimate resident and non-resident employment. In general however, ADOLWD does not use the SSNs in their standard employment estimates.[23]

Because of the importance of the fishing to the Alaska economy, ADOLWD has, in recent years, been making estimates of fishing crew employment that are similar to the extent possible to what they produce for other industries from the ES-202s.

Mr. Gilbertson described the ADOLWD process for estimating fishing employment. First they sort individual fish tickets (obtained from ADF&G) into discrete fisheries by month and permit holder. Then they assign a crew factor to each fishery and multiply that factor by each permit fished during the month. ADOLWD estimates crew factors in each fishery based on a regular survey of permit holders. ADOLWD assigns regional geographic indicators based on the location of the fishery. For example, estimates of crewmembers in the Bristol Bay Salmon fishery are assigned to the Southwest Alaska Region. For statewide fisheries, ADOLWD uses geographic information submitted in the fish ticket indicating where the fish were caught and were they were landed.

Mr. Gilbertson went on to discuss the Pros and Cons of the ADOLWD system, and pointed out that the estimates are good for total employment counts for each fishery by month. He also indicated that the new IERS provides actual data that could replace ADOLWD's estimates. On the Con side, Mr. Gilbertson acknowledged that the systems does not track data on individuals, does not provide information on the residence of crewmembers, does not include estimates of the actual number of days worked (either on the grounds or time spent on shore working on the boat and gear). Finally, Mr. Gilbertson indicated that ADOLWD recognizes that estimating crew numbers by each permit fished in

[22] The specific information on requested on the ES-202 is seen at http://www.bls.gov/cew/cewover.htm

[23] Some participants noted that in theory ADOLWD could take a systematic look at SSNs in the ES-202 form and cross check with available SSN information in commercial crew licenses and permit databases to examine the question of whether fishers are working in industries other than in the fishing industry.

a month would count an individual multiple times if they worked in different fisheries during a single month.

6.3 User Presentations

The presentations on data collection by agency personnel were followed by presentations of three users of fishery data. Linda Freed and Debra King, both from Kodiak, discussed the importance of having reliable fisheries employment data in order to anticipate and respond to changes in fishery regulations. This was followed by a discussion led by Gunnar Knapp of the Institute of Social and Economic Research on the importance of employment for fisheries research.

6.3.1 Linda Freed City Manager of Kodiak on Importance of Employment Data to Civic Leaders

Linda Freed discussed the fact that Kodiak is one of the largest fishing communities in the country, but that it is impossible to say with any certainty how many residents actually participate in the fisheries. This became especially apparent with the rationalization of the Bering Sea Crab fisheries. Everyone is saying that the change in crab fisheries has had a significant impact, but all evidence of impact on crewmembers is anecdotal—there are no available data that document how crewmembers were affected.

The community is even more concerned because the City of Kodiak knows that the Bering Sea Crab fishery was not the largest sector of Kodiak's fishing economy, certainly nothing like the Gulf of Alaska groundfish fishery. The NPFMC is looking at rationalizing this fishery as well, and residents and city officials are very concerned there could be a significant impact. Unfortunately, there are no data on which to base an analysis.

The City of Kodiak believes it is incumbent upon the federal and state governments to have data that allow communities to be informed and to be involved in the process. They also believe that the fishing industry is a significant component of the economy, but there is a large number of people (the crewmembers) that are involved in the fishery and in the community for whom they can't document their involvement.

6.3.2 Deborah King of the Kodiak Chamber of Commerce on their use of Employment Data

The Kodiak Chamber of Commerce publishes a monthly newsletter on our labor force that reports employment, wages and salaries, based on the information that comes from ADOLWD. However, for the fishing industry, which is the City's most important industry, the report has nothing but anecdotal information and informed guesses. Ms. King stated that sound, basic data on fish harvesting employment and income are needed and those data needs to be credible and factual.

6.3.3 Gunnar Knapp of UAA's Institute of Social and Economic Research

Dr. Gunnar Knapp provided the work groups a presentation that we have divided into two parts: Part 1 focuses on the challenges for research created by the lack of fishing employment data; and Part 2 discusses the importance of employment data for fisheries research. The summaries provided here are paraphrased from the original presentations.

6.3.3.1 The Challenges for Research Created by the Lack of Fishing Employment Data

As an example of the challenges for research created by the absence of fishing employment data, Gunnar Knapp of ISER discussed problems he encountered in a study for the City and Borough of Kodiak on *Economic Impacts of BSAI Crab Rationalization on Kodiak Fishing Employment and Earnings and Kodiak Businesses: a Preliminary Analysis* (Knapp 2006).

This study examined how crab rationalization affected employment of Kodiak residents—a question of great interest and importance to Kodiak as well as many other coastal communities. Because no data are available on fishing employment by fishery and community, Dr. Knapp could only develop an approximate answer to this basic question, which is central to several major fisheries policy issues facing Alaska.

Clearly, the consolidation resulting from rationalization caused a major decline in the number of individuals participating in Bering Sea crab fisheries, there was no reliable basis for estimating how many of the crew working on Bering Sea crab boats were from Kodiak—either before or after rationalization. In the table from the report reprinted below, Dr. Knapp summarized the "quality of information on which to base assumptions" about jobs held by Kodiak residents as "low."

Table 3 Steps in Estimating Changes in Kodiak Fishing Jobs and Days Worked

Step	Key Assumptions	Quality of Information on Which to Base Assumptions
Estimate total changes in jobs on Kodiak boats and other boats	Average jobs per boat before and after rationalization	Medium: No data are available on average crew size before or after rationalization, but anecdotal evidence is fairly consistent. It is uncertain whether average crew sizes have changed.
Estimate change in jobs for Kodiak residents	Percentage of jobs held by Kodiak residents on "Kodiak Boats" and on non-Kodiak boats	Low: We don't have any reliable data on where crew live. We do have data, however, on where crab permit holders (usually captains) live.
Estimate changes in days worked	Days worked per crab fishing job	Low: Available ADF&G data on "average fishing days" are preliminary. No data are available on average days spent in transit, in port between landings, or working in Kodiak before and after the season.

For his estimates, Dr. Knapp assumed that the percentage of crew who were Kodiak residents was the same as the percentage of permit-holders on "Kodiak Boats" who were Kodiak residents—but he had no way of knowing whether this was a valid assumption.

Table 4 Residence of Bristol Bay Red King Crab Fishery Permit Holders, 2004/05

		Kodiak Boats	Other Boats	Total
Permit holder residence	Kodiak	35	4	39
	Other Communities	19	191	210
	Unknown		2	2
	Total	54	197	251
% Kodiak residents		65%	2%	16%

Source: Based on permit holder residency reported in CFEC Permit Holder Database 2004

Based on this assumption, he estimated that rationalization resulted in a loss of about 104 jobs for Kodiak residents in the Bristol Bay Red King Crab fishery and about 59 jobs in the Bering Sea Snow Crab fishery. But he noted that "the actual number could have been significantly higher or lower, depending on whether boats tended to hire people from the same town as the permit holder."

As another example, Dr. Knapp cited research he had done about economic effects of the Chignik Co-op. The Co-op resulted in a decline of about 40 or 50 (half or more) in the number of boats fishing. Clearly, there was a significant decline in the total number of people working in this fishery. But it was very unclear the extent to which the Co-op affected crew jobs for local Chignik residents, because no data were available on the extent to which crew jobs in the Chignik fishery were held by local residents.

In talking about this politically charged issue—as occurs with many issues in Alaska—people with different opinions offered widely varying assessments of local employment effects. Co-op opponents told Dr. Knapp that the Co-op had caused economic and social stress because local people lost crew jobs. In contrast, Co-op supporters told Dr. Knapp that any local residents who wanted a crew job could get one—and that before and during the Co-op they had to hire crew from outside the region because they couldn't find local people who wanted to crew. Without an objective data source, there was no way for Dr. Knapp to determine which of these perspectives about this important issue was closer to the truth.

6.3.3.2 Gunnar Knapp of ISER on the Importance of Employment Data for Fisheries Research

In order to think clearly about options for improving fishing employment data, it is important to have a clear understanding of the different ways in which fishing employment data are used or might be used if better data were available. One of the most important of these uses is for research.

A wide variety of fisheries policy research involves analyzing the importance of commercial fisheries—the economic and social benefits and impacts of fisheries—and/or how these benefits and impacts might be affected by different policies. Measuring the economic and social benefits and impacts of fisheries requires knowing more than how many fish are caught, or the value of the fish that are caught. It requires employment data: information about the people that are involved in catching fish; how many people participate in the fisheries; how much time they spend fishing; and what they earn.

6.3.3.3 The Range of Research Questions that could be Answered with Better Employment Data

The text box below describes three general types of research questions that arise frequently, and that can't be fully answered without fishing employment data.

General Fisheries-Related Research Questions That Arise Frequently and That Can't be Fully Answered Without Fishing Employment Data

1) How important is commercial fishing? What are the economic and social benefits and impacts of commercial fisheries?

a) How economically important is commercial fishing relative to other industries?

b) How is the economic importance of commercial fishing changing over time?

c) How is the economy (including commercial fishing) changing over time?

d) For the nation

e) For Alaska

f) For specific regions of Alaska

g) For specific Alaska communities

2) What have been or would be the effects of changes in fisheries on the economic and social impacts and benefits of commercial fishing?

a) Effects of changes in fish prices

b) Effects of changes in fish harvests

c) Effects of changes in fisheries management

d) Effects on the nation

e) Effects on Alaska

f) Effects of specific regions of Alaska

g) Effects on specific Alaska communities

3) What would be the effects of non-fishing related economic developments or policies on the economic and social impacts and benefits of commercial fishing?

a) Effects of offshore oil and gas development

b) Effects of mines

c) Effects of road development

d) Effects on the nation

e) Effects on Alaska

f) Effects of specific regions of Alaska

g) Effects on specific Alaska communities

The box below provides are specific examples of each type of question described above.

Examples of Research Questions of Current Interest That Can't be Fully Answered Without Fishing Employment Data

1) How important is commercial fishing?

Example Studies: (The following are real and/or hypothetical studies.)

a) What are the relative economic contributions of commercial and sport fishing—and what would be the implications of changes in allocations between commercial and sport fisheries?

b) Is fishing harvesting employment in the Lake and Peninsula Borough large enough to merit a training grant requested of the US Economic Development Administration?

c) Is the number of persons directly affected by Salmon Disaster in the Bristol Bay Region in sufficiently large to merit the disaster relief funds proposed, or should those funds be redirected to relieve Midwest flood victims.

2) What have been or would be the effects of changes in fisheries on the economic impacts and benefits of commercial fishing?

Example Studies: (The following are real and/or hypothetical studies.)

a) *What were the effects of crab rationalization on Alaska coastal communities? What might be the economic effects of proposed new rationalization programs?*

b) How many individual crewmembers have 150 days of participation in Alaska fisheries in the last 5 years?

c) *Which individuals and communities would have been eligible to receive payments from Stellar Sea lion Impact Payments?*

3) What would be the effects of non-fishing related economic developments or policies on the economic impacts and benefits of commercial fishing?

Example Studies: (The following are real and/or hypothetical studies.)

a) How many people might be affected if fisheries resources were affected by development of the Pebble mine in the Bristol Bay Region and in which communities would those impacts fall?

b) If the US Minerals Management Service offshore lease sale in Bristol Bay is successful, would there be enough human resources in the local communities to fulfill the year-round employment requirements of oil and gas development companies?

c) How would the development of a commercial fishing harbor in Adak affect the employment situation in the community?

6.3.3.4 The Types of Fishing Employment Data that are Needed for Research?

There are three broad types of fishing employment data or measures that are usually of greatest importance for fisheries research:

- Fisheries participation—the number of individuals participating in fishing
- Fisheries full-time-equivalent (FTE) employment—the number of years worked in fishing
- Fisheries earnings—income earned by fishermen from fishing

Depending on the research issue, different measures may be most important—or all three may be important. For example, a decline in prices may affect earnings but not affect participation or FTE employment. A decline in the TAC may not affect participation but may affect FTE employment and earnings. Crab rationalization greatly reduced crab fishing participation, due to fleet consolidation, but had a smaller effect on crab fishing FTE employment, because boats fished longer seasons.

For most fisheries research it is not sufficient to know total Alaska fisheries participation, FTE employment or earnings. To be useful, these data are usually needed by fishery, by fishermen's community of residence, or by both fishery and community of residence. The text box below shows the various levels of disaggregation of fisheries data that are often required.

Potentially Useful Levels of Disaggregation of Fisheries Employment Data

1) By Fishery
2) By Residence of Fishermen
   a) By State
   b) By Region
   c) By Community
3) By Fishery and Residence of Fishermen
   a) By Fishery and State of Residence
   b) By Fishery and Region of Residence
   c) By Fishery and Community of Residence

6.4 Options Brought to the Work Group

This section introduces the set of options that could be used to improve employment data for the commercial fish harvesting sector in Alaska. The initial list is identical to the options listed in the Work Group Primer found in Appendix B –Work Group Primer.

The goal in developing the preliminary set of options was to develop a basis for discussion. The initial set of options was developed by Northern Economics alone, solely for discussion purposes, and it should be emphasized that none of the initial options were vetted or pre-approved by any agency or stakeholder group. Finally, it should be noted that in presenting these options, Northern Economics does not imply that the options are necessarily feasible or practicable, nor should it be inferred that no other options are possible. Following the initial presentation to the work group, participants augmented the initial list with additional options and sub-options.

The set of options are divided into two general categories: 1) Options that will improve the ADF&G Commercial Crew License data, and 2) Options that will report activities of fishing crewmembers, including both ADF&G license holders and CFEC permit holders acting as crew.

6.4.1 Proposed Options to Improve ADF&G Commercial Crew License data

This section presents options to improve the ADF&G Commercial Crew License Data.

Option 1.1 Maintain the existing ADF&G Commercial Crew License System: As indicated in previous discussions, all licenses are issued annually by vendors throughout the state who complete a hand-written form with duplicates. A copy is issued to the individual as their license and the original is submitted to the state. Each license issued has is pre-printed with unique number for that particular year, and therefore each individual receives a unique license number. This system is effective in that it allows licenses to be issued instantly in nearly any community in the Alaska. However, because the data are completed by hand by many hundreds of vendors, and because information verification requirements are minimal, entering and using the data in an electronic database is problematic. This option would maintain the status quo.

Option 1.2 Change to a Renewable License System: Under this option individuals would be issued a renewable license with a unique and non-transferable license number. It is presumed that this license number would be generated by the same system that generates CFEC Permit IDs. Once a license is associated with an individual, the ID number would be permanently associated with the individual, whether the number is associated with a crewmember license or with a CFEC permit. Each license holder would be issued a semi-permanent license card, which presumably would include a magnetic data strip.

Crew licenses would be renewed in the same manner that CFEC Permits are renewed. New licenses would still be available and could be issued using the same or similar system that currently exists. New paper-copy licenses would be valid only until such time as a permanent license card could be issued. In order to encourage existing license holders to renew their licenses in a timely manner, it is anticipated that the price of new licenses (or duplicate licenses) would be considerably higher than the cost of a license renewal. Another option would be to issue multi-year licenses.

Option 1.3 Create a Computerized Real-Time License Issuance System: This option would re-vamp the current system used to issue commercial fishing licenses, and because they utilize the same issuance system, would incidentally re-vamp the system for issuing recreational fishing and hunting licenses. The new system would be similar to the licensing system used by the Oregon Department of Fish and Wildlife.

In this system, all license vendors would be issued a computer that connects electronically to the license database. When individuals request to purchase a license, they would be asked to provide if they have purchased a license in the past and to provide positive identification (e.g. a valid driver's license with photo id, a passport, etc). The information would then posted to the database, and if a match is returned to an existing entry, the purchaser would be asked to verify and update the information in the database, and the license would be renewed with the same license ID as in previous years. If no match is found, then all of the information for a new license would be collected and verified by the vendor, and entered directly into the database. In either case (new license or license renewal) the system would print the licensee's information including bar-coded or magnetic data onto a semi-permanent card, similar to those used for pre-paid calling cards.

Given the number of licenses that would be issued or renewed annually, it is likely that license fees coupled with reductions in data entry costs would likely be able pay for this type of system within a few years.

6.4.1.1 Crew Licensing Options Provided by Work group session Participants

Option 1.4 Upgrade Existing ADF&G System for Issuing Crew Licenses: This option was proposed during the work group session. The system of issuing annual licenses through vendors would be retained. However, changes would be made, potentially including but not limited to (a) improving the reliability of the data collected, and (b) collecting more or different information.

Option 1.5 Create a New "Professional Crew" License: This option was proposed during the work group session. This is, in effect, a combination of Option 1.1 and 1.2. The existing "regular crew license" system would be maintained as is—allowing individuals to quickly and easily get licenses. However, crew would have a new (and voluntary) option of obtaining a "professional crew license." This license could be applied for online or by mail or at selected other locations, analogous to the ways in which permits may currently be purchased for non-limited fisheries. Professional crew license holders would receive a permanent crew number and could renew their licenses (updating address and other personal information annually). There would need to be some incentive that would make this option attractive to most individuals who fish more than occasionally (e.g. fish in multiple fisheries or expect to fish in more than one year). This might include limitation of eligibility for potential future "crew quota shares" and/or fisheries assistance programs to professional crew license holders. The rationale for this system is that it would provide more reliable information for those crew who are most involved in and most dependent on the fisheries, including the ability to track long-term participation.

6.4.2 Proposed Options That Will Report Activities of Fishing Crewmembers

Option 2.1 Maintain the status quo: Under this option no changes would be made to enhance reporting of activities of fishing crewmembers.

Option 2.2 Require all crewmembers and permit holders to complete and submit an "Alaska Crewmember Activity Form" at the end of each fishing year: The form would ask all crewmembers and permit holders to indicate the fisheries in which they participated as crewmembers, the vessel(s) on which they participated and the number of trips they took. A hypothetical version of an "Alaska Crewmember Activity Form" is shown in Figure 4.

The Alaska Crewmember Activity Form (hereafter the form) would be available online, and it would also be mailed to each licensee and permit holder at some point late in the year. In order to ensure that the form is submitted by all licensees and permit holders, the regulations would indicate that the licensee or permit holder would be penalized for failure to complete the form in a timely and accurate manner.

Figure 4. Hypothetical Alaska Crewmember Activity Form

Alaska Crewmember Activity Form

Crewmember Information

Name:	ADF&G Crew License Number: Or CFEC Permit ID:
City, State and Zipcode:	

Activity Information

Please fill complete a row for fishery and vessel on which you fished on during the past reporting period. If you fished on more than on vessel in a particular fishery, complete a separate row for each vessel.

