APPENDIX II

INSHORE/OFFSHORE-3 SOCIOECONOMIC DESCRIPTION AND SOCIAL IMPACT ASSESSMENT

North Pacific Fishery Management Council
Anchorage, Alaska

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Summary of Changes to Social Impact Assessment Document Changes from May 6, 1998 Public Review Document (as presented at the June, 1998 NPFMC meetings) and the July 15, 1998 Secretarial Review Document		
Section	Page(s)	Changes from Public Review (May 6, 1998) SIA Document
1.4.6	18	Footnote #1 added to clarify reason for variation of pollock volume statistics between this SIA document and the main document.
2.3.2	84-85	Table MOTH-2, which appeared on page 85 of the May 6, 1998 document was deleted from the July 15, 1998 document. Text added on page 84 of the July 15, 1998 document discussing the data that had appeared in the table.

TABLE OF CONTENTS

Section **Page**

Section **Page**

Section **Page**

LIST OF TABLES

Table		Page

1.0 INTRODUCTION AND OVERVIEW

The goal of this work is to provide sufficient socioeconomic description of existing and historical conditions, along with a general-level social impact assessment, to support the North Pacific Fishery Management Council's consideration of eliminating, retaining, or modifying the present Inshore/Offshore allocative split of the groundfish fisheries in federal waters off of Alaska. More specifically, the analysis focuses on the socioeconomic and social impacts on a community/ regional basis as well as on a fishery sector basis.

1.1 ORGANIZATION OF THE DOCUMENT

The document is organized in the following manner:

- This overview section: (1) lays out the relationship of this effort to earlier social impact assessment (SIA) work conducted for the North Pacific Fishery Management Council (NPFMC) and National Standard 8 regarding fishing communities; (2) provides a set of simplifying assumptions that were used to guide the work; (3) provides a brief discussion of the methodology used in preparing this document; (4) provides an general treatment of trends of change and a preliminary SIA discussion of trends of change; and (5) summarizes general SIA issues.

- The following four sections describe, on a sector by sector basis, the 'engagement' and 'dependence' upon the Bering Sea pollock fishery by the major sectors involved with the fishery itself, as defined by the (simplified) I/O-3 allocative alternative framework. These are: (1) the inshore processing sector; (2) the catcher-processor sector; (3) the mothership sector; and (4) the catcher vessel sector.

- After the sector descriptions, the next two major sections provide a look at: (1) Alaska; and (2) Pacific Northwest community 'engagement' and 'dependence' upon the Bering Sea pollock fishery, specifically with respect to interactions with industry sectors. Alaska communities are further differentiated into: (a) Unalaska/Dutch Harbor; (b) Akutan; and (c) Sand Point and King Cove. The Pacific Northwest discussion focuses on the community of Seattle and the greater Seattle metropolitan area, for reasons developed in that section.

- Following these discussions, a brief overview of Community Development Quota (CDQ) issues is provided. It is important to clearly state that this document does not provide an SIA for CDQ groups or communities – that work was undertaken simultaneously by another entity. These issues are included in this document only to assist the reader in comparing or contrasting CDQ and SIA issues.

- Finally, this document concludes with a summary outline of SIA issues by (simplified) allocative alternative, which provides an at-a-glance summary of the issues developed in detail in the main body of this document.

1.2 RELATIONSHIP TO EARLIER WORK AND NATIONAL STANDARD 8

This socioeconomic description and social impact assessment explicitly builds upon two earlier efforts undertaken by Impact Assessment, Inc. (IAI) for the NPFMC. These are: (1) work associated with the first inshore/offshore analysis (1991); and, (2) work associated with proposed regulatory changes in groundfish and crab fisheries (1994-1995). These works are incorporated by reference, and are not recapitulated in this document. By way of background, these two efforts were quite different in their structure, which is discussed below. Since these earlier works were produced, however, the context of social impact assessment with relation to conservation and management measures has changed somewhat through National Standard 8 under the Magnuson-Stevens Act Provisions; National Standards and Guidelines (Fed. Reg. Vol. 62, No. 149, 41907-41920). This is briefly discussed below.

1.2.1 Earlier SIA Work for the NPFMC

The work undertaken for the first inshore/offshore analysis (I/O 1) in 1991 focused on geographically based descriptions, and the geographic distribution of impacts, particularly on the community level, and not so much on internal distribution of impacts within industry sectors. This effort first produced a set of detailed community profiles which provided a community context for the fishery. Following that work, a description of the social environment and consequences of alternatives document was produced which looked at how likely consequences would play out in the various profiled communities.