Fishery (see back)	ADF&G Vessel #	Permit Holder ID (if known)	Month	Number of Trips	Average Time at Sea

Note: The back of this form would contain a list of the Alaska fisheries for which permits are issued.

Option 2.3 Require all active permit holders to submit a completed "Alaska Crewmember Activity Form" at the end of each fishing year for each crewmember they employed during the year: This option is very similar to Option 2.2 except that permit holders would be required report the activities of all of their crewmembers. The reports would be due by January 15 of the following year. In this option crewmembers would not be required to report activities.

Option 2.4 Require all active permit holders to submit a completed Alaska Crewmember Activity Form for all crewmembers they engaged each time a landing is made: The reports could be submitted directly to the appropriate management agency by fax or email, or they could be provided to processors or tender vessels with each delivery.

Option 2.5 Require Permit holders to submit a completed Alaska Crewmember Activity Form whenever registering for a fishery or whenever undergoing a tank inspection. Registration is required in the Bristol Bay drift and set gillnet fisheries, and in several groundfish and herring fisheries, and tank inspections and/or registration is required in most crab fisheries. In this option, the Alaska Crewmember Activity Form would be completed prior to actually engaging in the fishing activity.

Option 2.6 Require observers to complete an Alaska Crewmember Activity Form regarding crewmembers on any vessel observed in the federal or state fishery observer programs: Observers are required in the federal groundfish fisheries, in the Bering Sea and Aleutian Island crab fisheries and in the scallop fishery. In the groundfish fisheries, all catcher processors and vessels greater than 125' length overall (LOA) are required to carry observers 100 percent of the time. Vessels between 60' and 125' LOA are required to have 30 percent observer coverage. Observer coverage requirements in the crab and scallop fisher are slightly different than observer requirements in the groundfish fisheries.

Option 2.7 Augment the logbook reporting requirements in all fisheries that require logbooks to include completion of an Alaska Crewmember Activity Form for each week the vessel is active: In this option, the logbook forms would be augmented with an Alaska Crewmember Activity Form. All vessel operators would be required to report the activities of harvesting crew with the same frequency that logbook data are reported.

Option 2.8 Create an electronic version of the Alaska Crewmember Activity Form that would be reported on all vessels and processors using the Interagency Electronic Reporting System: For those fisheries that utilize the IERS system, an electronic version of the Alaska Crewmember Activity Form for all crewmembers would be submitted along with each landing record/fish ticket.

Option 2.9 Change the current fish ticket form to accommodate information reported in the Alaska Crewmember Activity Form. Any processor that issues a fish ticket would be required to obtain the crewmember data from the permit holder and to report the information on the fish ticket.

6.4.2.1 Crew Activity Documentation Options Provided by Work group session Participants

This section describes options that were proposed by work group session participants during the discussions. The option descriptions, have in some cases, been enhanced for consistency by the authors of this report.

Option 2.2A Require that all crewmembers maintain a log book of activities during the year. Crewmembers would be required to list the permit holder, vessel and dates of all fishing trips in which they participated. The log book would be turned in to the state (ADF&G or ADOLWD) at the end of each fishing year. Because this option is similar to Option 2.2 listed above, it was treated as a sub-option.

Option 2.3A Require that Permit Holders maintains a log book of crewmembers that were on board for each fishing trip made under each of the permits used, along with the trip dates and the number of the vessel used. The log book would be turned in to the state (ADF&G or ADOLWD) at the end of each fishing year. Because this option is similar to Option 2.3 listed above, it was treated as a sub-option.

Option 2.10 Make crew subject to regular Unemployment Insurance reporting requirements similar to those required for wage and salary employees. Under this option permit holders would be required to complete ES-202 forms (or an equivalent) that would report crewmembers employed on a quarterly basis.

Option 2.11 Require permit holders to provide a copy of IRS 1099 forms (or an equivalent form) to state agencies for all crewmembers to whom crew payments were made.

6.5 Work Group Discussion on Options

During the second day of the work shop, the participants systematically worked through the list of proposed options discussing the pros and cons of each. In looking at the options, participants agreed

that the group would bear in mind the questions regarding crewmembers that need to be answered and the constraints faced by the management agencies in implementing new programs.

6.5.1 Discussion Guidelines

The following discussion guidelines were established. Participants agreed that the evaluation of options should be based on how well they answer the questions and deal with the constraints listed below.

1) Does the option under consideration provide information that will indicate how economically important the commercial fisheries are…
   a) by fishery?
   b) by geographic area down to the community level?
2) Does the option under consideration track individual crewmembers, which will enable reliable estimates of…
   a) number of person-months employed in each fishery?
   b) the consistency of participation by individual?
   c) the annual round of participation by individual?
   d) the income of crewmembers by fishery and month?
3) How does the option under consideration mesh with the needs of agencies to collect biological data?
4) Does the option under consideration work in both fisheries managed by ADF&G and fisheries managed by NMFS and IPHC?
5) Does the option work well for both shore-based landings and offshore fisheries?
6) Does the option maintain confidentiality protections provided to permit holders and processors and provide confidentiality protections for crewmembers?
7) How well does the option mesh with existing data systems and data sets?

6.5.2 Discussion of Pros and Cons of Options to Upgrade the Licensing System

Work group session participants discussed some the basic pros and cons of the existing license system. We list these below:

- **Pros**
  - Licenses can be obtained in nearly every community in Alaska.
  - Licenses can be issued on very short notice
  - License fees generate substantial income for the state.
- **Cons**
  - License numbers for an individual are not permanent.
  - Annual data entry costs are high, relative to applications in which the data are used.
  - Tracking licensees over time is not possible without access to highly confidential SSNs.
  - There are no means to link individual licensees to commercial fishing activities.

After reviewing the options for upgrading the licensing system, the group decided to defer discussion on Options 1.1 – 1.3. Some participants noted that doing nothing—Option 1.1 was unacceptable to most in the group—some changes clearly had to be made to the license system. However, it was also suggested that the changes proposed in Option 1.2—creating a renewable license, and Option 1.3—moving to an entirely real-time licensing system were changes that were too large in scope until it was more certain that the existing system was truly unable to provide the information necessary. Therefore, discussion focused on Options 1.4—upgrading the existing system, and Option 1.5—creating a professional crew license.

6.5.2.1 Pros and Cons of Option 1.4

Option 1.4 Upgrade Existing ADF&G System for Issuing Crew Licenses: The system of issuing annual licenses through vendors would be retained. However, changes would be made potentially including, but not limited to, (a) improving the reliability of the data collected, and (b) collecting more or different information.

The discussion built on the assertion by some participants that working with the existing license data sets was very difficult, and that it was extremely difficult and time consuming to track individual license holders over time, primarily because there were no consistent identifiers. Some participants suggested that this issue was due in part to the fact that the license information is re-entered by ADF&G every year for every license holder and that there are often subtle changes in the entries that preclude matching across year in computerized searches. Participants also pointed out that persons applying for a crew licenses are not required to provide any proof of residence or any other official ID in order to obtain the license.

During discussion of this option, some participants suggested that ADF&G could upgrade and improve collection of addresses, SSN, and other data and require that an official picture ID to be produced in order to receive a license. These types of changes would allow individual license holders to be more readily tracked over time, and would help researchers understand crew longevity, mobility, migration, etc.

Others in the group asserted that it would be very difficult to get vendors to verify identification and that it would be might not be legal to require that crewmembers provide a SSN in order to get a license. Further, some participants noted that any permit holder could also act as crew and that even if crew license information was known, it would not provide information about all of the activities crew conduct.

In the end participants agreed that ADF&G would make a concerted effort to examine the existing crewmember license database and to look for ways that the data could be cleaned and improved.

6.5.2.2 Pros and Cons of Option 1.5

Option 1.5 Create a New "Professional Crew" License: This option was proposed during the work group session and is in effect, a combination of Option 1.1 and 1.2. The existing "regular crew license" system would be maintained as is—allowing individuals to quickly and easily get licenses. However, crew would have a new (and voluntary) option of obtaining a "professional crew license." The professional license could be applied for online or by mail or at selected other locations, analogous to the ways in which permits may currently be purchased for non-limited fisheries. Professional crew license holders would receive a permanent crew number and could renew their licenses (updating address and other personal information annually).

The proponents of this option indicated that there would need to be some incentive that would make this option attractive to most individuals who fish more than occasionally (e.g. fish in multiple fisheries or expect to fish in more than one year). Incentives might include a limitation of eligibility for potential future "crew quota shares" and/or fisheries assistance programs to professional crew license holders. Other incentives might include a reduced renewal fee for professional licenses.

Proponents indicated their rationale for this system is that it would provide more reliable information for those crew that are most involved in and most dependent on the fisheries, including the ability to track long-term participation. Furthermore, license renewals with a permanent license number assigned to an individual would likely be cheaper to enter and track from a database perspective than would entirely new licenses every year. Participants also pointed out that a system with multiple classes of licenses is not entirely new. Resident and non-resident classes of licenses already exist as well as children's licenses and "dude" licenses. Therefore creating new categories of licenses might not be that big of a deal. Finally some participants suggested that if professional crewmembers were issued a semi-permanent crew card with a magnetic strip or bar-code it would facilitate integration with the eLandings system.

On the negative side, some participants noted that the professional crew license could cause discrimination against professional crewmembers by permit holders or vessel owners, if it was believed that they might at be allocated some portion of the fishery when/if they are rationalized. Furthermore, some participants suggested that adding a professional license class might push the existing license system beyond its usefulness.

6.5.3 Discussion of Pros and Cons of Options to Track Crew Activity

Before looking at specific options, to track activity of crewmembers, there was a general discussion of the pros and cons of options to track crew activity.

- **Pros**
  - Linking crewmember data to data of permit holders will enable not only estimates of activities of crew days worked, but will also enable estimates of income, even if no direct data are collected on crew shares.
- **Cons**
  - Without a reliable license database that accurately tracks individuals over time, all of the options reporting crew activity will be difficult to implement and utilize.
  - Collection of data on crewmembers will be costly to whichever agency is charged with the responsibility
  - There is no regulatory mandate to collect the information so it unclear which agency should bear the cost of collecting and maintaining the data.
  - The same lack of a regulatory mandate will make enforcement of data submission difficult.

Before beginning discussion of options to track crewmember activities, the group decided to defer discussions of Options 2.1, 2.5, 2.6, and 2.7 for the following reasons:

- Option 2.1 would do nothing so there was nothing to discuss.
- Option 2.5 would have required reporting crewmembers whenever a vessel was inspected. The group felt this option would not provide a broad enough coverage of enough of the fisheries to be meaningful.
- Option 2.6 would have required reporting of crewmembers by observers. Since only vessels greater than 60 feet fishing in the groundfish fisheries or in the rationalized crab fisheries would be affected, the group decided that this option would not cover enough of the vessels to provide meaningful information.
- Option 2.7 would augment regular log book data with crewmember logs similar to that shown in Figure 4. on page 39. Work group members felt that since log book data that are currently collected are not entered into electronic data bases, it would be unlikely that crew data on these forms would be available for analysis.

6.5.3.1 Pros and Cons of Option 2.2A

Option 2.2A Require that all crewmembers maintain a log book of activities during the year. Crewmembers would be required to list the permit holder, vessel and dates of all fishing trips in which they participated. The log book would be turned in to the state (ADF&G or ADOLWD) at the end of each fishing year.

Steve Branson and Tim Henkel, both of whom represent crewmembers, presented this option. They indicated that from their perspective crewmembers around the state are interested in being counted. During the discussion some participants suggested that data entry could be facilitated with an online data entry system that would allow crewmembers to enter their data directly into a database.

The option of using a logbook generated considerable discussion. The pros and cons listed below summarize that discussion, along with several outstanding issues.

- **Outstanding Issues**
  - Who would be required to report—all crewmembers or only "professional" crewmembers?
  - Would it be possible to require permit holders to sign forms or otherwise vouch for the accuracy of the log books?
  - Which agency would be responsible for collecting, managing and distributing the data?
- **Pros**
  - Crew logbooks could provide a lot of information without causing a reporting burden on other stakeholders such as permit holders and processors.
  - An online logbook form could reduce data entry costs for the managing agency
- **Cons**
  - Would all crewmembers be required to complete logbooks? Crew logbooks could provide a lot of information without causing a reporting burden on other stakeholder such as permit holders and processors.
  - Without a legislative mandate there would no way to require the submission of logs.
  - Verification of information would be difficult without also requiring information from permit holders.

- Without a verification process, there could be significant incentives for individual crewmembers to enhance their participation records, particularly if it is believed that participation might lead to a share of a rationalized fishery.
- Other stakeholders may oppose any information on crewmembers if it is perceived that such data could lead to an allocation to crew in a rationalization scheme.

6.5.3.2 Pros and Cons of Option 2.3 and Option 2.3A

Option 2.3: Require all active permit holders to submit a completed "Alaska Crewmember Activity Form" at the end of each fishing year for each crewmember they employed during the year.

Option 2.3A: Require that Permit Holders maintain a log book of crewmembers that were on board for each fishing trip made under each permit used, along with the trip dates and the number of the vessel used. The log book would be turned in to the state (ADF&G or ADOLWD) at the end of each fishing year. Because this option is similar to Option 2.3 listed above, it was treated as a sub-option.

Discussions on Option 2.3 quickly generated two new options that would require permit holders to report crew as employees on ES-202 forms or to submit copies or IRS 1099 forms or the equivalent in the form of settlement sheets. These two new option are discussed separately as Option 2.10 and Option 2.11

The discussion of Option 2.3 and 2.3A revealed the following pros and cons, along with several outstanding issues.

- **Outstanding Issues**
  - Would permit holders be required to keep a log book to facilitate reporting?
  - Would information report days fished by permit?
  - Would information include trip dates?
  - Would crewmembers be allowed to review records to verify accuracy of submitted information?
  - How would confidentiality issues be resolved? Would crewmembers have access to the log books in which they are reported?[24]
  - In cases of multiple permit holders on a given trip, (e.g. sablefish or halibut IFQ trips) which permit holder would be required to report, and who would be reported as crewmembers.
- **Pros**
  - Requiring submission of crew activity reports before a permit was renewed would provide significant incentives for compliance by permit holders.
  - Permit holders already keep track of this information as it is required for settlement sheets.
- **Cons**
  - The option would place a significant burden on the permit holders, while the primary beneficiary would be crewmembers.
  - Permit holders would not have significant incentives to provide complete and accurate information.
  - Verification of information would be difficult.

[24] A brief summary on the confidentiality issues related to crewmember data from the perspective of the authors of this report is provided in Appendix C– Confidentiality Issues.

- Unless complete trip information (i.e., permit holder ID and Fish ticket ID) was provided, the options would not enable estimation of crewmember income.
- Data entry could be costly.
- There would be a lack of a true enforcement mechanism without regulatory authority.

6.5.3.3 Pros and Cons of Option 2.4

Option 2.4 Require all active permit holders to submit a completed Alaska Crewmember Activity Form for all crewmembers they engaged each time a landing is made: The reports could be submitted by fax or email directly to the appropriate management agency, or they could be provided to processors or tender vessels with each delivery.

The discussion of Option 2.4 and Option 2.8 (report crew active within the IERS) were often intermixed. The goal of both options would be to create a system that would enable the reporting of crewmembers corresponding to each landing. In general, participants agreed that linking crewmember activity reports to landings would be the ideal system. However, the discussion clearly noted that developing such a system could be difficult and costly.

The following lists describe some of the pros and cons of Option 2.4. Additional pros and cons listed with option 2.8 are also likely to apply.

- **Pros**
  - Linking crewmember data to specific landings provides significantly more data than is obtainable with annual reports.
  - Estimation of crew income is possible assuming that crew share estimates are available.
- **Cons**
  - Requiring that the report come from the delivery vessels, means processors would have to report information about which they have no knowledge.
  - Verification of whether reported crewmembers are actually on board could be difficult, although it was noted that is certainly possible that both crew and permit holder would sign off on the report.
  - Reporting crewmembers with each landing could be problematic with short trips and fast-paced fisheries (such as in Bristol Bay Salmon fishery) where there is very little time to complete fish tickets.
  - Reporting crewmember on trips where multiple fish tickets are generated would be problematic. (Examples include IFQ trips where both sablefish and halibut are landed.)
  - The options would require a completely new data system.
  - The option would conceivably result in as many records as there are fish tickets, creating a significant new data management requirement with the associated costs.
  - The option does not specifically report crew incomes.
  - If crew share information was required in the report it would create significant negative incentives for accurate reporting.
  - Linking crewmembers to fish ticket creates the possibility of significant confidentiality issues.[25]

[25] A brief summary on the confidentiality issues related to crewmember data from the perspective of the authors of this report is provided in Appendix C– Confidentiality Issues.

6.5.3.4 Pros and Cons of Option 2.8

Option 2.8: Create an electronic version of the Alaska Crewmember Activity Form that would be reported on all vessels and processors using the Interagency Electronic Reporting System: For those fisheries that utilize the IERS system, an electronic version of the Alaska Crewmember Activity Form for all crewmembers would be submitted along with each landing record/fish ticket.

A significant portion of the work group discussion focused on Option 2.8 and the concept of combining a crewmember report with the eLandings system. In general, participants agreed that at least from the perspective of reporting crew activities, Option 2.8 should be regarded as the preferred system, while Option 2.4 should be regarded as an interim step.

Notwithstanding the general attractiveness of Option 2.8, participants generally agreed that the option would be expensive and difficult to implement. Furthermore, participants also pointed out that neither Option 2.8 or Option 2.4 would directly report crew shares or crew income—information that is viewed as critical to communities. Without information reporting crew incomes, several of the participants viewed the Options as inadequate.

Others pointed out that if the system provides reliable participation data by trip, then ADOLWD or other resources could focus on developing reliable estimates of average crew shares paid by fishery. Combining statistically reliable crew share information from surveys of the industry with accurate data on individual crewmember participation and gross revenue for each landing would yield reasonably accurate estimates of crew income. Furthermore, these estimates could be linked to community and could be tracked over time.

- **Pros**
  - The eLandings (IERS) system is the wave of the future; any new systems that are developed should be integrated into that system.
  - In addition, all of the pros listed for Option 2.4 also apply to Option 2.8
- **Cons**
  - The eLandings systems will only be implemented in a select few fisheries. It will be voluntary in most state-managed fisheries, and application of the system to all fisheries may be a long-term process.
  - In addition all of the cons listed for Option 2.4 also apply to Option 2.8.

6.5.3.5 The Pros and Cons of Option 2.9

Option 2.9: Change the current fish ticket form to accommodate information reported in the Alaska Crewmember Activity Form. Any processor that issues a fish ticket would be required to obtain the crewmember data from the permit holder and to report the information on the fish ticket.

Discussion within the work group with respect to this particular option was generally quite negative due largely to the fact that processors would be required to report on information (specifically the crewmembers on board the vessel) about which they have no knowledge. In addition, some participants noted that the costs of designing and distributing a new fish ticket form would be significant.

- **Cons**
  - Processors would have to report on information about which they have no knowledge. This would create a significant legal burden for processors, and would also create significant reporting and paperwork burdens.
  - A new fish ticket form would have to be designed and developed.
  - In addition, all of the cons listed for Option 2.4 also apply to Option 2.9.

6.5.3.6 The Pros and Cons of Option 2.10

Option 2.10: Make crew subject to regular Unemployment Insurance reporting requirements similar to those required for wage and salary employees. Under this option permit holders would be required to complete ES-202 forms (or an equivalent) that would report crewmembers employed on a quarterly basis.

A participant proposed Option 2.10 as an approach that would utilize the existing employment reporting system utilized by ADOLWD to report wage and salary employment and earnings.

In general, the idea intrigued the work group and many participants felt that the concept merited further investigation and thought.

There are several outstanding issues that would need to be investigated, also with some obvious pros and cons. We list these below.

- **Outstanding issues**
  - The current ES-202 form and reporting system are built around the unemployment insurance program. If fisheries were to use the reporting system, would there necessarily be a requirement for the fishing industry to be part of the unemployment insurance program?
  - Currently ES-202 reporting requirements exempt firms with fewer than 3 employees. Would this same exemption apply to fisheries, and thereby make the majority of small scale permit holders and vessel owners exempt?[26]
  - Could the ES-202 form be augmented or adapted in any way that would enable individual crewmembers to be linked to particular fisheries?
  - Fisheries are already exempt from minimum wage laws. If fisheries were to use the ES-202 system, would it also require compliance with minimum wage laws?
  - The ES-202 system was developed to report wage and salary employment. Fishing crewmembers are independent contractors. Would crewmembers necessarily have to become wage and salary employees of the permit holder or vessel owner in order to use the system?
  - Who would have the right to access the data? Would crewmembers have the right to verify that their participation was accurately characterized by the permit holder or vessel owner?

[26] At a presentation by to the Anchorage Chamber of Commerce on December 11, 2006 Neil Fried of ADOLWD indicated in response to a question from the author of this report, as to whether fishers and other independent contractors were included in his forecasts. Neil indicated that independent contractors were not required to submit ES-202 data, but that contractors (and by implication fishers) could submit ES 202 information on a voluntary basis.

- **Pros**
  - Could potentially be implemented using existing data systems.
  - Because the ES-202 reports SSNs of employees, Alaska residents could potentially be linked to communities through permanent fund application records.
  - Would not require an upgrade of the crew licensing system.
  - Would report individual crewmember earnings
- **Cons**
  - Would require state legislation and possibly federal legislation
  - Would not provide fishery-specific information, unless it is possible to add CFEC fishery code information.
  - The requirement to report employees on ES-202 forms could prove to be a disincentive for hiring additional crew.
  - The reporting burden would rest almost entirely on permit holders or vessel owners, who would not necessarily see any benefits from the program.

6.5.3.7 The Pros and Cons of Option 2.11

Option 2.11: Require permit holders to provide a copy of IRS 1099 forms (or an equivalent form) to state agencies for all crewmembers to whom crew payments were made.

Like the previous option, participants proposed Option 2.11 during the workshop; basing the option on the fact that permit holders or vessel owners already report crewmembers' participation and earnings to both the crewmember and the federal government in the form of a 1099. The option would require that a copy or a similar form also be submitted to state agencies for the purpose of estimating fishing employment and income. Participants also noted the crewmembers also receive settlement sheets from permit holders. Settlement sheets are fishery-specific, and would typically identify the permit holder and the fishing vessel, as well as the crew share percentage.

In general, participants felt that the option had some merit in theory and would answer some of the questions that needed answering. However, participants clearly stated that the option would require state legislation and possible federal legislation, and that additional information about the option would be required in order to pass judgment on the option.

There are several outstanding issues that would need to be investigated also, with some obvious pros and cons. We list these below.

- **Outstanding issues**
  - Is it possible for a state to require submission of information submitted to the IRS?
  - Would settlement sheets rather than 1099 forms be sufficient?
  - Who would have the right to access the data? Would crewmembers have the right to verify that their participation was accurately characterized by the permit holder or vessel owner?
- **Pros**
  - Access to IRS documents by other agencies may not be possible.
  - While the 1099 forms would report SSN, settlement sheets might not. If enabling legislation required reporting of SSNs, Alaska residents could potentially be linked to communities through permanent fund application records.

  - Settlement sheets would be fishery specific, but 1099 forms would not contain fishery information.
  - Would not require an upgrade of the crew licensing system.
  - Settlement sheets would report individual crewmember earnings and possibly also crew share percentages. 1099 forms would only report earnings.
- **Cons**
  - Would require state legislation and possibly federal legislation.
  - Would require an entirely new data system for the managing agency.
  - Would not provide fishery specific information, unless it is possible to CFEC fishery code information.
  - There could be significant confidentiality issues with the option.
  - The reporting burden would rest almost entirely on permit holders or vessel owners, who would not necessarily see any benefits from the program.

7 Moving Forward

7.1 Summary

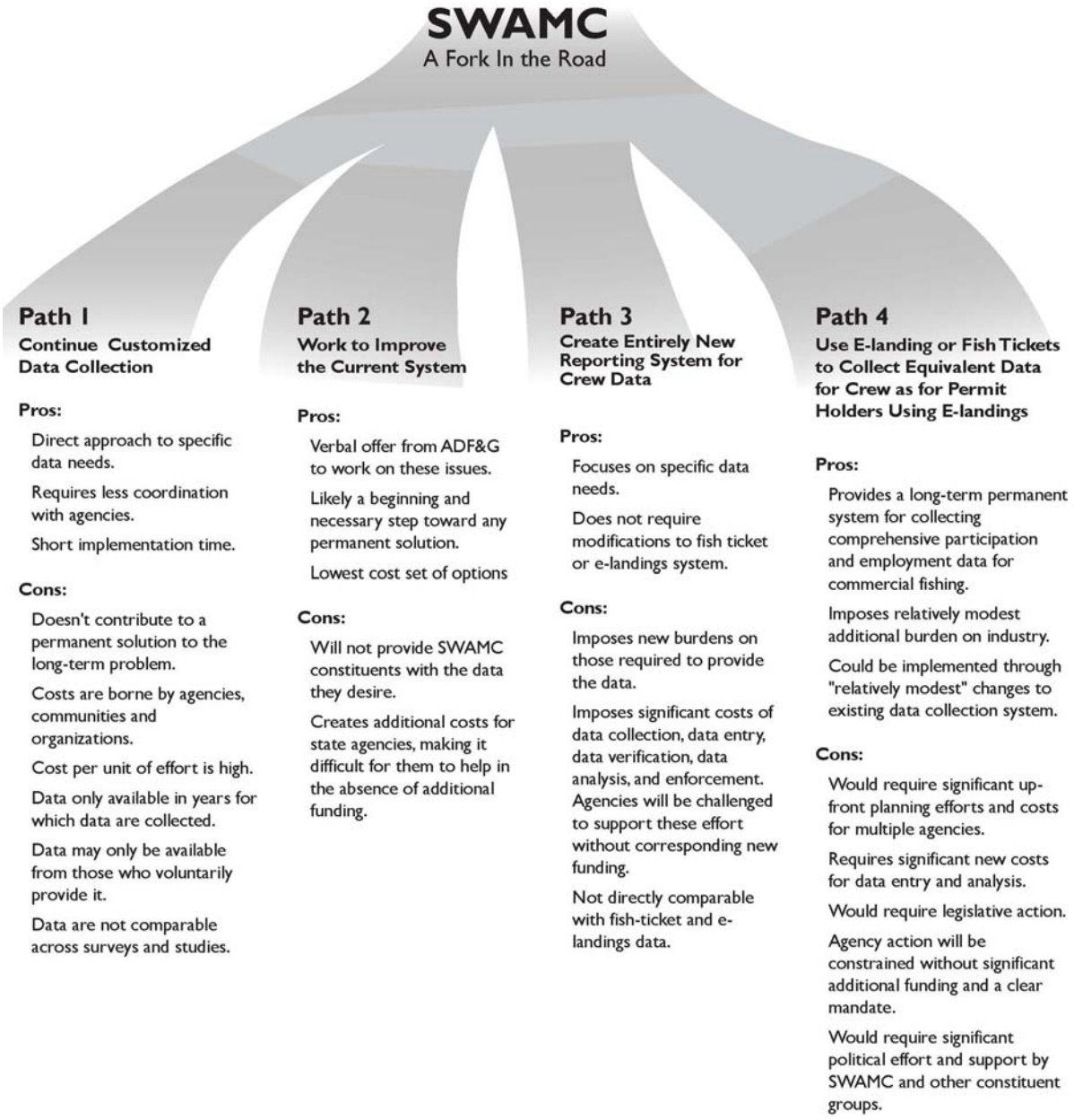
As noted in Section 6, the work group did not reach a clear decision solution to the issues discussed in this report. While work group participants generally agreed on the broad objective of "improving fisheries employment data", participants did not reach general agreement on:

- How much change is needed
- Whether the change needed means creating a new system or upgrading the current system

However, the work group session did identify several different options for improving Alaska employment data, and a variety of advantages, disadvantages, practical challenges and uncertainties associated with each of these options. In addition, the work group served to initiate discussion and consideration of these options among a variety of stakeholders, including agencies and individuals who would play a key role in implementing any new options.

Based on the work group discussion and our past experience with the process by which changes have been brought about to systems of data collection, analysis and dissemination, we see four broad "paths" which SWAMC and others might pursue to achieve the goal of improved fisheries employment data. We discuss these paths below. Each of these four paths comes progressively closer to meeting SWAMC's needs and objectives, but also would require progressively greater commitment, coordination, and effort by SWAMC and other organizations. In moving forward, SWAMC needs to decide which of these paths will best serve its short and long-term needs. Figure 5 summarizes these path while Section 7.2 discusses them in more detail.

Figure 5. Four Paths to the Goal of Improved Fisheries Employment Data



7.2 Selecting a Direction

7.2.1 Path One: Continue Customized Data Collection Efforts (Status Quo)

The first path is essentially the status quo path. Under this path, there would be no changes to the current system with regard to regular fisheries-related data collection, analysis and dissemination. Rather, agencies, communities and organizations desiring more employment than the system currently provides would collect that information through ad hoc studies and surveys—as is currently done.

There are some advantages to this approach in that it does not require any broad-based long-term planning or development of consensus among different agencies. Studies can be implemented within a relatively short period of time and tailored to collect the specific data needed.

The essential drawback to this approach is that it doesn't solve the long-term problem that SWAMC has identified and for which this study as investigated solutions. Under this approach, there would continue to be significant gaps in fisheries employment data. The costs of data collection would continue to be borne by individual agencies, communities and organizations, with high cost per unit of effort. Data would continue to be available only from people who chose to voluntarily provide it, and would not be comparable across surveys and studies.

7.2.2 Path Two: Work to Improve the Current System

Keeping but improving the current system based on crew licenses is the easiest path to getting better employment data. Specific potential improvements include collecting more information with crew licenses, improving the completeness and accuracy of data, and expanding analysis of crew license data. As discussed in Section 6, the work group identified key questions related to the completeness and accuracy of the data presently obtained from crew licenses, as well as what might be involved in addressing these issues. Answering these questions is critical to establishing the extent of how much employment data could be improved by changes to the existing crew license system.

The discussion also revealed that more fundamental changes to the employment system (Path 4) would require addressing these issues as well as understanding that this path creates additional costs for state agencies. Work group participants from state agencies indicated that any substantial new efforts which would require more personnel or materials would require some new level of funding or the scaling back of other agency efforts. While agencies acknowledge the need for change, they also recognize that legal, policy, and budgetary frameworks constrain their ability to respond.

Path Two is unlikely to meet the needs of SWAMC, other constituent groups, or management agencies themselves for comprehensive information on seafood harvesting employment by fishery and community. Note also that even relatively small changes would impose costs on the agencies which administer this system and would require investment of political effort on the part of supporting stakeholder groups.

7.2.3 Path Three: New Reporting System for Crew Data

A third path involves the creation of a new reporting system with the specific purpose of developing crew employment data. Examples of potential approaches include (but are by no means limited to) periodic fisheries employment surveys, an annual permit holder report, or an annual crewmember report. Regional solutions are also possible, such as the idea of requiring Bristol Bay permit holders to list crew numbers on fishing district registration cards in the Bristol Bay salmon fishery—which would provide information on employment and participation but only for this specific fishery.

The advantages of developing new reporting systems, either statewide or regional, is that they can focus on specific data needs, and that they do not require changes to existing, complex systems such as the crew licensing system, the fish ticket system, or the e-landing system.

However, there are numerous disadvantages to this path. Any new reporting system would impose new burdens on those required to provide the data, and would impose significant costs of data collection, data entry, data verification, data analysis, and enforcement. Agencies are unlikely to support new data collection systems without corresponding new funding. Surveys are expensive,

difficult to conduct correctly, and collect limited information. Data from new systems or surveys will not be directly comparable with fish ticket and eLandings data.

7.2.4 Path Four: Create a System Collecting Equivalent Data for Crew as for Permit Holders

This path would provide a system for collecting essentially the same information for crew as is presently collected for permit holders in Alaska fisheries—thus providing a way to collect comprehensive information about participation and employment information for all persons participating in Alaska fisheries—not just permit holders, but crew as well. This effort could be done by providing for recording of crew identifiers—permanent crew license numbers—on eLandings records and/or fish tickets. In effect, the collection of crew employment information would be built into the system at its most level.

This path would impose a relatively modest burden on fishery participants. However, implementing such a change would require very significant up-front planning efforts for multiple federal and state agencies, and would require significant new costs for data entry and analysis. It would require legislative action to implement, and agencies would be unlikely to support it without significant additional funding and a clear mandate. As previously noted, these agencies acknowledge the need for change they also recognize the legal, policy, and budgetary frameworks which constrain their abilities to respond. SWAMC and other stakeholders interested in change must also recognize these frameworks and establish goals which enable state and federal agencies to address these issues. This path would likely require significant political effort and support by SWAMC and other constituent groups to bring about these significant changes.

7.3 Addressing Key Questions and Issues

The study group believes that SWAMC has been interested throughout the project in either Path 3 or Path 4 which would lead to the development of a permanent solution that accurately and consistently provides desired data on seafood harvesting labor on an annual basis. While the long-term desire to solve these issues has not changed, the study identified key questions and issues that must be addressed before the long-term solution envisioned in path four is possible. The most important of these questions and issues are discussed briefly below. Note that many of these paths are also present within paths two and three, and that paths two and four could be pursued concurrently.

There are differences in perceptions about what the current system is capable of accomplishing

There was disagreement among work group session participants about what the current crew labor system is capable of accomplishing. Some participants who had worked with the data in the past indicated that they believed they firmly understood the limitations of the current system, and that it was not possible to achieve the kind of employment data that are needed solely by improving the current system (Path 2). Others said that they felt the capabilities and limitations of the current system are not completely understood, and that changes to the system might address many of the perceived data gaps. Clearly, key stakeholders must agree about the limitations of the current system and the need for an improved system if efforts to enact an improved system will be successful.

Thus, a key effort to removing this issue is finding a mechanism that generates that consensus about the need for significant change. The work group session was a first step in building that mechanism. It was clear by the end of the work group session that many parties had moved toward recognition of the current system's limitations. That said, unofficial acknowledgement in a small work group is not

the same as official and public recognition. The latter will be needed to move any substantial effort for more extensive change (paths three or four) forward.

We need to clarify implications of confidentiality laws and inclusion of crew information on fish tickets

Several of the long-term options discussed during the work group session included the idea of including crew identifiers on fish tickets or eLandings records as a way of recording crew participation in fisheries. This change would be at the heart of most approaches to Path 4.

While there was broad support in the work group session for this concept, several participants raised concerns about confidentiality issues. The key question is whether including crew identifiers and other information on fish tickets and/or eLandings information would necessarily give crew legal access to information on the fish tickets and, if so, to what information. This question would have to be answered by legal counsel and potentially settled by the courts in the long-run. If crewmember data are treated in the same manner as vessel owner data, then crewmembers will not automatically have access to harvest and price information included on fish tickets. However, if crewmembers are treated like permit holders, then they would have access to harvest and value data that they are not currently able to access. Thus, there are several important, unanswered questions regarding the use of fish tickets to record crew data:

- Will crew be able to access fish ticket data beyond their own participation?
- What is the functional effect of allowing access to more than just participation data?
- Is potential access by crewmembers to more than participation data a political obstacle that would stop forward progress in developing any new system?

Path 4 approaches involving collecting crew identifiers with fish ticket and/or eLandings raise a variety of practical issues relating to how difficult this change would be. Examples of these issues include (but are not limited to):

- Can fish tickets physically hold more information? Some participants indicated that the fish ticket has reached its functional limit in the amount of information it can collect.
- How much time and effort would be required of permit holders and/or crew to include this information?
- What additional burden would be placed on processors who at present bear responsibility for the accuracy of the information on fish tickets?

These issues were raised at the work group, and were cited as potential arguments against this approach. Without more information, the extent to which they are valid or significant concerns is unclear.

We need to ensure accuracy and completeness of current data first

The work group revealed varying levels of faith in the accuracy and completeness of data currently collected from crewmembers. However, there was consensus within the work group that a logical and prudent first step in any process to improve crew data collection would be to ensure that the current system collects accurate and complete data. One discovery of the work group process was that license holders are not required to show photo identification when purchasing a license. While checking an

individual's license would seem to be a logical step in ensuring the accuracy of collected data, there was some concern from ADF&G that vendors would be unwilling to check identifications.[27]

The work group discussed several steps to ensuring the accuracy and completeness of current data:

- Checking the photo identification of crew license applicants to ensure that data recorded on licenses are accurate
- Automating the current license application system to include better online options and encourage more online participation
- Creating a professional crew license containing a barcode which could be used to record participation in fisheries

Understand how the Current Vendor System is Important to Stakeholders

The work group repeatedly heard concerns about continuing the current vendor system and ensuring its health. The current vendor system is composed of small and large retail vendors who sell recreational fishing and hunting and commercial crew licenses. These licenses are recorded on paper with copies of the licenses sent back to ADF&G for data processing. The license sales can represent an additional source of revenue and the low tech approach makes licenses easy to acquire and replace even in the most remote locations. The system is very simple, but requires extensive labor both for the vendor and ADF&G. Any project moving forward is going to have to deal with this functional, but technologically simple system. Key questions that need to be answered include:

- Is the state willing to allow the vendor system to change? Does the system serve the licensing program or does the licensing program serve the vendor system?
- How expensive would it be to replace or modify the vendor system with a system that would issue more durable licenses that can interact with modern technology?
- Would there be long-term cost savings by replacing paper licenses that need hand data entry with an all electronic system?