The work associated with the groundfish and crab fisheries in 1994-1995 was quite different, looking at the structure of participation in the fisheries themselves, by describing the fishing industry on a sector by sector basis. That is, this work began with the task of constructing a set of sector profiles and basic description of existing conditions. The first document produced for this work included the sector descriptions and a preliminary social impact assessment. This was followed with a supplemental social impact assessment, or "bridging document" that examined more closely the potential social impacts associated with more narrowly defined license limitation options, primarily in terms of the differential distribution of impacts among sectors. The thrust of this analysis, then, was directed toward shifts among and between sectors, rather than at how impacts would likely play out in any particular community.

Taken together, the community frame of reference from I/O 1 and the sector frame of reference from the 1994-95 work, provide a great deal of background information that is useful for the current work. This effort is on a much smaller scale that either of the two previous studies, but is perhaps more ambitious. It is directed, to a degree, at updating the relevant information for directly involved communities and sectors, and at linking the two so that potential general level social impacts of I/O 3 may be understood both on a sector and geographic basis.

1.2.2 National Standard 8

National Standard 8 is part of a set of guidelines intended as an aid to decision making and, along with the other standard guidelines, will apply to all Fishery Management Plans and implementing regulations, existing and future. Specifically, National Standard 8 notes that:

> Conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to: (1) Provided for the sustained participation of such communities; and, (2) To the extent practicable, minimize adverse economic impacts on such communities. (41917)

It should be clearly noted that the stated that the standard "does not constitute a basis for allocation resources to a specific fishing community nor for providing preferential treatment based on residence in a fishing community." It further defined ' fishing community' as:

> a community that is substantially dependent upon or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and fish processors that are based in such communities. A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries dependent services and industries (for example, boatyards, ice suppliers, tackle shops).

'Sustained participation' is defined to mean continued access to the fishery within the constraints of the condition of the resource. In the case of Bering Sea pollock, recreational or subsistence fishing would appear not applicable to the fishery being regulated. Sustained participation is clearly at issue, given that I/O-1 was specifically crafted to address the 'preemption' issue (i.e., the threat to 'sustained participation' of Alaskan coastal communities or, more specifically, inshore sector participants with ties to those communities).

Consistent with National Standard 8, this document first identifies affected fishing communities (both on a 'physical community' and 'industry sector-community link' basis) and then describes and assesses their differing nature and magnitude of dependence on and engagement in the Bering Sea pollock fishery. Each sector and geographic area treatment allows the reader to understand the likely affects of various allocative alternatives discussed, and a section at the end of this document summarizes each major alternative's likely effect on the sustained participation of these fishing communities in the fishery, and identifies those alternatives that would minimize adverse impacts on these fishing communities. (It should be clearly borne in mind, however, that a number of simplifying assumptions are a part of the analysis herein, as described in the following section, and, due to these real-world constraints, we cannot discuss all of the possible or even probable impacts likely to arise from management action, such as impacts on other fisheries in which various Bering Sea pollock sector participants also engage.)

1.3 SIMPLIFYING ASSUMPTIONS

The issues encompassed by I/O 3 are many and complex. Further, the geographic 'footprint' of potential impacts is very large indeed. In order to make this work practical, a number of simplifying assumptions were made at the time the scope of work was designed by the NPFMC. It is important to note these assumptions early on. While any simplifying assumptions limit the ultimate utility of the product, there is clearly a balance to be struck between what could be done with unlimited time and resources and what can be done given real world constraints. This being the case, the general simplifying assumptions may be stated as follows:

- Focus on the Bering Sea-Aleutian Islands Fishery

The Inshore/Offshore amendment covers both the Bering Sea-Aleutian Islands (BSAI) and Gulf of Alaska (GOA) fisheries. At the time of this work, the Inshore/Offshore allocation issue is a far less contentious issue in the GOA than in the Bering Sea. It was agreed to essentially exclude the GOA fishery from the socioeconomic/SIA analysis, and to concentrate on a single area fishery (BSAI). This serves to simplify the analysis by allowing concentration on a single species -- pollock (i.e., Inshore/Offshore covers pollock and Pacific cod in the GOA, but only pollock in the BSAI). To the extent that GOA-based processors and harvesters (and other sectors) participate in the BSAI pollock fishery, that portion of their operations can potentially be discussed. It should also be noted that the 'GOA Problem Statement' is far less complex than the analogous statement for the BSAI.