In recent years, licenses have also been available on the internet. We note that if an applicant purchased a license in previous years then this system automatically completes the applicant's address during the application process if the applicant enters the exact name and birth date they used in the prior year. Thus, ADF&G is already using an option which could affect the current vendor system. The authors note that if the system is capable of retaining an individual's address from year to year than it also might be capable of retaining a permanent identification number from year to year.

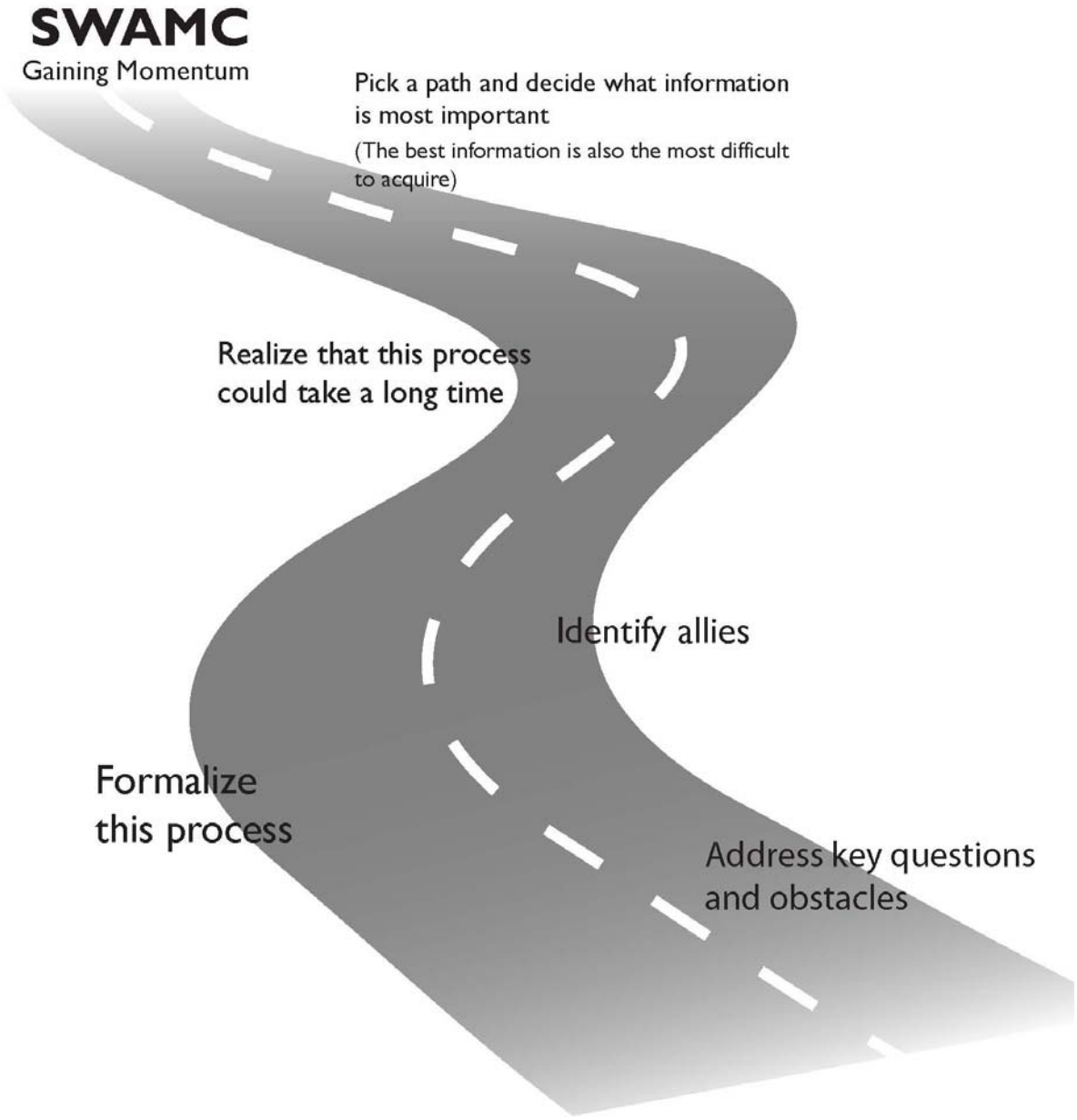
Clearly the current vendor system is important to stakeholders and the Work Group Session was not large enough to fully flesh out the magnitude and breadth of the issues associated with the vendor system.

[27] The authors note that the same vendors also sell recreational fishing licenses and photo identification is required to purchase these licenses.

7.4 Maintaining and Building Momentum

In whatever direction SWAMC chooses to move, it is clear that a key component of success will be maintaining and building momentum.

Figure 6. Steps to Building Momentum



Pick a path and decide what information is most important—the best information is also the most difficult to acquire

SWAMC may have already completed this first step through this project. This project affirmed that SWAMC and SWAMC constituents need reliable annual data on seafood harvesting labor on a fishery and community level. The project also affirmed that the best information will be the most difficult to

acquire because it requires the greatest effort. It is now in SWAMC's hands to decide whether the pursuit of a long-term solution that meets constituent needs is worth the time, money, and effort it will take to change the current system.

Realize that this process could take a long time

SWAMC will need to realize that the path toward an acceptable permanent solution could take a long time. Work group discussions clearly showed that the session itself was simply the first step in this process. Changing this system will require long-term coordinated efforts that start by convincing key stakeholders that the system needs to be changed.

Identify allies

SWAMC and SWAMC constituents need to identify allies in this process. One benefit of the work group session is that faces and names came together. Additionally, the session clarified stakeholders' needs. SWAMC now needs to work on identifying stakeholders that would make good partners in this process and build bridges to those stakeholders. Again, the work group session was a positive start along this road; however, SWAMC must also work toward recruiting from outside the work group. Work group size limits and weather prevented the involvement of potential allies.

We also suggest reaching out to potential allies in other areas. Jon Isaacs, the work group moderator, found that the Pacific Region NOAA Fisheries staff was facing many of the same issues with crew data in their region. Identifying allies on a national level could help force change through the federal system.

SWAMC legislators and other legislators interested in this issue will be key allies for this project. Participants in the work group session repeatedly indicated that state and federal agencies do not have a legislative mandate (or funding from the legislature) to address these issues. We believe that a legislative mandate will be a key component in a permanent solution.

Formalize this process

Once allies have been identified and recruited, the next step may be to formalize this process through a continuing working group. The more that this group can include commitments of staff and staff time from state and federal agencies, the higher the likelihood of long-term change. The authors believe that formalizing the process is the best way to ensure that this issue keeps moving forward. Without formal commitments and regular meetings, the process is likely to stall and the benefits of this project will likely waste away.

Begin Eliminating Obstacles

A key step toward maintaining momentum is to begin addressing the key questions and issues outlined in Section 7.3. These questions will delay progress toward a permanent solution until they are addressed. ADF&G representatives at the work group session made verbal commitments to explore these issues. However, these efforts will be more successful if they receive support from a formalized working group and the legislative branch.

That said, it has been clear throughout the project that the specific information desired by SWAMC will only be provided by a clear, long-term solution that moves the collection of accurate crew data to the same level of effort that government currently places on permit-holder data.

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Appendix A –Sources of Seafood Harvesting Labor Data

Kruse (1988) notes that for the commercial fishing industry, three statistics on employment are often presented: annual average employment, peak monthly employment and number of employees or participants. Employment is the number of filled positions at a particular time. Peak monthly employment is the greatest number of filled positions in any one month of the year. Annual average employment is calculated as the sum of the estimated monthly employment for the year, divided by twelve. Annual average employment is a useful statistic for many sectors of the economy, but for the fishing industry (particularly fish harvesting) it is not clear that it is the most appropriate employment statistic, because it ignores the fact that it may not require twelve months of fishing for each fisherman to earn a respectable annual salary. Finally, the number of employees or participants is the number of individuals (unduplicated count) employed during a particular time period. This number is useful in determining the total number of people employed, as well as movement of those individuals as they change jobs.

Estimates of these three types of employment statistics are based on either primary or secondary data. Primary data, also known as original data, are collected and maintained to satisfy the needs of the agency funding the collection or their constituents. That agency is known as the primary user. Primary data have not been manipulated, compiled or aggregated. Secondary data are defined as data that have been in some way manipulated, aggregated and/or compiled from their original form. Users of this category of data are known as secondary users.

Primary data on employment in Alaska's commercial fishing industry are limited. As noted in the introduction, neither the ADOLWD nor the U.S. Bureau of Labor Statistics, the two primary sources of employment data for Alaska, collect information on self-employed persons.[28] The majority of fishermen in Alaska are self-employed workers who are paid a percentage of vessel gross earnings adjusted by certain expenses. However, other federal and state agencies collect data that can be used to estimate fishing employment directly or can be used by secondary users to estimate employment. Primary data are obtained from on-going mandatory reporting and licensing programs and from one-time or periodic surveys that may be voluntary or compulsory. Most of the primary data collected are publicly accessible.

Secondary users include various government agencies and other entities, such as private consulting firms, that have developed algorithms for generating estimates of seafood harvesting labor based on available primary data. The methods of manipulating primary data have evolved over the years as secondary users attempt to refine employment estimates.

[28] Only those seafood harvesting operations hiring more than 10 people and paying wages are covered by unemployment insurance (Thomas, 1987). Of total covered employment, covered fishing employment is a very small part. Most covered commercial fishing is non-disclosable under state law. That means that three or fewer firms are in the industry or that one firm supplies 80% or more of the employment. As a percentage of seafood harvesting employment, covered seafood harvesting employment is a very small amount.

The ADOLWD and BLS employment data series include the industry category "agriculture, forestry, fishing & hunting," but the "fishing"-related employment in this category consists of wage and salary jobs such as those at fish hatcheries. Misreporting in some years can result in inaccurate employment numbers in this category. In 1997, for example, jobs at a large fish-processing firm were mistakenly included in this category in ADOLWD wage and salary employment estimates (Northern Economics, Inc., 2000).

Primary Seafood Harvesting Labor Data

Federal Government

Bureau of Economic Analysis

The Bureau of Economic Analysis in the Department of Commerce is a source of employment and income information. The BEA estimates annual averages of state and local (e.g., borough/census area/division) employment consisting of number of wage and salary jobs, sole proprietorships and general partners. Estimates of the number of proprietors are solely based on information from the Internal Revenue Service, mainly from Form 1065 for partnerships and Schedule C of Form 1040 for sole proprietorships. Fishermen who are self-employed are required by tax regulations to submit a Schedule C each year they work. The BEA adjusts its estimates of the number of sole proprietorships to account for the people who do not file the form as required (Zavrel, 2006). However, self-employed fishermen included in BEA's employment estimates are grouped with other proprietors in the category "Nonfarm proprietors employment." Many, if not most, of the individuals in this category who reside in areas economically dependent on fisheries, such as the Aleutians East Borough, are fishermen, but it is not possible to determine the exact proportion because of the aggregation of data.

Census Bureau

Nationwide census data, which are gathered every ten years by the U.S. Census Bureau through in-person and telephone interviews with household members, provide information on both wage-and-salary employment and self-employed persons. Response to a census survey is required by law. Census 2000 examined occupations of the employed civilian population 16 years old and older. Two questions on occupation were asked of everyone 15 or older (with responses tabulated for those 16 and older). The first question focused on the kind of work done, while the second asked about the duties of the job. The descriptions provided in these two questions, along with the answers to the questions on type of industry and whether an occupation was with the government, a private for-profit organization, a nonprofit organization, or a family business enabled the Census Bureau to classify the responses into one of 509 occupation categories. Occupation classifications were based on the 2000 Standard Occupation Classification system.

Several factors limit the reliability and usefulness of census employment data. First, the most recent census was conducted in 2000, and the employment information may be outdated. Second, there is a lack of separation between fishery and forestry and mining employment data. Third, the census asks for current employment as of April 15 on the year of the census. Since most salmon fisheries run from June through September, many people and households that depend on salmon fishing are not counted as currently employed as fishers in the census summary data. A fourth limitation is that many fishing community members fish part time, or hold other jobs while they fish. The census data does not allow analysis for this kind of situation. A fifth limitation is that the occupational data are based on the sample of households who reported to the Census 2000 long form. Nationally, approximately 1 out of every six housing units was included in this sample. As a result, the estimates are subject to sampling error.

National Marine Fisheries Service

Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish Catch Accounting System

NMFS recordkeeping and reporting requirements require reports from vessels participating in groundfish fisheries in the U.S. Exclusive Economic Zone (EEZ) off Alaska (50 C.F.R. 679.5). Catcher vessels with a length overall of greater than 60 feet must complete a Groundfish Daily Fishing Logbook (DFL), while catcher/processors and motherships receiving groundfish must complete a Daily Cumulative Production Logbook (DCPL). Data required to be reported by vessel owners or operators include the number of crew, excluding certified observer(s), on the last day of the weekly reporting period in a mothership or catcher/processor DCPL; and in the DFL on the last day of a trip for a catcher vessel.

NMFS currently operates an electronic reporting (ER) system for collection of logbook information from the groundfish fisheries (NMFS Alaska Regional Office, 2006b). The ER system allows catcher/processors and motherships to submit logbook data via e-mail or direct from a modem from their computer on board.[29] The benefits of the ER system include improved data quality, automated processing of data, improved process for correcting or updating information, and more timely data available to fishery managers. The ER system is gradually being replaced by the Interagency Electronic Reporting System described below. The switch between data reporting systems will become mandatory sometime in 2007 (Ackley, 2006).

Interagency Electronic Reporting System

Recently, an electronic data reporting system, called the Interagency Electronic Reporting System or eLandings, was developed through a collaborative effort by NMFS, ADF&G and the International Pacific Halibut Commission (IPHC), with funding from the Pacific States Marine Fisheries Commission (NMFS Alaska Regional Office, 2006c; State of Alaska, 2006). The goal of the joint effort is to develop a single, Internet-based reporting system for Alaska fisheries. The eLandings system is designed to eliminate reporting duplication and increase efficiency for harvesters, processors and fishery managers. To use the system a computer and printer and an Internet connection with e-mail are required. In addition, users must request authorization and reserve a particular UserID and password. The system allows users to submit their landing report data to all mandated agencies through a series of eLandings Web pages.

The eLandings system was first used in 2005 in the Aleutian Island's Western and Eastern golden king crab fisheries. Currently, eLandings is used to report landings and/or production data for the IFQ/CDQ crab and Community of Adak golden king crab, halibut and sablefish IFQ and state-wide groundfish fisheries. In the future, the system will be expanded to include landings and production data reports for shellfish, salmon, herring and other Alaska fisheries.

Data reported in the eLandings reporting process include ADF&G fish ticket record information,[30] IFQ fisher/processor quota harvest and processor production information. In addition, reported data

[29] The ER system consists of two principal components (NMFS Alaska Regional Office, 2006b). The ER Client software is used by personnel on a vessel to enter data and transmit data to NMFS. The ER Host software runs at the NMFS Alaska Regional Office in Juneau. The ER Host system receives and logs transmitted files, validates the data, loads the data into an Oracle database, and sends a return receipt report to the vessel or processing plant informing them of the status of their submission.

[30] ADF&G fish tickets are filled out by the processor for each vessel that delivers fish to that processor. Data reported on the fish ticket include ADF&G vessel number, CFEC commercial fishing permit information, date fishing began, date landed, gear type, ADF&G statistical area where fish were harvested, landed weight (in pounds) and condition of the catch by species, weight (in pounds) of discards at sea and at the dock, number

include the number of crew and observers on-board the vessel. The crew number includes ADF&G or CFEC licensed crew only, not processing crew on catcher/processors.

All data reported through eLandings are received into a large data collection repository, and from there it is distributed to management agencies like NMFS and ADF&G.

Bering Sea and Aleutian Islands Crab Fisheries Economic Data Report

NMFS requires an annual Economic Data Report (EDR) from any owner or leaseholder of a vessel that harvested or processed crab in Bering Sea and Aleutian Islands (BSAI) crab fisheries managed under the IFQ/IPQ program (50 C.F.R. 680). The purpose of the data collection program is to collect the employment, cost and sales data necessary to adequately examine how vessel and processing plants are affected by the BSAI crab rationalization program.

Labor information for catcher vessels and catcher/processors is collected for each BSAI crab fishery in which a vessel participated. The following information is recorded for crew who harvest crab and whose pay is based primarily on their harvesting work: 1) the number of crew aboard the vessel (excluding captain) who provided crab harvesting labor; 2) the total payment made to crew (excluding the captain) for their crab harvesting labor (the amount actually paid to crew in their settlement, not their earnings before crew-related expenses, such as fuel, bait, or food and provisions, were deducted. Any payments to crew for their IFQ are excluded); and 3) the total payment made to the captain for his services. The total payment to the crew and captain is the amount actually paid, not the earnings before shared expenses (such as fuel, bait, or food and provisions) were deducted. Any payments to the captain or crew for their IFQ are excluded.

The following information is recorded for crew who process crab and whose pay is based primarily on their processing work: 1) except salaried employees, the total number of processing employees whose pay was determined primarily by their crab processing activities. Crew listed in the harvesting labor information are excluded; 2) the average number of employees engaged in crab processing on the days that you processed crab. This number may exceed the number of employees with pay determined by processing work if some of the harvesting crew assisted in the processing operations: and 3) except salaried employees, the total payment made to crab processing employees. This is the amount actually paid to crew, not their earnings before crew-related expenses (such as food and provisions) were taken out. Number of employees and salaries for foremen, managers and other employees:

The report records labor expenses that were deducted (shared expenses taken off the top of gross revenues), directly charged (charged to an individual after the crew share is calculated), not charged to crew, or not applicable when calculating the crew payments in BSAI crab fisheries. The report also records what percentage of the net share (total revenues minus the expenses) was paid to the boat, crew and captain for each crab fishery. If processing workers were paid on a share system, the report records what percentage of the net share was applied to processing workers based on product value or net share. The number of vessel employees paid a set wage and the total payment for wages and salaries is recorded separately.

In addition, the report records the ADF&G commercial fishing crewmember license number or CFEC commercial fishing permit number for each vessel employee participating in any or all BSAI crab fisheries and lists the employee's location (city/state) of residence. For employees without

and type of prohibited species discarded at sea, price paid/received per pound for the recorded weight, and monetary amount paid/received.

A fish ticket is considered a legal document and requires the signature of the vessel captain or operator and the buyer.

crewmember licenses or fishing permits, the report records the location (city/state/country) of residence and the number of employees that are from each residential location.

All data are collected and held by the Pacific States Marine Fisheries Commission (PSMFC). PSMFC abides by all statutory and regulatory data confidentiality requirements, and only releases the data to NMFS, North Pacific Fishery Management Council staff and any other authorized users in a "blind" format. Specifically, all identifiers associated with data submitters are eliminated and replaced with fictitious vessel and processor identifiers for purposes of analyses.

Participation in the data collection program is mandatory for all participants in the BSAI crab fisheries. Should participants fail to submit the EDR, NMFS is authorized to withhold issuance or transfer of IPQ or IFQ.

Commercial Fisheries Employment Survey

In 2003, NMFS developed the Commercial Fisheries Employment Survey, which is designed to collect employment data for use in descriptive analyses of the economic significance of the commercial harvest sector (Office of Management and Budget, 2003). The voluntary mail survey was initially fielded in spring 2004 and ran through the summer of that year (Curtis, 2006). Due to a low response rate NMFS opted to conduct a phone survey to detect potential non-response bias (i.e., bias introduced because those who responded were systematically different from those who did not). The phone survey also had the effect of bumping up the response rate significantly (the final overall response rate was 50%).

The survey sampled from the entire population of U.S. commercial fishing vessels (with the exception of Puerto Rico and the U.S. Virgin Islands). The potential respondent universe was any commercial fishing vessel that (1) holds a federal or state permit or license; and (2) participated in fishing activity in either state or federal waters in 2003. Based on information from U.S. Coast Guard files and federal permit files, it is estimated that there are at least 20,000 federally-permitted fishing vessels, and possibly as many as 25,000-30,000 state fishing vessels. According to the Office of Management and Budget (2003), approximately 20% (or 10,000) of the federal and state vessels were expected to be sampled nationwide. Sampling strategy was a stratified random sample, with strata potentially including gear type, fishery, and geographic location.

The mail-out questionnaire was presented in tabular format, and asked each vessel owner or captain to report, for the calendar year 2003, the average number of crew taken on a trip and the number of days fished in each 2-month period in each fishery. This will allow for the estimation of: the total number of crewmembers employed (annually and by month) in all U.S. commercial fisheries; the total number of crewmembers employed by fishery (annually and by month); and the total number of days of employment by fishery and across all fisheries. Depending on the other information available regarding each vessel, it should also be possible to provide estimates of full- and part-time employment by state or by vessel characteristics such as gear type. The results of the survey are still being analyzed (Curtis, 2006).

One of the major limitations of the survey is that it will only provide a one-year snapshot of the employment situation in U.S. commercial fisheries. Repeated surveys would allow one to examine evolving trends in commercial fishing employment, but high costs may preclude the frequent administration of surveys (the proposed budget for the contract to conduct the survey in FY04 was $175,000).

Another limitation with the NMFS survey and other voluntary surveys is alluded to above—the potential for a high level of non-response. According to Curtis (2006), NMFS is currently reviewing the accuracy of the survey results given the early non-response problem. The potential magnitude of this

problem is clearly illustrated in a recent study conducted by Herrmann et al. (2004) to build a regional economic model for the Alaska snow crab (*Chinoecetes opilio*) industry. In a mail-out survey administered by the researchers, harvesters in the snow crab fishery were asked a series of questions regarding fishing operations, including the number of crewmembers typically onboard their vessels during a snow crab season of "normal" duration as occurred in 1999 and during shorter seasons. The primary residence (i.e., where they spend most of their time when not fishing) of crewmembers was also requested, since the interest of the researchers was in where labor compensation is actually spent rather than where it is earned.

However, Herrmann et al. state that the outcome of the snow crab industry data collection effort was very disappointing despite substantial resource commitments to data acquisition attempts and apparent enthusiasm from industry representatives for the project. According to the researchers, the voluntary approach of data disclosure utterly failed for the most part. While harvesters expressed interest in the project, requests for survey participation came at a bad time, coinciding with the crab rationalization discussions to which industry participants had to devote their full attention. Several harvesters indicated that they would not participate in a study funded by the State of Alaska because they were concerned that the state would use the results against them in the North Pacific Fishery Management Council crab rationalization debates. In the end, only a handful of Kodiak-based vessel owners obliged with the much hoped for data (which while sparse in overall terms, was sufficient to develop a modeling approach for the harvesting sector, subject to numerous caveats).

While it is likely that the low response rate was primarily due to survey timing and the reluctance of harvesters to disclose expenditure data viewed as highly proprietary rather than due to questions regarding crew size, this research demonstrates one of the potential drawbacks of relying on voluntary data collection to estimate fishing employment. Hartman (2002) also experienced a low (30 percent) response rate in a mail-out survey designed to estimate employment and income in the harvesting sector of the Southeast Alaska seafood industry. The survey instrument was sent to commercial fishermen who made landings in the Southeast Alaska commercial fisheries in 1994.

Regional Economic Data Collection Program for Southwest Alaska

NMFS is proposing to undertake a survey effort in the spring of 2007 to collect data required for a regional economic analysis associated with Southwest Alaska fisheries (71 FR 53668, September 12, 2006). The one-time mail-out survey will request data on employment and labor income from 2,200 vessel owners whose boats delivered fish to Southwest Alaska processors.

NMFS has hired contractors at the University of Alaska Fairbanks to conduct the data collection project (NMFS Alaska Regional Office, 2006d). Since the contractors are concerned about the low response rate of a voluntary survey, they will use an approach slightly different from those used by previous data collection studies. First, for gathering information on employment and earnings, they will rely on the survey of vessel owners. Second, for gathering information on costs of intermediate inputs used on harvesting vessels, they will survey the suppliers of the inputs rather than the vessels owners. This approach will allow the number of questions on the voluntary survey to be minimized, which will help to increase the response rate.

The contractors developed and revised a draft vessel survey and its cover letter with assistance from NMFS economists, identifying the types of employment and income questions to be asked. The contractors then met with a focus group of fishermen to gauge the reactions of the fishermen to the questions on the survey form and obtain their comments.

A draft survey provided by Seung (2006) requests information for 2005 on the following: on average, the number of crew and skipper jobs (positions) the boat had while fishing, or having maintenance or repairs performed upon it; the total number of crewmembers, skippers and owners serving as skippers employed by the boat while fishing for each of six listed species or species groups; the number of crewmembers and skippers employed who were Southwest residents and the number of owners that served as skippers who were Southwest residents while fishing for each of six listed species or species groups; the number of days the vessel's crew was paid crew liability insurance while fishing for each of six listed species or species groups; and the payment made to crew and skippers while fishing for each of six listed species or species groups.

The agency expects to conduct a similar data collection project for the Gulf Coast and Southeast regions of Alaska when the Southwest region project is completed.

Alaska State Government

Department of Fish and Game

Commercial Fishing Crewmember License

State commercial fishing regulations require any person engaged in commercial fishing to hold an annually-issued CFEC commercial fishing permit (limited entry or interim-use permit) or ADF&G commercial fishing crewmember license. According to state regulations, the term "commercial fisherman" means an individual who fishes commercially for, takes or attempts to take fish, shellfish or other fishery resources of the state by any means, and includes every individual aboard a boat operated for fishing purposes who participates directly or indirectly in the taking of these raw fishery products, whether participation is on shares or as an employee or otherwise. Crewmembers who do not directly or indirectly participate in the taking, such as vessel cooks and engineers, are included in the definition. In addition, the definition includes the crews of tenders or other floating craft used in transporting fish to land and offshore processors. However, the definition does not apply to anyone aboard a licensed vessel as a visitor or guest who does not directly or indirectly participate in the taking. Processing workers aboard catcher/processors are also excluded in the definition. As of July 1, 2005, Alaska residents and nonresidents are eligible to purchase a short-term commercial fishing crewmember license for $30, allowing them to serve up to seven days as a crewmember on a commercial fishing vessel or at set-net sites.[31] The short-term license helps commercial fishermen by giving them an opportunity to charge tourists to come work on a commercial fishing boat and "see the Alaska fishing industry up close and hands-on." In addition, the license helps fishermen who need temporary, short-term help by allowing relatives, visitors to Alaska, or friends to assist on a short-term basis in a more affordable way.

The application for the ADF&G commercial fishing crewmember license requires information on the applicant's physical location of residence (city/state/zip code) and their residency status (Alaska resident/nonresident and U.S. citizen/alien). In addition, since 1997, applicants have been required to provide a Social Security Number. This number can be used as a unique identifier to track an individual's license purchases. In addition, SSN data from ADF&G commercial fishing crewmember

[31] For a regular commercial fishing crewmember license, Alaska residents pay $60 and non-residents pay $175. For a child crewmember license (10 or less years old), Alaska residents pay $5 and non-residents pay $125.

licenses (and CFEC commercial fishing permits) can be used to verify Alaska residency by cross-matching the data with records from the Permanent Fund Dividend Program.

A person who engages in commercial fishing without holding a CFEC commercial fishing permit or ADF&G commercial fishing crewmember license (or employs unlicensed crew) is guilty of a misdemeanor and is punishable upon conviction by a fine of not more than $15,000 or by imprisonment for not more than one year, or by both. In addition, a conviction may result in the suspension of a person's commercial fishing privileges and licenses for a period of not more than three years.[32]

The ADF&G commercial fishing crewmember license file is the single direct source of crew employment data (Fina, 2006). However, the data simply quantify the number of people who purchased a license and therefore are eligible to work in the fisheries as crewmembers in a given year; it is not possible to determine whether a license holder actually participated in any fishery. Nor does the data reveal how long actual participants worked (Patton and Robinson, 2006). For example, if 12 different crewmembers work for a month each in a year, the crewmember count would be 12 but the annualized job count would be one. On the other hand, if one crewmember works for all 12 months, both the crewmember count and the annualized job count would be one. Shirley (2005) notes that crewmember license data do not contain information about the fishery the crewmember intends to operate in or the vessel on which they intend to work. For this reason, crewmember participation cannot be linked with ADF&G fish ticket data to determine the number of crewmembers on a vessel or in a fishery, and cannot be linked with CFEC's gross earnings files to estimate crewmember' s earnings.[33] A final limitation of the crewmember license file is that crewmembers who are CFEC commercial fishing permit holders in other fisheries are not required to purchase a crewmember license;[34] therefore, they may not appear in the crewmember license data.

Carothers and Sepez (2005) note that the reliability of the ADF&G commercial fishing crewmember license database has long thought to be unreliable because some crew may not purchase licenses (although they are required to) or may purchase a license and then not work, and because of other factors. To test how well the crew license data represent working crew the analysts checked various demographic data extracted from the applications of 272,145 license holders from the 1993-2003 period against a sample of crew from actual working boats, taken from U.S. Coast Guard records of fishing vessel search and rescue incidents (180 crewmembers from 56 vessels during the 1988–2004 period). For those variables that could be compared (age, gender and residence in the primary cities of Anchorage, Kodiak and Seattle), the results from the working-boat sample were statistically similar to the license database results.

Division of Subsistence Community Profile Database

The Subsistence Division of ADF&G has, over the years, conducted a series of surveys of households in rural Alaskan communities in its efforts to document subsistence fish and wildlife harvests in Alaska. At least one study has been conducted for nearly every rural community in Alaska since the study

[32] The suspension of commercial fishing privileges does not apply to a commercial salmon fishery.

[33] The main source of data for CFEC's gross earnings files are the ADF&G fish ticket databases and IPHC's fish ticket database for halibut. CFEC combines all of these databases into a single database with a common format, adds an estimate of gross earnings for each fish ticket item that represents a commercial harvest, adds information on the CFEC permit holder including a unique identifier, and adds a corrected ADF&G vessel number field, which will sometimes differ from the fish ticket vessel number field on the same record. The resulting file makes it easy for researchers to follow persons and vessels across fisheries and across time (Shirley, 2005).

[34] The one exception may be in fisheries for which ADF&G has imposed super-exclusive registration requirements.

program was initiated in the 1980s. The studies generally follow a fixed format and the results are included in a comprehensive Community Profile Database available on-line at www.subsistence.adfg.state.ak.us/geninfo/publctns/cpdb.cfm#USING. Information typically has been gathered in each community through detailed, retrospective in-person interviews conducted in a sample of households. The data are based on responses from all adults in surveyed households (an adult is defined as anyone older than 16 years).

In addition to resource use questions, household respondents typically are asked to provide information about the employment of household members in commercial and wage activities during the previous year (commonly including cash income earned, sources of employment and length of employment). Commercial fishing and other forms of self-employment such as sale of crafts and furs are recorded in the survey. Information on weeks spent in non-wage forms of self-employment such as commercial fishing and commercial trapping are generally not available and are not included in the computations unless indicated in the accompanying comment.

The data describe the level of participation of households in wage employment and other income producing activities, as well as providing information about the character and relative strength of the commercial-wage sector of a community's economy during the study year. The data also provide estimates of numbers of persons employed in various industry sectors, including commercial fishing, and the percentage of total community income generated by each sector. The principal limitation of this employment data source is its sporadic and infrequent coverage. Employment information for most communities is outdated, and time series data are insufficient to detect employment trends.

Commercial Fisheries Entry Commission

Commercial Fishing Permit

In Alaska, a commercial fishing permit (limited entry or interim-use permit) issued by the CFEC entitles the holder to operate gear in a specific commercial fishery in accordance with Board regulations.[35] The term "fishery" refers to a unique combination of fishery resource(s), gear type(s), and area(s). Permits for some species are issued on a statewide basis, while others are valid only for certain areas of the state. Generally, partnerships or corporations can not hold permits; permits must be held by an individual person, and the person named on the permit must be actively involved in the fishing operation. As noted above, any valid CFEC commercial fishing permit may also serve as a crewmember license for the holder to participate as a crewmember in any commercial fishery.

As with the ADF&G commercial fishing crewmember license, the application for the CFEC commercial fishing permit requires information on the applicant's physical location of residence, residency status and Social Security Number. When a commercial fisherman reports a landing on a fish ticket, his or her commercial fishing permit number is stamped on each ADF&G fish ticket and entered into the ADF&G fish ticket database. Thus, information about boat owners/operators is easily linked to an area or fishery using their permit (Shirley, 2005).

The number of permit holders in the CFEC commercial fishing permit file provides an estimate of the number of boat owners/operators in Alaska fisheries. While obtaining a permit is an indication of the intent to fish, a permit may not be actually fished. As a subset of the total number of permit holders, CFEC also collects data on the number of permit holders who actually catch and sell fish with their

[35] Interim-use permits are issued for all commercial fisheries which are not under entry limitation, and to applicants waiting to find out if they qualify for permanent permits.

permits. CFEC permit information, when combined with fish ticket data, can be an important source of data for summary reports on participants in a fishery and their earnings (Shirley, 2005).[36]

What neither the number of permit holders nor the number of active permit holders can tell us, however, is the number of jobs generated by the permits (Patton and Robinson, 2006). Some permit holders may fish during only one month a year, while others may fish during several months. Both will show up in CFEC data as one active permit holder during that year despite the obvious difference in the amount of employment generated by the two permits. What's more, a count of permit holders leaves out another important piece of information: how many jobs, if any, are created for crewmembers hired to help with the harvest (Patton and Robinson, 2006).

Secondary Seafood Harvesting Labor Data

Early Estimates of Seafood Harvesting Labor

The first regional fishing employment estimates for Alaska fisheries were those developed by Rogers et al. (1972). The estimation methodology used by Rogers et al. was developed prior to the inception of CFEC limited entry permits in 1973; instead, ADF&G fish ticket data were exclusively used to estimate harvesting employment by counting the number of units of gear actively fished during the month.[37] Rogers et al. provided monthly estimates of fish harvesting employment by fishery (species and gear) for the period 1965-1970. Employment estimates were determined by multiplying the estimated number of vessels making landings each month by the appropriate crew factor associated with each fishery. The crew factor is an estimated average number of people working on a commercial fishing vessel. For example, a fish ticket recording the landing of salmon in Ketchikan with a purse seine permit would generate 5.2 jobs for the month because that is the average number of crewmembers estimated to be necessary for that gear type in that fishery. The crew factor includes only fishermen (crewmembers and captains) and does not include tender and packer crews or onshore employment. Crew factors were based upon consultation with area fisheries biologists, fishermen and fish processors in each fishery.

Updated time series were published by Rogers et al. (1980) in a report that provided employment and earnings estimates for the period 1969-1976. A slightly modified methodology was used to make the estimates more compatible with nonagricultural wage and salary employment estimates published by the Alaska Department of Labor (later renamed the Alaska Department of Labor and Workforce Development).

In 1983, the Alaska Department of Labor (1983) published a report containing monthly estimates of fish harvesting employment and gross earnings by species, gear and labor market region for the period 1977-1981. The report continued the methodology and time series originally developed by Rogers et al. A major shortcoming of this data was that they did not report the area of residence of persons harvesting a particular fishery resource.[38]

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[36] See Footnote 33 for a description of CFEC's gross earnings files.

[37] The one fishery for which ADF&G fish ticket data were not used to estimate employment was the halibut fishery. The number of persons employed in the halibut fishery by month and region was provided by the International Pacific Halibut Commission.

[38] Focht et al. (1984a) report that another problem with earlier estimates of fish harvesting employment based on the numbers of vessels reporting landings was that the ADF&G fish ticket file was poorly edited, and many data entry errors existed.

In 1984, Focht et al. (1984a, 1984b, 1984c, 1984d, 1984e) of the Commercial Fisheries Entry Commission published a series of reports on fish harvesting employment and gross earnings in Alaska's fisheries that paid particular attention to developing a methodology which would readily allow these estimates to be disaggregated by area of residence (states or census areas) of the participants. The methodology developed included using CFEC commercial fishing permits, ADF&G fish tickets and crew factors developed by the Alaska Department of Labor.

To determine the number of permits that actively participated in a fishery, Focht et al. merged the CFEC commercial fishing permit file with the ADF&G fish ticket file. In this manner the following information can be obtained: number of permits that were fished, time period of the fishery, species fished, gear type used, and area fished. Halibut catch data were obtained from the International Pacific Halibut Commission and were combined with the fish ticket data.

Crew factors developed by the Alaska Department of Labor were used to estimate the number of people employed by each operation. The crew factors were developed from statewide surveys (e.g., Pistoll et al., 1980) and consultations with fishing associations, government agencies, fisheries biologists and individual fishermen.