- Focus on Sector Participation in the Pollock Fishery and Simplify the Problem of Interactive Fisheries Issues

During the Sector Profiles/Supplemental SIA process, IAI described the dynamic interactions between fisheries across sectors. Recognizing that changes in the management of any one fishery necessarily influences decisions about participation in other fisheries for various sectors, it was seen as important to understand and characterize how the sectors involved in the groundfish and crab fisheries were involved in other fisheries, and what sort of factors influenced their varying degrees of participation. This is clearly fundamentally important data to the Council, given its overall management mandates. On the other hand, developing (or even updating) this type of information requires an intensive effort over a broad geographic reach. The Council staff has been discussing the development of a tool, a comprehensive data base, that would have assisted in this task, but this is not available at this time. Without such a comprehensive data base, interactive fisheries effects are beyond the scope of this project. Therefore the socioeconomic/SIA analysis for

Inshore/Offshore-3 focuses on participation, by sector, in the pollock fishery itself. The implications of this focus are that the range of impacts to other fisheries (and to participants in other fisheries) resulting from an Inshore/Offshore reallocation will not be addressed, except perhaps in a very qualitative way at a high level of generality.

- Employ a Tiered Approach to Community Linkages Through Focused Updating of Community Profiles

The socioeconomic/SIA analysis approach to Inshore/Offshore-3 encompasses both sector and community based impacts, at least on a general level. As already noted, the sector analysis will be focused on the BSAI pollock fishery. For Inshore/Offshore I, the socioeconomic/SIA analysis relied to a large degree on well-developed, broad-based community profiles to provide a context for the understanding of community based impacts. For Inshore/Offshore-3, it will not be possible to update those now six-year-old profiles across the board, nor, given exclusion of the GOA from the analysis, would it be desirable to do so. Instead, the socioeconomic/SIA analysis focuses on updating those specific aspects of community profile information necessary to understand and analyze the role of the BSAI pollock fishery in those communities. This has resulted in a 'tiered' approach to community characterization, where depth and detail of characterization corresponds to the number of levels of relationship between the fishery and the community.

- Rely on DCRA Analysis of CDQ Reallocation Impacts Analysis

The Community Development Quota (CDQ) program was implemented as part of the first Inshore/Offshore amendments, but was not tied to either Inshore or Offshore components. As it has evolved, however, CDQs are not 'Inshore/Offshore neutral.' That is, the CDQ organizations and communities have come to partner much more heavily with Offshore entities such that, at present, only 15% or so of the total 7.5% overall CDQ reserve is being harvested/processed by the inshore sector. A reallocation in Inshore/Offshore quotas could have impacts with respect to the role of CDQs for inshore and offshore partners, as well as to the CDQ groups and communities themselves. This could expand the socioeconomic/SIA effort greatly, especially since CDQ program now encompasses all BSAI fisheries (not just pollock). The decisions by the Council to restrict this SIA to pollock and to 'decouple' CDQs from Inshore/Offshore has greatly simplified the SIA task. Further, CDQ impact analysis is being independently performed for the Council by the Alaska Department of Community and Regional Affairs (DCRA), although this analysis was not available at the time this document was produced.

- Narrow the Range of Alternatives Analyzed

The Council has come up with numerous reallocation alternatives, in addition to expiration and status quo ('rollover') options. As a simplifying assumption, it was assumed that there would be diminishing returns on performing analysis on a broad range of options and therefore only a limited number of options will be examined. These options will encompass the status quo and the 'extremes' of change, so as to accentuate differential effects and to enable discussion regarding trends and directions of effects.

- Omit Analysis of Foreign Ownership Issue

For the purposes of the socioeconomic/SIA analysis, the question of the implications of degree of foreign ownership in the various sectors was not considered. The relative effective contribution of earnings (to communities, to the nation at large) on capital versus earnings from labor, and the international nature of capital and corporate ownership, are not presently well described or understood. Independently developing and verifying such data, and then assessing the ramifications of those data, were tasks well beyond the scope of this effort.