Within a given month, Focht et al. estimated employment as the number of people engaged in fish harvesting operations. Operations were defined as an individual gear operator (CFEC permit holder) making one or more landings in a particular fishery. Total fish harvesting employment was calculated by multiplying an appropriate crew factor by each unduplicated permit holder landing of a particular species and gear type. In this manner the total number of people who fished for each species using each gear type for each month can be estimated.

The sum of monthly employment does not equal the total number of employees because some people work more than one month in a year. The same technique used for estimating seafood harvesting employment was used to estimate total employees. Rather than counting individual permit holders by month, individual CFEC permit holders were counted for the year. This count was then multiplied by an average crew factor for the fishery that was being counted.

To determine residence Focht et al. utilized the CFEC permit holder's address. Employment from each area was estimated based on the number of gear operators from each area and the crew size for each fishery. The assumption was made that that the residency of the crew is proportional to the permit holders. Focht et al. expected the number of resident crewmembers hired by nonresident skippers would be canceled out by the number of nonresident crewmembers hired by resident skippers.

The authors note that this method provides fairly accurate employment estimates by area of residence, but that the approach is not perfect and that the employment estimates presented are only rough approximations of true fishing employment. For example, if more than one CFEC permit was fished on a vessel, the number of employed would be overestimated. Such instances are likely to occur in operations using relief skippers where each skipper owns a CFEC commercial fishing permit, or in fisheries where anticipation of limited entry provides incentives for crewmembers to purchase CFEC permits and make landings from their skipper's vessel. In these situations, a fishing operation may be double counted resulting in overestimates of fish harvesting employment.

A second assumption of this employment estimation methodology is that all vessels in a fishery using the same gear type would use the same sized crew (Thomas, 1987). The crew factor used in these estimates is an average. If a fishery is going badly, the permit holder could reduce the crew size to reduce operating expenses. A third assumption is that that the fish tickets are error free (Thomas, 1986). Since the estimation methodology is entirely dependent on fish tickets any errors on the fish

tickets are reflected in the estimation numbers either through loss of employment by placing the fishery in a miscellaneous uncounted category or in the wrong category.

In an analysis of Alaska seafood industry employment, Thomas (1986; 1987) used the methodology developed by the Department of Labor and Focht et al. to estimate harvesting employment. To determine harvesting employment by labor market area, the more than 25 salmon, shellfish, and halibut management areas were combined into the following ten study areas: Southeast, Prince William Sound, Cook Inlet, Kodiak, Aleutian Peninsula, Dutch Harbor, Bering-Western Aleutians, Bristol Bay, Wade Hampton-Bethel and Arctic/Yukon/Kuskokwim. These study areas were used to calculate employment numbers. Employment for these areas was then aggregated into the four coastal labor market areas: Southeast, Gulf Coast, Southwest and Northern. The proportion of resident and non-resident seafood harvesting employment was also reported by market area.

Also in the late 1980s, Berman and Hull (1987) and the McDowell Group (1989) quantified the economic impacts of the seafood industry on the economy of the state by measuring employment, labor income and other economic variables. The methodology used for estimating statewide harvesting employment was similar to that developed by the Department of Labor and Focht et al. However, the McDowell Group further refined the method by adding moderate amounts of pre-season preparation and post-season time spent by virtually all skippers and crew. Since they are fully employed in these pre- and post-season periods, this time is included in total employment. The authors note that the result of this refinement is a more realistic measure of harvesting employment. ADF&G fish landing statistics were used to reflect the duration of specific fisheries, and informed estimates were used to extend these defined periods to account for the total duration of fishing employment. Depending on the fishery they participate in, skippers were credited with two to three months of unremunerated labor (one month to six weeks pre-season work and one month to six weeks post-season). Deckhands were generally credited with one month total pre-season and post-season work.

Recent Estimates of Seafood Harvesting Labor

This section discusses recent estimates of seafood harvesting labor.

National Institute for Occupational Safety and Health

As part of NIOSH's injury surveillance and epidemiologic analyses, the agency has calculated the rate of work-related deaths in Alaska's commercial fishing industry from 1991 through 1999 (NIOSH, 2002). The occupational fatality rate is reported as the number of fatalities per 100,000 full-time equivalent (FTE) workers.

The rates in the NIOSH study are based on an estimate of 17,400 full-time employees active in Alaska's commercial fisheries. This estimate of the employment base was assumed constant over the 1991-1999 period. NIOSH's work in determining FTEs included consideration of comparability to commercial fishing FTE rates with other countries and industries. The rates assume that workers are on duty 24 hours a day during the opening of fishing seasons lasting less than 15 days. The rates also credit fishermen with 16-hour work days for seasons that last up to 50 days. However, if a person worked on a vessel for more than 50 days continuously, (i.e., they resided on the vessel), they were only counted as working 8 hours per day. NIOSH notes that the commercial fishing workforce's mean FTE does not adequately measure the amount of time an individual fisherman spends on the water, and that worker's commensurate risk exposure for drowning.

CFEC Permit Holder and Crewmember Counts by Census Area and City of Residence

The total number of CFEC-issued commercial fishing permits and ADF&G-issued commercial fishing crewmember licenses provides an estimate of the number of people employed in commercial fishing. Permit holder and crewmember counts by city of residence and federal census area are posted on the Internet at www.cfec.state.ak.us/fishery_statistics/permits.htm.[39] Currently, count data are available in a tabular format for 2004, 2003, 2002 and 2000.[40] In terms of using these counts as estimates of seafood harvesting labor, the aforementioned limitations of basing estimates on ADF&G commercial fishing crewmember licenses and CFEC commercial fishing permits would apply.

State of Alaska Department of Labor and Workforce Development Employment in the Alaska Fisheries

During the past few years the ADOLWD resumed estimating the number of fish harvesting jobs in Alaska using a methodology similar to that developed earlier by the Department; the results to date are reported in Olson and Robinson (2004) and Patton and Robinson (2006). The series of employment estimates goes back to 2000. The project is funded by the Alaska Fisheries Information Network through a reimbursable services agreement with ADF&G (Shirley, 2005).

The DOLWD employment calculations are based on the landings made by individual CFEC commercial fishing permit holders in Alaska's fisheries. For the purposes of the estimation method, the permit holders are considered employers, and their records of landings indicates employment activity by month in specific fisheries (salmon, herring, crab, halibut, groundfish and miscellaneous shellfish). The landing data information is mainly obtained from ADF&G fish ticket reporting. Because the records of landings do not specify the number of jobs and people involved in the fish harvesting, the ADOLWD created crew factors to estimate the labor needed to fish specific permits, given their associated region, species and gear type. The crew factors were developed based on information from earlier, similar studies, conversations with fishermen and processors, and from staff in the ADOLWD and other departments with broad knowledge on fisheries. In addition a stratified sample of 5,000 permit holders in 117 different fisheries was surveyed. Just over 1,000 permit holders replied and this information was also used in the development of the crew factors. This survey has been developed into an on-going survey.

The crew factor indicated by the permit is applied when a permit holder makes at least one landing in a month, and then number of employment for that fishery that month is estimated. The crew factor is only applied once no matter how many landings are made per month. If someone has several permits and make landings on more than one of them, the permit with the greatest harvest value associated determines which crew factor is activated.

The jobs are assigned by place of work rather than by the employee's residence. Most of the permits issued have a geographic designation to where specific species can be harvested and with what type of gear. Permits that allow for harvesting anywhere in the state assign employment by a special harvest area code. The ADOLWD estimates divide employment into the following regions: Gulf of Alaska, Northern, Southeast and Southwest. Employment data are annualized so a job that lasts all 12 months of the year is counted as one job, a job that lasts six months is counted as 0.5, and so forth.

Patton and Robinson (2006) list two reasons why its estimates might undercount fishing employment. First, the time spent for preparations and for completing operations at the end of the season, until the

[39] Although data are reported by community and census area, these data are not cross-referenced to the Permanent Fund Dividend data base to verify residency.

[40] Due to problems with the crew data the 2001 table is unavailable.

permit holder makes a landing, is not counted. To address this limitation the ADOLWD has started surveying permit holders to find out how much time is spent on preparations in each fishery. This time will be included in future estimates. Secondly, only one "set" of jobs was counted in a calendar month for each permit holder. When a permit holder makes landings under two different permits in one month, only the permit with the highest value catch is assigned employment in that month. The assumption is that crewmembers who work for the same permit holders and fish different fisheries in the same month are analogous to employees who perform different duties for one employer during a month. This assumption ignores the fact that some permit holders may hire different crewmembers to fish their different permits. Since crewmembers are not specifically identified in the fish tickets that record landing data, turnover of this type can't be captured.

Another limitation of the ADOLWD fishing employment estimates is that do not provide insight into the residency of the job holders; as noted above, jobs are counted by place of work and the focus is on the number of workers employed during a given time period rather than the identity or characteristics of the workers themselves (Olson and Robinson, 2004).

Northern Economics, Inc.

Economic Impact of the Seafood Industry on Alaska's Economy

Northern Economics, Inc. (2003) updated previous estimates of the value of Alaska's seafood industry to the state and regional economies. The analysis included an estimate of jobs provided in Alaska's seafood harvesting and processing sectors in 2001. The method of employment estimation was to multiply the number of CFEC commercial fishing permits by the average number of persons employed per permit. Estimates of the average number of employees per permit were based on expert opinion (e.g., Bruno, 2002) and groundfish fishery logbook data collected by NMFS.

The estimated number of jobs in the harvesting sector represent FTE jobs. The FTE number was calculated by dividing the total working hours spent by all persons by 2,080 (the total number of hours in a standard work year). The number of persons participating in harvesting activities for each fishery was adjusted to account for the length of season and time engaged in maintenance, gear repair and other activities prior to and after each season. Addresses listed in CFEC commercial fishing permit and ADF&G commercial fishing crewmember license applications were used to determine region/state of residency. State/federal/joint fishery employment percentages were allocated based on the estimated ex-vessel values for each jurisdiction.

The analysis separately estimated the employment generated by harvesting activities in six Alaska regions and in federal, state, and jointly regulated fisheries, and the employment associated with harvesting the major species harvested in the waters off Alaska.[41]

Sector and Regional Profiles of the North Pacific Groundfish Fisheries – 2001

Northern Economics, Inc. and EDAW, Inc. (2001) estimated harvesting employment in federal groundfish fisheries off Alaska. NMFS provided information on the average crew size of catcher/processors and motherships based on logbook data and information on the number of weeks that each vessel was active. Multiplying crew size by the number of active weeks provided an estimate of the number of crewmember weeks for each vessel. Assuming a work year of 52 weeks,

[41] The major species are crab and other shellfish, flatfish, halibut, herring, Pacific cod, pollock, other groundfish (including Atka mackerel, rock fish, sablefish, and other groundfish), and salmon.

crewmember weeks were translated into an estimate of FTE employment. These estimates were increased by five percent to account for shore-side office staff.

Estimates of employment on catcher vessels were derived from previous studies of crew size for various vessel types and from interviews with industry representatives. Estimates of employment for a particular catcher vessel class were made by multiplying the crew size estimate by the number of active vessels in the class during each month. Crewmember months were converted to crewmember hours by assuming that crewmembers work an average of 16 hours per day for an average of 15 days in every month their vessel is active. The total number of estimated crewmember hours was then divided by 2,080 hours to obtain an estimate of FTE employment. Employment (vessel and corporate office staff) for catcher processors, motherships and catcher vessels was allocated to the region of the vessel owner's residence.

Importance of Salmon to the Aleutians East Borough

In a study of the economic significance of salmon fisheries in the Aleutians East Borough, Northern Economics, Inc. (1999) developed estimates of AEB resident and nonresident employment in Area M commercial salmon fisheries. Its method of estimation was to multiply the number of CFEC commercial fishing permits making landings in Area M by the average number of persons employed per permit (including the permit holder, who was assumed to be the vessel owner). Estimates of the average number of employees per permit were based on interviews conducted by Northern Economics, Inc. with participants in each of four vessel classes. The estimates make the assumption that all crewmembers on representative vessels in fisheries that do not involve salmon were also crewmembers or permit holders in salmon fisheries.

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Work Group Primer Follows.

The Seafood Harvesting Labor Data Project: The Work Group Primer

Prepared for the

Southwest Alaska Municipal Conference

November 1, 2006

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Contents

1 Introduction

This document is a primer on the Seafood Harvesting Labor Data Project. The purpose of this primer is to provide participants in the Seafood Harvesting Labor Data Workshop background information that will enhance participation and discussion during the workshop. The primer contains the following sections:

- Problem statement and project objective
- Summary existing data and data collection processes
- Summary of the means that are currently employed to estimated crew member activity
- Summary of potential solutions
- Summary of workshop goals and objectives

2 Problem Statement and Project Objective

Alaska's seafood harvesting and processing sector provides more direct jobs than oil and gas, mining, agriculture, and forestry combined (Northern Economics, Inc. 2003). In some regions of the State, such as the Aleutians and Pribilof Islands, Bristol Bay, and Kodiak regions, jobs in the seafood industry account for around half of all employment.

In spite of the importance of this sector the current labor data collection system does not allow for an accurate accounting of the number of crew harvesting jobs that are created. All of the numbers regarding harvesting jobs in the industry are at best reasoned estimates, but more typically they are wild guesses. In a recent article the Anchorage Daily News (Loy, Wesley 2006), stated that at "*the height of the summer season, more than 20,000 commercial fishermen chase salmon and other types of fish,….*" This number is derived from an estimated developed by Alaska Department of Labor and Workforce Development. In reality there are no data that actually count the number of fish harvesters in Alaska. There are data that count the number of fish processing workers in each borough and indicate the total and average wages earned. There are also data that provide counts of the number of active permit holders at any time any over the course of the year along with data that indicate total landings and revenue generated by that activity (as well as the permit holder's name and place of residence). There are similar data for owners of active fishing vessels. But there are no data that provide counts of the number of active fishing crew members, no data that relate individual crew members to particular fisheries or vessels, and no data that link active crew members to particular communities.

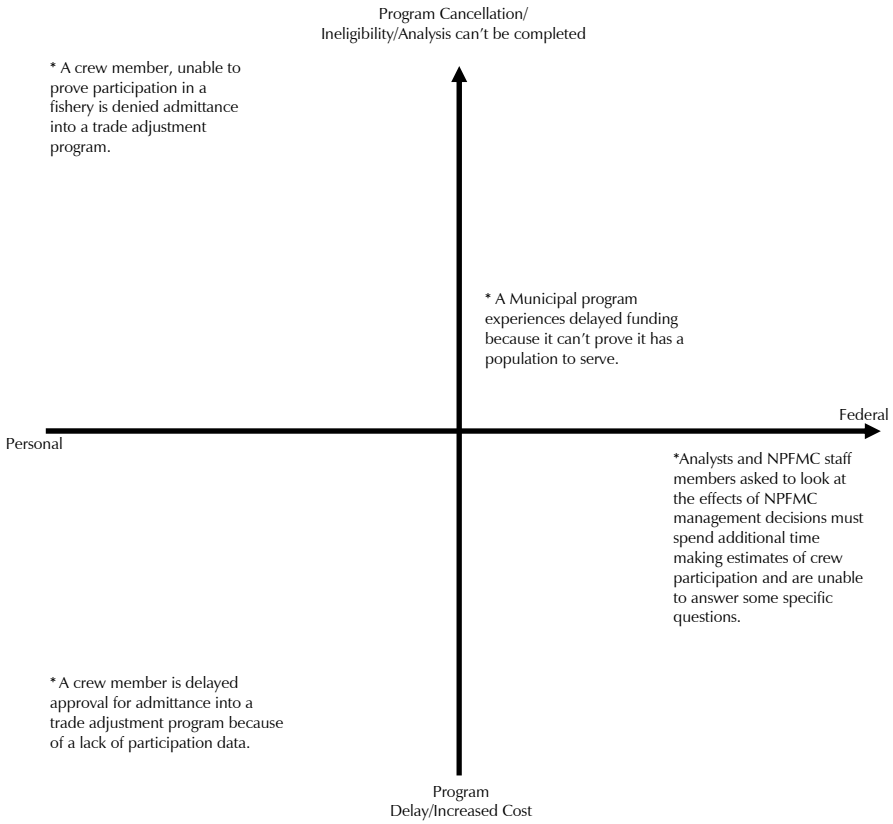
In short there is no reliable way to say with any degree of certainty how many people actually earn some part of their livelihood from participating on fishing crews in Alaska, nor can we say who those people are and where those people live.

The primary objective of the Seafood Harvesting Labor Data Project is to create a harvesting crew member data collection system that will allow accurate reporting of the participation of active individual crew members by community, provide an indication of the level of participation on a fishery by fishery basis, and determine the relative quality of seafood harvesting jobs over time.

The potential effects associated with a lack of reliable data on crew members range from the personal level all the way to the Federal level and the magnitude of these effects can stretch from increased costs and program delay to program cancellation and the inability to answer certain questions. Figure 1 shows hypothetical examples of the potential range of effects of not having specific crew data. The vertical axis measures the magnitude of the disruption (e.g., program delay to program cancellation)

while the horizontal axis measures the distribution of the effect (e.g., personal to Federal). The further right and up an effect is listed the magnitude and breadth of the potential disruption.

Figure 1. Examples of the Potential Range of Effects



The following paragraphs briefly describe several real world examples of how the lack of an effective harvesting crew member data system has affected various agencies and stakeholders.

Trade Programs: The Trade Adjustment Assistance Act of 2002 authorized training benefits for Alaska salmon fishermen who received lower incomes because of imported salmon. In some cases, crew members who wanted to take advantage of the program found themselves shut out because they couldn't prove that their employment and income was effected by foreign farmed salmon or that they were Alaska salmon fishermen. No one argued with the fact that prices for wild salmon had been affected, but making a claim based on employment was made very difficult by the lack of seafood harvesting data.

Grant Applications: Federal and State grant application processes often require counts of the target populations to be served by proposed program or proof that prior grants have resulted in increasing jobs or job retention. For example, job creation and retention are the top criteria for the Economic Development Administration and USDA Rural Development, two of the most frequent funders in fisheries-dependent communities. However, currently collected public data does not count crew members in employment estimates and the lack of tracking system for crew members means that when programs do create jobs by keeping commercial fishing permits in the area there is no legal proof that these program also result in increased local crew employment.

Fisheries Management and Research: The lack of crew data means that researchers and fisheries managers must employ "best estimate" methods. For example, as noted by Knapp, 2006 the quality of information available to estimate the change in number of jobs and days works for Kodiak-based crab fisherman because of the 2005 BSAI Crab Rationalization was quite low because there was "no reliable data on where crew live, or "average days spent in transit, in port between landings, or working for vessels before or after the season."

3 Existing Seafood Harvesting Labor Data Collection

This section summarizes the existing seafood harvesting labor data collection system. The section is divided into two parts that 1) describe the system, and 2) discuss the system's shortcomings.

3.1 The Existing Seafood Harvesting Labor Data Collection System

The existing seafood harvesting labor data collection system has a number of components which provide different levels of information across different fisheries. At the heart of this system is the State commercial fishing regulations which require any person engaged in commercial fishing to hold an Alaska Department of Fish and Game (ADF&G) commercial fishing crewmember license or to a current Commercial Fishing Entry Commission (CFEC) commercial fishing permit (limited entry or interim-use permit).[1] According to state regulations, the term "commercial fisherman" means an individual who fishes commercially for, takes or attempts to take fish, shellfish or other fishery resources of the state by any means, and includes every individual aboard a boat operated for fishing purposes who participates directly or indirectly in the taking of these raw fishery products, whether participation is on shares or as an employee or otherwise. Crewmembers that do not directly or indirectly participate in the taking, such as vessel cooks and engineers, are included in the definition. However, many of these crewmembers also pull double duty as harvesting crewmembers. In addition, the definition includes the crews of tenders or other floating craft used in transporting fish to land and offshore processors. However, the definition does not apply to anyone aboard a licensed vessel as a visitor or guest who does not directly or indirectly participate in the taking. Processing workers aboard catcher/processors are also excluded in the definition.

ADF&G commercial fishing crewmember licenses are available for purchase at the same outlets that sell recreational fishing and hunting licenses, and are issued in a similar format. The forms are filled out by the vender in duplicate and a paper license is issued to the applicant on the spot, with the original sent to ADF&G for eventual entry into the ADF&G fishing and hunting license database. The application for the ADF&G commercial fishing crewmember license requires information on the applicant's physical location of residence (city/state/zip code), their Social Security Number (SSN), and their residency status (Alaska resident/nonresident and U.S. citizen/alien).[2] However, because a person's SSN also allows access to an individual's financial information, distribution and use of SSN's are strictly limited to state agency personnel.

The ease of obtaining an ADF&G crewmember license and their wide availability—they may be obtained in nearly every community in Alaska—are important positive attributes of the current system. Fishing crew members are often hired at the docks on very short notice, and often for very limited periods. They need to be able to obtain licenses quickly and easily, and the current system facilitates these hiring practices.

[1] All current CFEC Permit Holders are exempt from the requirement to hold a current ADF&G crewmember license.

[2] Notwithstanding the requirement to include their SSN licenses are in fact issued to persons that do not report their SSN.

With the current ADF&G crewmember data, in combination with CFEC permit holder data, it is possible to determine the number of people who are eligible to work in the fisheries as crewmembers in a given year. CFEC has developed these estimates for years 2000 and 2002 – 2005. These reports may be accessed electronically (http://www.cfec.state.ak.us/fishery_statistics/permits.htm). Due to problems with the data, the reports are unavailable for 2001. While the CFEC reports allow the users to estimate the upper bound of the number of persons engaged in commercial fishing in any community or in all Alaska fisheries, it is not possible to determine whether a particular license holder actually participated in any fishery. Table 1 shows the CFEC permit holder and crew member counts for 2005. Not counting ADF&G license holders that did not report their SSNs, a total of 30,649 persons were eligible to participate in harvesting activities in Alaska fisheries in 2005. Of these 19,940 were Alaskans, and 10,709 were non-Alaskans.

Table 1. CFEC Permit Holder and Crew Member Counts, 2005

Borough or Census Area	CFEC Permits	ADF&G Licenses	All
Aleutians East Borough	203	222	425
Aleutians West Census Area	99	243	342
Anchorage Mun	873	1,015	1,888
Bethel Census Area	1,104	654	1,758
Bristol Bay Borough	179	172	351
Denali Borough	3	2	5
Dillingham Census Area	645	643	1,288
Fairbanks North Star Borough	138	67	205
Haines Borough	114	85	199
Juneau City And Borough	454	346	800
Kenai Peninsula Borough	1,396	1,463	2,859
Ketchikan Gateway Borough	348	296	644
Kodiak Island Borough	680	801	1,481
Lake And Peninsula Borough	173	273	446
Matanuska-Susitna Borough	256	279	535
Nome Census Area	230	151	381
North Slope Borough	9	5	14
Northwest Arctic Borough	149	58	207
Prince Of Wales-Outer Ketchikan Census Area	352	295	647
Sitka City And Borough	574	531	1,105
Skagway-Hoonah-Angoon Census Area	250	147	397
Southeast Fairbanks Census Area	19	14	33
Valdez-Cordova Census Area	414	391	805
Wade Hampton Census Area	642	643	1,285
Wrangell-Petersburg Census Area	790	617	1,407
Yakutat City And Borough	161	45	206
Yukon-Koyukuk Census Area	143	15	158
Unknown Ak	69	0	69
Alaska Total	10,467	9,473	19,940
Non-Resident Total	3,634	7,075	10,709
Overall Total	14,101	16,548	30,649

Note: ADF&G license holders that did not report their SSN are excluded from this report.
Source: CFEC Permit Holder and Crew Member Counts at www.cfec.state.ak.us/cpbycen/2005/Mnu.htm. Accessed on November 1, 2006.

3.2 Shortcomings of Commercial Crew License Data System

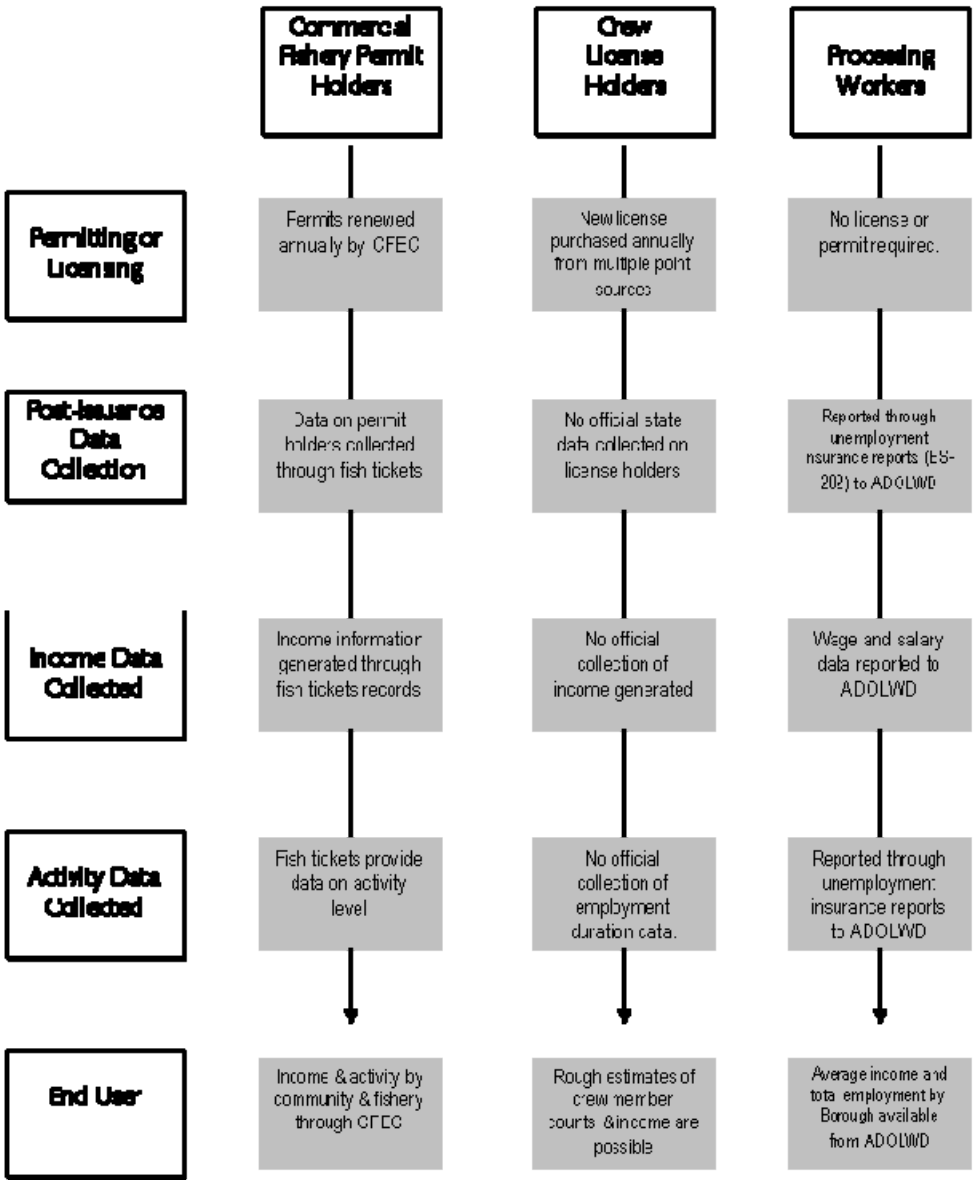
From a data perspective, there are three principle shortcomings of the ADF&G crewmember license system: 1) Licenses are issued annually—there is no linkage between previously issued licenses and currently issued licenses; 2) Once the license is issued there is no mechanism for reporting whether the holder actually participated in the fishery; 3) there is limited demographic data collected

As shown in Figure 2, the data flow for crewmember licenses is substantially different for the other major groups of individuals involved in harvesting seafood and results in less overall information being available to the end user. For example, individuals working in Alaska's shorebased fish processing sector are wage-and-salary employees. This classification means that the number of processing jobs is recorded in the annual average monthly employment statistics reported by the Alaska Department of Labor and Workforce Development. Commercial fish harvesters are exempted from unemployment insurance and other employment reporting requirements because these crewmembers are classified as self-employed. Consequently detailed information on harvesting workers is generally not available for most Alaskan fisheries. Currently, we know the number of crew license holders by community each year. We do not know:

- The number of active crew license holders by community or in total each year;
- The number of active crew license holders by fishery;
- The number of days active crew license holders work in total, by community, or by fishery;
- The wage and income of active crew license holders in total, by community or by fishery;

At the same time, we know this information for permit holders. Hence, there is an asymmetrical flow of data between commercial permit holders and commercial crew license holders.

Figure 2. Seafood Harvesting and Processing Data Flow[3]



3.2.1 Annual Issuance

The fact that licenses are issued annually and there is no link between previously issued licenses and current licenses, significantly increases data entry requirements and makes it very difficult to track license holders over time. This also limits the general usefulness of the data because in order to track license data accurately a unique identifier is required. With crewmembers, the SSN is the only unique identifier available, but because a person's SSN is highly confidential it cannot be provided to persons outside the state agencies responsible for management. If licenses were renewed annually, the overall data entry burden could be reduced, and individuals could be permanently associated with a single

[3] We note that confidentiality rules affect the development of aggregate reporting standards by community, fishery, borough or census area.

unique license identifier. This would allow significantly wider use of license data even if other data shortcomings are not overcome.

3.2.2 No Mechanism for Reporting Activity

Any individual with a valid ADF&G crew member license is eligible to be a member of a harvesting crew for any commercial fish harvesting operation in Alaska. In addition, any individual with a valid CFEC commercial fishing permit is also eligible to participate as a harvesting crew member. Currently however, there is no mechanism for reporting activity. While regulations require that all landings and revenues be reported by vessel and by permit holder, there are no regulations that require members of the crew to be identified or reported. In part the lack of a reporting requirement is due to the fact that fish harvesting crews are hired as self-employed contractors rather than as wage or salaries employees. In general, state and federal regulations require businesses to identify their wage and salary employees by SSN and place of residence and to report their earnings every quarter.[4] There is no similar requirement for employers to report contract workers, and because harvesting crew members are self-employed contractors, there is no reporting of harvesting crew.

4 Summary of Currently Employed Means to Estimate Crew Member Activity

This section summarizes recent efforts of the Alaska Department of Labor and Workforce Development (ADOLWD) and the National Marine Fisheries Service (NMFS) to estimate Alaska fish harvesting employment. It should be noted that this summary is not comprehensive, and looks only at the selected efforts of ADOLWD and NMFS. Other agencies and stakeholder groups have ongoing processes or have undertaken studies to estimate commercial fish harvesting employment.

4.1 ADOLWD Crew Factor Estimation Process

During the past few years the Alaska Department of Labor and Workforce Development (ADOLWD) has estimated the number of fish harvesting jobs in Alaska using a methodology similar to that developed by ADOLWD in earlier efforts; the results to date are reported in Olson and Robinson (2004) and Patton and Robinson (2006). The series of employment estimates goes back to 2000.

The ADOLWD employment calculations are based on the landings made by individual CFEC commercial fishing permit holders in Alaska's fisheries. For the purposes of the estimation method, the permit holders are considered employers, and their records of landings indicates employment activity by month in specific fisheries. The landing data information is primarily obtained from ADF&G fish ticket reporting. Because the records of landings do not specify the number of jobs and people involved in the fish harvesting, the ADOLWD used a "crew factor" methodology to estimate the average labor needed to fish specific permits, given their associated region, species and gear type. For example the crew factor for a Bristol Bay Drift Gillnet permit might be 2.5, while the crew factor for Bering Sea King Crab permit might be 6.7. The ADOLWD crew factors include the permit holder.

ADOLWD developed crew factors based on information from earlier, similar studies, conversations with fishermen and processors, and from staff in the ADOLWD and other departments with broad knowledge on fisheries. In addition a stratified sample of 5,000 permit holders in 117 different fisheries was surveyed. Just over 1,000 permit holders replied and this information was also used in

[4] Businesses report employees every quarter by submitting an ES-202 report to the Department of Labor for the state in which they operate.

the development of the crew factors. The original survey has evolved into an on-going survey process that will regularly update crew factor estimates for all Alaska fishery types.

In ADOLWD's process for estimating monthly employment, the crew factor indicated by the permit is applied when a permit holder makes at least one landing in a month. The crew factor is only applied once no matter how many landings are made per month. The total employment in each fishery is then calculated by multiplying the number of active permits by crew factor. When estimating total employment over all fisheries, ADOLWD's methodology attempts to reduce double counting that could occur if someone has several permits and makes landings on more than one of them. In these cases, the permit with the greatest associated harvest value determines which crew factor is activated for that particular permit holder.

ADOLWD assigns crew member jobs to the place of work rather than the employee's residence. Most of the permits issued have a geographic designation to where specific species can be harvested and with what type of gear. For example the Area M seine salmon fishery takes place off the coast of the Aleutians East Borough, and thus the jobs generated in the Area M seine salmon fishery are assigned to the Aleutians East Borough. For permits that allow for harvesting anywhere in the state, ADOLWD assigns employment using a special harvest area code that denotes that general area in which fish were harvested.

ADOLWD also estimates annual employment fish harvesting operations. These estimates annualized crew factors based on the number of months a given permit is active. Thus, if a permit is active all 12 months of the year, the crew factor for that permit is multiplied by 1. Alternatively, if a permit is active for six months the crew factor is multiplied by 0.5, and so forth. As with total monthly estimates, the permit with the greatest associated value is used for permit holders with landing on multiple permits in any month.

Patton and Robinson (2006) list two reasons why ADOLWD's estimates might undercount fishing employment. First, the time spent for preparations and for completing operations at the end of the season, until the permit holder makes a landing, is not counted. To address this limitation the ADOLWD has started surveying permit holders to find out how much time is spent on preparations in each fishery. This time will be included in future estimates. Secondly, when a permit holder makes landings under two different permits in one month, only the permit with the highest value catch is assigned employment in that month. The assumption is that crewmembers who work for the same permit holders and fish different fisheries in the same month are analogous to employees who perform different duties for one employer during a month. This assumption ignores the fact that some permit holders may hire different crew members to fish their different permits. Since crewmembers are not specifically identified in the fish tickets that record landing data, turnover of this type can't be captured.

Another limitation of the past ADOLWD fishing employment estimates is that they do not provide insight into the residency of the job holders; as noted above, jobs are counted by place of work and the focus is on the number of workers employed during a given time period rather than the identity or characteristics of the workers themselves (Olson and Robinson, 2004). This residency limitation is also common within other estimation efforts. For example, in work prepared by Northern Economics, Inc. the analyses often assume that permit holders from rural Alaska hire crew members from the same community as the permit holder.

We note that ADOLWD has enacted changes in its estimation program over the past year including defining the permit as the employer rather than the permit holder. Thus, if a permit holder makes landings under two different permits in the same calendar month, each landing will generate a set of jobs. Previously we figured out which landing generated the highest earnings and counted a set of

jobs (i.e., applied the crew factor) only for that one. We will explore these changes further in the work group session and in the final report for the project.

4.2 Efforts by NMFS to Collect Employment Data

In the last several years NMFS has initiated several other primary data collection efforts that provide more information on crew labor efforts. However, none of these systems provide information across all of Alaska's fisheries. That said, it is possible that an approach to solving some of the issue with the current statewide reporting system could be found within these efforts. These systems include:

- Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish Catch Accounting System
- Interagency Electronic Reporting System
- Bering Sea and Aleutian Islands Crab Fisheries Economic Data Report
- Commercial Fisheries Employment Survey
- Regional Economic Data Collection Program for Southwest Alaska

The employment data collection and estimation processes included in these programs are all discussed in the sections below.

4.2.1 Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish Catch Accounting System

NMFS recordkeeping and reporting requirements require reports from vessels participating in groundfish fisheries in the U.S. Exclusive Economic Zone (EEZ) off Alaska (50 C.F.R. 679.5). Catcher vessels with a length overall of greater than 60 feet must complete a Groundfish Daily Fishing Logbook (DFL), while catcher/processors and motherships receiving groundfish must complete a Daily Cumulative Production Logbook (DCPL). Data required to be reported by vessel owners or operators include the number of crew, excluding certified observer(s), on the last day of the weekly reporting period in a mothership or catcher/processor DCPL; and in the DFL on the last day of a trip for a catcher vessel.[5]

NMFS currently operates an electronic reporting (ER) system for collection of weekly production reports (which summarize logbook data) from the groundfish fisheries (NMFS Alaska Regional Office, 2006b). The ER system allows catcher/processors and motherships to submit weekly production reports via e-mail or direct from a modem from their computer on board.[6] The benefits of the ER system include improved data quality, automated processing of data, improved process for correcting or updating information, and more timely data available to fishery managers. The ER system is gradually being replaced by the Interagency Electronic Reporting System described below. The switch between data reporting systems will become mandatory sometime in 2007 (Ackley, 2006).

[5] In general, NMFS does not enter logbook data submitted by harvesters and processors into electronic databases. Logbook data are available in hard-copy format and are often used in enforcement cases or in specialized in-house research projects.