1.4 METHODOLOGY

In this section, an overview of the methodology used in the socioeconomic description/SIA is provided. This includes individual sections giving a general description of the work, laying out specific research goals and tasks, and stating information goals and objectives. Subsequent subsections describe the type of documentary and ethnographic research utilized, and discuss sampling, special issues, and field data processing and initial analysis in relation to field data.

1.4.1 General Description of Work

The work performed was designed include socioeconomic description and social impact assessment of various Inshore/Offshore allocative alternatives of the BSAI pollock fishery sufficient to enable the NPFMC to use the results of this effort in their decision-making process regarding the Inshore/Offshore 3 amendment to the FMP. This work consisted of the following community/region and sector based analysis:

- *Community Profile Updates*. Focused community profiles were prepared for the relevant participating communities that have direct ties to the BSAI pollock fishery. Based on our preliminary examination of the data, these communities included Unalaska/Dutch Harbor in the BSAI region itself. (Akutan was also profiled, but as an adjunct to the Unalaska/Dutch Harbor effort, given the ties between the two locales.) Sand Point and King Cove were also profiled, but to a lesser extent, based on a preliminary examination of the data provided by the Council. Seattle was characterized in several different ways. First, sector descriptions for those sectors based out of Seattle were adequately developed to allow an understanding and analysis of the role and significance of Seattle-based operations in the overall BSAI pollock fishery. In this regard, bounded 'subcommunities' or groups of fishery participants within Seattle corresponding to sectors were characterized, at least on a general level, to the extent feasible. Second, while it is recognized that the Seattle metropolitan area cannot be characterized with as fine grained detail as smaller communities, sufficient information for appropriate data domains for King County were developed to allow for a balanced treatment of the greater Seattle area and the smaller Alaska communities. Additional Pacific Northwest and Alaska communities were descriptively linked to the BSAI pollock fishery through an analysis of participation in the fishery via vessel homeporting (or vessel/facility ownership) information, but were not profiled as such.

- *Sector Profiles*. Limited sector profiles for the relevant participating BSAI pollock fishery sectors were provided. These sectors were consistent with the sector definitions used by Council staff in other analyses of the Inshore/Offshore 3 amendment and, to the extent feasible, with those used in earlier SIA work for the Council.

- *Sector-Community Linkages*. The links between the sectors and communities were described to understand, to the extent possible given the data limitations, the dynamic between changes to sectors and impacts to communities. Specifically, information on the domains of interaction between sectors and communities was developed. For example, for shoreplants in the BSAI, there is a multi-level range of interactions with communities (that vary from community to community), based on the 'social enclave' nature of some plants, point of hire and retention of workforce, growth (or lack of growth) of support sectors in the communities, and proportion of local/municipal revenues attributable to such plants, among others. Similarly, there is a range of interactions with, and revenues from, the offshore sectors in the various communities, varying degrees of infrastructure development attributable to offshore sectors, and so on. While the focus of this research is not revenue or expenditure oriented (per the study design, this SIA effort relied on Council staff analysis for those types of information, where they are appropriate and available), we did include qualitative discussions of these issues based on information derived from sector contacts. This was especially important for Seattle, where service and supply linkages are clearly important, but are buried in the "noise" within the aggregated information available.

- *Sector-Employment Linkages*. Information on the employment characteristics of each of the sectors was developed, and the likely direct employment effects of each of the general alternatives on the specified participating sectors were discussed. To the extent feasible, information on the location of support sector employment, and the links of impacts to support sector employment by sector and by alternative, were described and analyzed for Seattle and Unalaska. Locational data was obtained from primary sector participants, and supplemented with secondary data, as available. Only limited information on employment alternatives available to potentially displaced workers was developed, as employees were not, for the most part, directly contacted (though data derived for the 1994 SIA were available and, based on entity interviews, were still representative of general sector trends). Interviews with fishing entity supervisors or personnel department staff did provide some general information in this regard.

- *Revenue Flow/Economic Analysis*. Though this was not a main thrust of our work, we have incorporated some relevant information on revenue flow found in the economic analysis performed by NPFMC staff into our work. This information was broken out by major sector, and the revenue flow roughly attributed to communities (based on homeport, ownership location, or facilities location, as appropriate). We did not do independent revenue flow analysis.

- *Field Data Collection.* Field data collection to ensure descriptive adequacy (and currency of information) was required. Due to resource limitations, and the likely potential disproportionate effects upon Unalaska/Dutch Harbor and Seattle, field visits were confined to those communities (along with a brief field visit to Akutan to supplement earlier field work in that community). Seattle was and is an especially challenging field site. Contacts in other communities were made by phone or other means; Sand Point and King Cove governmental and industry representatives were contacted in Anchorage and/or Seattle.

1.4.2 Specific Research Tasks

The research generally followed the steps outlined below. In practice, of course, a number of different tasks took place simultaneously.

- *Preliminary Data Analysis.* NPFMC staff provided IAI with relevant sector and location data throughout the project. This included homeport data, harvest data, and other relevant data by sector/location. These data were used initially to help focus the research effort, including facilitating the specification of field sites.

- *Formulate Study Plan, including a Field Plan.* Following a preliminary examination of the current fishery data, an overall study plan, with emphasis upon the field plan for collecting additional sector/community information, was be prepared. This document in effect incorporates that document, as modified by actual events.

- *Summarize Relevant Existing Information.* Prior to the collection of field data, existing information relevant to the socioeconomic/SIA tasks were summarized. Important sources for this information will included the 1991 community profiles and accompanying SIA and the 1994 Sector Profiles and Supplemental SIA (and supporting materials) prepared by IAI for earlier NPFMC groundfish management tasks. These materials, along with other relevant sources, were summarized to develop preliminary pre-field community and sector profiles, to identify information gaps, and to guide field interviews and research.

- *Conduct Field Visits to Collect Required Information.* Field site visits were made to Seattle (Downs and Galginaitis) and Unalaska/Dutch Harbor-Akutan (Downs). Other in-person contacts were made in Anchorage.

- *Incorporate Additional Staff Analysis.* The socioeconomic/SIA analysis effort incorporated and discussed Council staff analysis in several related areas,. This task was actually a constant throughout the project, since time constraints were so tight on both NPFMC staff as well as our team members.

- *Incorporate DCRA Analysis of CDQ Issues.* It was intended that DCRA analysis of CDQ issues would be incorporated into the socioeconomic/SIA analysis at a very general level, if the DCRA report was available in time to do so. This was, in fact, not possible within the time constraints of the availability of DCRA's analysis. It was also not possible within the short time allotted for revisions between the NPFMC's April meeting and the release of this report to integrate the two studies.

- *Prepare Report.* Primary data and secondary data were analyzed, and a comprehensive final report prepared. The final report included focused community and sector profiles and potential impacts analysis. The main body of the draft report was prepared by April 2, 1998. Supplemental revisions were required during the period just prior to the April NPFMC meetings, and two revised sections, incorporated into this document, were provided at those meetings.

- *NPFMC Meeting and Consultation.* Meetings and consultations with the NPFMC and staff were required over the course of the contract, and results were presented at the April NPFMC meeting. Questions and suggestions were received at the SSC, the AP, and the Council meeting itself. To the extent feasible within very tight time constraints, this document has been modified and expanded to address the questions and suggestions received. The research will also be presented at the June 1998 NPFMC meeting.

1.4.3 Information Goals and Objectives

The overview discussion above summarizes the overall information goals of this project. Our charge was to update the characterization of the industry sectors participating in the Bering Sea pollock fishery, as well as the socioeconomic context of those communities of which these industry sectors are a part (whether through residence of participants, socioeconomic links, or other relationships). Industry sectors were characterized through the summation of existing information (provided by NPFMC staff, industry sources, community sources, and various government sources) and, more to the point for this discussion, field contacts with industry participants and other community residents and officials. This effort was a continuation of past NPFMC efforts and built upon the existing industry and community profiles developed for earlier regulatory decisions. Contacts with industry participants were given priority, given the research constraints and resource limitations.

Methods used were similar to those used by the researchers for past NPFMC projects. General community contacts were renewed (and, where necessary, established) with key community officials, in order to gain access to and collect planning documents and other contextual information. This was confined for the most part to that information required to update the existing community profile for the specific communities identified as primary field sites.