[6] The ER system consists of two principal components (NMFS Alaska Regional Office, 2006b). The ER Client software is used by personnel on a vessel to enter data and transmit data to NMFS. The ER Host software runs at the NMFS Alaska Regional Office in Juneau. The ER Host system receives and logs transmitted files, validates the data, loads the data into an Oracle database, and sends a return receipt report to the vessel or processing plant informing them of the status of their submission.

4.2.2 Interagency Electronic Reporting System

Recently, an electronic data reporting system, called the Interagency Electronic Reporting System or eLandings, was developed through a collaborative effort by NMFS, ADF&G and the International Pacific Halibut Commission, with funding from the Pacific States Marine Fisheries Commission (NMFS Alaska Regional Office, 2006c; State of Alaska, 2006). The goal of the joint effort is to develop a single, Internet-based reporting system for Alaska fisheries. The eLandings system is designed to eliminate reporting duplication and increase efficiency for harvesters, processors and fishery managers. To use the system a computer and printer and an Internet connection with e-mail are required. In addition, users must request authorization and reserve a particular UserID and password. The system allows users to submit their landing report data (i.e. fish tickets and other required processing reports) to all mandated agencies through a series of eLandings Web pages.

The eLandings system was first used in 2005 in the Aleutian Island's Western and Eastern golden king crab fisheries. Currently, eLandings is used to report landings and/or production data for the IFQ/CDQ crab and Community of Adak golden king crab, halibut and sablefish IFQ and state-wide groundfish fisheries. In the future, the system will be expanded to include landings and production data reports for shellfish, salmon, herring and other Alaska fisheries.

Data reported in the eLandings reporting process include ADF&G fish ticket record information,[7] IFQ fisher/processor quota harvest and processor production information. In addition, reported data include the total number of crew (including skippers) on-board the vessel.

4.2.3 Bering Sea and Aleutian Islands Crab Fisheries Economic Data Report

Beginning in the August 2005, NMFS is requiring an annual Economic Data Report (EDR) from any owner or leaseholder of a vessel that harvested or processed crab in the Bering Sea and Aleutian Islands (BSAI) crab fisheries managed under the IFQ/IPQ program (50 C.F.R. 680). The purpose of the data collection program is to collect the employment, cost and sales data necessary to adequately examine how vessel and processing plants are affected by the BSAI crab rationalization program. The following information is recorded for crew who harvest crab and whose pay is based primarily on their harvesting work: 1) the number of crew aboard the vessel (excluding captain) who provided crab harvesting labor; 2) the total payment made to crew (excluding the captain) for their crab harvesting labor; and 3) the total payment made to the captain for his services. The total payment to the crew and captain is the amount actually paid, not the earnings before shared expenses (such as fuel, bait, or food and provisions) are deducted. Any payments to the captain or crew for their IFQ are excluded.

In addition, the report records the ADF&G commercial fishing crewmember license number or CFEC commercial fishing permit number for each vessel employee participating in any or all BSAI crab fisheries and lists the employee's location (city/state) of residence. For employees that do not have ADF&G crewmember licenses or CFEC fishing permits (processing crew for example), the report records the location (city/state/country) of residence and the number of employees that are from each residential location.

[7] ADF&G fish tickets are filled out by the processor for each vessel that delivers fish to that processor. Data reported on the fish ticket include ADF&G vessel number, CFEC commercial fishing permit information, date fishing began, date landed, gear type, ADF&G statistical area where fish were harvested, landed weight (in pounds) and condition of the catch by species, weight (in pounds) of discards at sea and at the dock, number and type of prohibited species discarded at sea, price paid/received per pound for the recorded weight, and monetary amount paid/received. A fish ticket is considered a legal document and requires the signature of the vessel captain or operator and the buyer.

All data are collected and held by the Pacific States Marine Fisheries Commission (PSMFC). PSMFC abides by all statutory and regulatory data confidentiality requirements, and only releases the data to NMFS, North Pacific Fishery Management Council staff and any other authorized users in a "blind" format. Specifically, all identifiers associated with data submitters are eliminated and replaced with fictitious vessel and processor identifiers for purposes of analyses. Participation in the data collection program is mandatory for all participants in the BSAI crab fisheries. Should participants fail to submit the EDR, NMFS is authorized to withhold issuance or transfer of IPQ or IFQ.

4.2.4 Commercial Fisheries Employment Survey

In 2003, the national offices of NMFS developed the Commercial Fisheries Employment Survey, which is designed to collect employment data for use in descriptive analyses of the economic significance of the commercial fish harvesting sector from all US states and territories (Office of Management and Budget, 2003). The voluntary mail survey was initially fielded in spring 2004 and ran through the summer of that year (Curtis, 2006). Due to a low response rate NMFS opted to conduct a phone survey to detect potential non-response bias (i.e., bias introduced because those who responded were systematically different from those who did not). The phone survey also had the effect of bumping up the response rate significantly (the final overall response rate was 50%).

The survey sampled from the entire population of U.S. commercial fishing vessels (with the exception of Puerto Rico and the U.S. Virgin Islands). The potential respondent universe was any commercial fishing vessel that (1) holds a federal or state permit or license; and (2) participated in fishing activity in either state or federal waters in 2003.

The mail-out questionnaire asked each vessel owner or captain to report, for the calendar year 2003, the average number of crew taken on a trip and the number of days fished in each 2-month period in each fishery. This will allow for the estimation of: the total number of crewmembers employed (annually and by month) in all U.S. commercial fisheries; the total number of crewmembers employed by fishery (annually and by month); and the total number of days of employment by fishery and across all fisheries. Depending on the other information available regarding each vessel, it should also be possible to provide estimates of full- and part-time employment by state or by vessel characteristics such as gear type. The results of the survey are still being analyzed (Curtis, 2006).

One of the major limitations of the survey is that it will only provide a one-year snapshot of the employment situation in U.S. commercial fisheries. Repeated surveys would allow one to examine evolving trends in commercial fishing employment, but high costs may preclude the frequent administration of surveys (the proposed budget for the contract to conduct the survey in FY04 was $175,000). Another limitation with the NMFS survey and other voluntary surveys is alluded to above—the potential for a high level of non-response. According to Curtis (2006), NMFS is currently reviewing the accuracy of the survey results given the early non-response problem.

4.2.5 Regional Economic Data Collection Program for Southwest Alaska

NMFS is proposing to undertake a survey effort in 2007 to collect data required for a regional economic analysis associated with Southwest Alaska fisheries (71 FR 53668, September 12, 2006). The one-time mail-out survey will request data on employment and labor income from 2,200 vessel owners whose boats delivered fish to processors in Southwest Alaska. NMFS has hired contractors at the University of Alaska Fairbanks to conduct the data collection project (NMFS Alaska Regional Office, 2006d). Since the contractors are concerned about the low response rate of a voluntary survey, they will use an approach slightly different from those used by previous data collection studies. First, for gathering information on employment and earnings, they will rely on the survey of vessel

owners. Second, for gathering information on costs of intermediate inputs used on harvesting vessels, they will survey the suppliers of the inputs rather than the vessels owners. This approach will allow the number of questions on the voluntary survey to be minimized, which will help to increase the response rate.

5 Preliminary Options to Improve Harvest Employment Data

This section introduces a preliminary set of options that could be used to improve employment data for the commercial fish harvesting sector in Alaska. The goal in developing these preliminary options is to develop a basis for discussion. These options have been developed by solely by Northern Economics for discussion purposes. It should also be emphasized that none of the options presented here, have been vetted or pre-approved by any agency or stakeholder group. Finally it should be noted that in presenting these options Northern Economics does not imply that the options are necessarily feasible or practicable, nor should it be inferred that no other options are possible. We encourage workshop participants to review the options that are presented; to think through the pros and cons of each; and to create new options that might create a better harvesting crew database.

The set of preliminary options are divided into two general categories: 1) Options that will improve the ADF&G Commercial Crew License data, 2) Options that will report activities of fishing crew members, including both ADG&G license holders and CFEC permit holders acting as crew.

5.1 Preliminary Options to Improve ADF&G Commercial Crew License Data

This section presents options to improve the ADF&G Commercial Crew License Data. As indicated in previous discussions, licenses are issued by venders throughout the state who complete a hand-written form with duplicates. A copy is issued to the individual as their license and the original is submitted to the state. This system is effective in that it allows licenses to be issued instantly. However, because the data are completed by hand by many hundreds of venders, and because information verification requirements are minimal, entering and using the data in an electronic database is problematic.

Option 1.1 Maintain the existing ADF&G Commercial Crew License System: As indicated in previous discussions, all licenses are issued annually by venders throughout the state who complete a hand-written form with duplicates. A copy is issued to the individual as their license and the original is submitted to the state. Each license issued has is pre-printed with unique number for that particular year, and therefore each individual receives a unique license number. This system is effective in that it allows licenses to be issued instantly in nearly any community in the Alaska. However, because the data are completed by hand by many hundreds of venders, and because information verification requirements are minimal, entering and using the data in an electronic database is problematic.

Option 1.2 Change to a Renewable License System: Under this option individuals would be issued a renewable license with a unique and non-transferable license number. It is presumed that this license number would be generated by the same system that generates CFEC Permit IDs. Once a license is associated with an individual, that ID number would be permanently associated with the individual, whether the number is associated with a crew member license or with a CFEC permit. Each license holder would be issued semi-permanent license card which presumably would include a magnetic data strip.

Crew licenses would be renewed in the same manner that CFEC Permits are renewed. New licenses would still be available and could be issued using the same or similar system that

currently exists. New paper-copy licenses would be valid only until such time as a permanent license card could be issued. In order to encourage existing license holder to renew their licenses in a timely manner, it is anticipated that the price of new licenses (or duplicate licenses) would be considerably higher than the cost of a license renewal. Another option would be to issue multi-year licenses.

Option 1.3 Create a Computerized Real-Time License Issuance System: This option would re-vamp the current system used to issue commercial fishing licenses, and because they utilize the same issuance system would incidentally re-vamp the system for issuing recreational fishing and hunting licenses. The new system would be similar to the licensing system used by the Oregon Department of Fish and Wildlife.

In this system, all license venders would be issued a computer that connects electronically the license database. When individuals request to purchase a license, they are asked to provide either, if they have purchased a license in the past and to provide positive identification (e.g. a valid driver's license with photo id, a passport, etc). The information would then posted to the database, and if a match is returned to an existing entry the purchaser would be asked to verify and update the information in the database and the license is renewed with the same license ID as in previous years. If no match is found, then all of the information for a new license would be collected and verified by the vender, and entered directly into the database. In either case (new license or license renewal) the system would print the licensee's information including bar-coded or magnetic data onto a semi-permanent card, similar to those used for pre-paid calling cards.

Given the number of licenses that would be issued or renewed annually, it is likely that license fees coupled with reductions in data entry costs would likely be able pay for this type of system within a few years.

5.2 Preliminary Options That Will Report Activities of Fishing Crew Members

Option 2.1 Maintain the status quo: Under this option no changes would be made to enhance reporting of activities of fishing crew members.

Option 2.2 Require all crew members and permit holders to complete and submit an "Alaska Crewmember Activity Form" at the end of each fishing year: The form would ask all crew members and permit holders to indicate the fisheries in which they participated as crew members, the vessel on which participated and the number of trips they took. A hypothetical version of an "Alaska Crewmember Activity Form" is shown in Table 2.

The Alaska Crewmember Activity Form (hereafter the form) would be available online, and it would also be mailed to each licensee and permit holder at some point late in the year. In order to ensure that the form is submitted by all licensees and permit holders, the regulations would indicate that the licensee or permit holder would be penalized for failure to complete the form in a timely and accurate manner.

Table 2. Hypothetical Alaska Crewmember Activity Form

Alaska Crewmember Activity Form					
Crew Member Information					
Name:		ADF&G Crew License Number: Or CFEC Permit ID:			
City, State and Zipcode:					
Activity Information					
Please fill complete a row for fishery and vessel on which you fished on during the past reporting period. If you fished on more than on vessel in a particular fishery, complete a separate row for each vessel.					
Fishery (see back)	ADF&G Vessel #	Permit Holder ID (if known)	Month	Number of Trips	Average Time at Sea

Note: The back of this form would contain a list of the Alaska fisheries for which permits are issued.

Option 2.3 Require all active permit holders to submit a completed "Alaska Crewmember Activity Form" at the end of each fishing year for each crew member they employed during the year: This option is very similar to Option 2.2 except that permit holders would be required report the activities of all of their crew members. The reports would be due by January 15 of the following year. In this option crew members would not be required to report activities.

Option 2.4 Require all active permit holders to submit a completed Alaska Crewmember Activity Form for all crew members they engaged each time a landing is made: The reports could be submitted by fax or email directly to the appropriate management agency by fax or email, or they could be provided to processors or tender vessels with each delivery.

Option 2.5 Require Permit holders to submit a completed Alaska Crewmember Activity Form whenever registering for a fishery or whenever undergoing a tank inspection. Registration is required in the Bristol Bay drift and set gillnet fisheries, and in several groundfish and herring fisheries and tank inspections and/or registration is required in most crab fisheries. In this option the Alaska Crewmember Activity Form would be completed prior to actually engaging in the fishing activity.

Option 2.6 Require observers to complete an Alaska Crewmember Activity Form regarding crew members on any vessel observed in the federal or state fishery observer programs: Observers are required in the federal groundfish fisheries, in the Bering Sea and Aleutian Island crab fisheries and in the scallop fishery. In the groundfish fisheries all catcher processors and vessels greater than 125′ length overall (LOA) are required to carry observers 100 percent of the time. Vessels between 60′ and 125′ LOA are required to have 30 percent observer coverage. Observer coverage requirements in the crab and scallop fisher are slightly different than observer requirements in the groundfish fisheries.

Option 2.7 Augment the logbook reporting requirements in all fisheries that require logbooks to include completion of an Alaska Crewmember Activity Form for each week the vessel is active: In this option, the logbook forms would be augmented with Alaska Crewmember Activity Form. All vessel operators would be required to report the activities of harvesting crew with the same frequency that logbook data are reported.

Option 2.8 Create an electronic version of the Alaska Crewmember Activity Form that would be reported on all vessels and processors using the Interagency Electronic Reporting System: For those fisheries that utilize the IERS system (see Subsection 4.2.2), an electronic version of the Alaska Crewmember Activity Form for all crew members would be submitted along with each landing record/fish-ticket.

Option 2.9 Change the current fish-ticket form to accommodate information reported in the Alaska Crewmember Activity Form. Any processor that issues a fish-ticket would be required to obtain the crew member data from the permit holder and to report the information on the fish-ticket.

6 Workgroup Goals and Objectives

The Southwest Alaska Municipal Conference (SWAMC) is sponsoring the Seafood Harvesting Labor Data Project to help address the issues raised above. Part of this ongoing effort is conducting this work group. The primary objective of the work group session is to gather information and ideas from a wide-ranging group of individuals and organizations. Currently, the work group expects participation from the Alaska Board of Fish, the Alaska Department of Commerce, Community, and Economic Development, the Alaska Department of Fish and Game, the Alaska Department of Labor, the City of Kodiak, the City of Sand Point, the City of Unalaska, the Commercial Fisheries Entry Commission, the Kodiak Area Chamber of Commerce, the Lake and Peninsula Borough, NOAA Fisheries, the North Pacific Fishery Management Council, the University of Alaska's Institute for Social and Economic Research, and the University of Alaska Fairbanks. Jon Isaacs is coordinating the work group session with support from Gunnar Knapp (UAA/ISER), along with Marcus Hartley and Jonathan King from Northern Economics. Northern Economics is the prime contractor responsible for the project as a whole.

The broad goals for the work group session are:

- Further explore the issues associated with seafood harvesting labor data;
- Collect information on current data collection and past estimation efforts;
- Define unfulfilled organizational needs for seafood harvesting labor data;
- Suggest new data collection methods or systems that would eliminate the unfulfilled needs;
- Evaluate potential systems from multiple perspectives and identify the positive and negative attributes of each system as well as the potential hurdles to implementing each system.

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Appendix C– Confidentiality Issues

The issue of confidentiality was raised as a concern at the work group on improving seafood harvesting employment data—of particular concern were alternatives in which crewmember ID's would be linked directly to particular landings, either through a modification of the current fish ticket system, or integrated as part of the soon to be implemented eLandings system.

Confidentiality is a multifaceted issue and the discussion that follows represents the perspective of the authors of this report. The ideas and opinions described below do not necessarily reflect the opinions of the state or the federal governments.

General Protections under State and Federal Confidentiality Rules

Northern Economics assumes that any data submitted under an enhanced seafood employment data collection program would be protected by the same state and federal confidentiality rule that are in place for permit holders, vessel owners, and processors. In particular, the agencies could not release to the public any information that would reveal critical business information about individuals or firms.

Based on these restrictions, agencies cannot release information about the activities of individuals or firms, unless they are aggregated. In general, the State of Alaska requires that data be aggregated such that no fewer than four firms or individuals are represented in any given number. The minimum aggregation level is specified based on the premise that with four or more included, it would be nearly impossible to infer specific information about the activities of any one of the four involved, even if the specific information about one of the four were already known.

Under any of the options under discussion it is assumed that this basic level of protection would be provided crewmembers whose data are reported.

It should be noted in this discussion that the protection of confidentiality are only provided for data showing business activities, but that information provided in the license or permit information (with a few exceptions such as social security numbers) are considered "critical business information" and are generally available to the public. Thus for example it is possible to determine through publicly available information, the specific fishing permits or fishing vessels that any individual holds, along with the address of the individual and other demographic information.

The Right to Access Data

The issue of confidentiality also raises the important issue of who has the right to access data that has already been submitted. In general, the state (and NMFS) assumes that the actual submitters of the information have the right to access the information they submitted. In the past the state has ruled that the both the permit holder identified on the fish ticket as well as the processor identified on the fish ticket have the "access rights" to the data. Of particular interest is the fact that this ruling does not grant a specific right of access to the owner of the harvesting vessel from which the landing was made, even though the vessel identification is listed on the fish ticket.

Based on this ruling, the state did not provide fish ticket data to vessel owners during the sablefish and halibut IFQ application process, unless the vessel owner was also the permit holder of record, even though the IFQs were to be allocated to the vessel owners based on fish ticket landings. In a case, where the vessel owner was not the permit holder, the vessel had to acquire a signed waiver from the permit holder in order to access the information stored by the management agency.

Given this precedent it seems evident that in the event a crew-member identifier was attached to a fish ticket, the crewmember (like vessel owners) would not have access to the business information

included in the fish ticket data (landings amounts, revenue, etc.), because in fact the permit holder and the processor would still be only submitters of the data. It should be noted again that the preceding represents the thinking of Northern Economics and this view is not necessarily the opinion of Attorney General of the State of Alaska.