Industry participant contacts were a primary means through which existing industry sector profiles were updated. Our main method was to talk with a sample of industry participants from each of the sectors identified as important components of the Bering Sea pollock fishery -- shoreside processors (fixed location plants as well as inshore floating processors), offshore catcher-processors, and catcher vessels (which may deliver onshore, offshore, or both). As in previous projects, our conversations were guided by a research protocol so that we could collect comparable information from those people we talk with, without submitting them to the time requirements of a more formal and inflexible survey instrument. The time horizons for this project were too short to allow for the development of a formal survey instrument which would have been subject to a lengthy review process by the Office of Management and Budget, because of the Federal funding of the project. Again, as in previous projects, employment and labor participation were addressed primarily through direct industry sector contacts, although it was also part of the community profile discussion. Most specific employment information was developed as part of the field interview process (and follow-up data requests from industry associations and individual entities).

Preliminary examples of the protocols used in the field are provided in an appendix to this document, and were derived from those used in our work in support of the NPFMC's Groundfish License Limitation analysis (1994). As with previous projects for the Council, these were subject to internal team review and modification following initial field contacts, but they represent the main topical or information issue areas about which relatively consistent information needed to be developed for the purposes of this project.

Implementation of this study generally followed the standards for ethnographic work and the methods of Rapid Ethnographic Assessment Procedures as outlined by the NPS in the *Cultural Resource Management Guideline*, Release 4 (National Park Service 1994) and the NOAA Guidelines and Principals for Social Impact Assessment. Implementation of this study used multiple data collection techniques, discussed below in terms of documentary research and ethnographic research. Separate discussions are also devoted to sampling and other special considerations.

1.4.4 Documentary Research

Because of the unique circumstances of this project, much of the previous literature and other documentary sources had already been compiled in previous work. Since the action to be taken was a continuation of a previous action, and the analysis built upon that for this earlier action (and parallel actions already underway by Council staff), the research required was more in the way of an update and supplementation than a complete new construction. Thus there was no need for a literature review as such.

An essential part of the project was the incorporation of NPFMC staff provided information and data sets into our sector/community descriptions and effects analysis. This information included vessel characteristics and pollock harvest statistics for all participants in the Bering Sea pollock fishery for 1991, 1994, and 1996, as well as similar information for all processors of Bering Sea pollock for the same years. We processed this information using dBase III+ and Paradox. Because of changing definitions and a tighter problem definition, there was a need to rework some of the earlier sector analysis (for license limitation) so that it could be compared in a reasonable (although not necessarily direct) way.

To update the community profiles, and to adequately document localization of fishery-related activities in Seattle, we did need to collect and integrate recent secondary information of a socioeconomic descriptive and general planning nature. This was, for the most part, the extent of our effort in this area and was accomplished primarily through contacts with key community officials and planning employees (and the collection of planning documents).

1.4.5 Ethnographic Research

Most of our primary research effort was be devoted to field work. In this section we discuss each of the methods used, the sort of information recovered through each method, and (briefly) the use that information has had for the project. The ethnographic methods utilized are based on traditional anthropological and social science methods to investigate the nature and meaning of public values, attitudes, and beliefs. These methods are exemplified in the traditional ethnographic approaches of anthropologists such as Lowie (1969), Kroeber (1952), Geertz (1983), and Malinowski (1950) while at the same time informed by some of the most recent work about cultural schemas that function as " information packages" about a domain of cultural knowledge (D'Andrade and Strauss 1992). For example, a cultural schema about natural resources would examine how people conceptualize and categorize the characteristics of their natural environment or specific features within that environment such as a National Forest (IAI 1993). A cultural schema is a concept that can be applied to systematically investigate how people understand one area of cultural knowledge by focusing on the characteristics of and connections among elements within that knowledge area (Strauss 1992).

These schema and context data were collected through primarily open-ended, key informant interviews with persons representing different sector/community interest groups. The procedures for selection of these informants is discussed below. A set of interview protocols was constructed prior to field work, based on similar previous work, and reviewed with NPFMC staff. As noted earlier, the protocols specified a set of topics to cover, but not a standard set of questions that were asked of each person interviewed. Rather the specific questions asked, and the order in which topics were covered, were likely to be different depending on the process of each interview. The use of the protocol insures that there was consistent converge of the topics of research interest. Also, keeping in mind that a good portion of the field effort was directed toward updating information already in hand (and often collected from the same individuals or entities contacted for previous study efforts), for many interviews only a subset of protocol topics were pursued after some general questions were asked regarding relevant changes since the last set of interviews. Our experience has been that if the interviewee is discussing topics of interest that it is generally more efficient overall to allow him or her to guide the discussion rather than to impose the more artificial structure of direct questions. A more inflexible, formally structured, interview often produces much less direct information and very little interpretative context. The successful use of protocol interviewing of course depends upon the judgement of the interviewer, but is a technique with which we have much experience. Even with a "standard" protocol, not all interviews/contacts were guided by them to the same extent. We briefly discuss several of these special interview situations below.

"Standard Protocol" Interviews

The most common interview situation will be one where the researcher is talking with an individual about his or her participation in the Bering Sea pollock fishery, often in a group context for larger corporate fishery entities. The interview will be guided by the use of a protocol which specifies certain areas of interest and topics to be covered.

Key Person Interviews

Most of the initial interviews completed were 'key person' interviews. Key person interviews are conducted with people who hold central positions in public or private community organizations, or are key participants in the activity of main interest. These types of interviews are only semi-structured because the interviewees involved usually have busy schedules and time constraints. Although semi-structured interviews maintain the same open-ended quality of informal interviews, the structure of the interviews are determined by the researcher. Semi-structured interviews are usually employed in situations in which the researcher only has one chance to interview an informant. All interviews were be recorded in narrative form, primarily by written notes. Upon review of the data, follow-up interviews or contacts were sometimes arranged to clarify or obtain further information.

Group Meetings

There were many occasions when we had meetings of the researcher(s) with a number of people at the same time. These were not always predictable. Often the person with whom the meeting had been arranged would have asked one or more additional employees to attend, to provide information as well as to keep them informed of our role in the NPFMC's research and decision-making process. There were other occasions when a number of fishery participants would talk with us as a group, either because they all happened to be in the same place and/or because they (or we) did not have the time or flexibility to talk individually. In our experience, local people can be interested in such group meetings for a number of reasons -- to find out from the researcher what he or she is doing, to communicate to the researcher some specific sorts of information, or to make themselves available to the researcher for whatever he or she wants to know. The last can thus, in essence, be a group interview (or a 'focus group'), and can be guided by the same sort of protocol utilized in the individual interviews. Note taking and recording in such a situation can be challenging, however, as the discussion moves between individuals and the researcher and between other people present. Pragmatically, the researcher typically allows those who 'arranged' the meeting to initially structure the information flow, before moving on to a more general discussion of other topics of interest to the research and specific areas of inquiry, as shaped by the initial interaction.

Participant Observation

Participant observations are among the standard methodologies used in anthropological research. While this is a method that is best suited to longer term work, it may nonetheless be applied on a limited basis in shorter term fieldwork. This approach requires that the researcher establish a rapport with individuals in research communities and to engage this community and its members so that there is minimal disruption of the usual flow of everyday activity. The researcher's task is to observe activities, events, and ways of living in order to understand these from an "insider's perspective." Insight is further gained by participating in the events and activities. Participant observation is a strategy that facilitates data collection in the field (both qualitative and quantitative), reduces problems of reactivity by community members, and provides researchers with an understanding of different community processes. This technique is valuable even in limited, focused efforts when there is an opportunity to engage some portion of a community about a focused topic as well as interact with individuals outside of the interview context per se. This process was facilitated by the individual researchers' previous experience. In addition to having many years of formal research experience in general, Mike Downs has been doing ethnographic research in Unalaska/Dutch Harbor (and, to a much lesser degree, Akutan) since 1982; Michael Galginaitis began working on Southwest Alaska region projects in 1985. Both Downs and Galginaitis have both worked in the communities relevant to the present work on NPFMC projects since 1990.

Nonreactive Observations

Nonreactive observations are sometimes referred to as "unobtrusive" measures, and refer to a research approach that does not require the participation of an informant. Unobtrusive observations typically have little no impact on what is being studied, and include all methods for studying behavior and context in which informants do not actively participate. One of this technique's main concerns is to avoid sensitizing informants to issues that are important to the researcher. Thus, researchers do not ask informants direct questions about individual behavior or community patterns of behavior. Instead, they conduct systematic observations that measure behaviors of interest in a less direct form. As an example, researchers may count vessels at various private docks or public moorage locations to gain insight into patterns of use during fishing seasons that may then be followed up on during interviews. Such measures sometimes provide insight and information that is often unobtainable through other techniques when informants are aware of the researcher or subject matter of interest, particularly where a strong potential for biasing answers exists. Nonreactive observations are especially useful when weighing conflicting information from different informants. Again, given the limited scope of the field research for this project, these techniques were of limited utility, but were employed to a degree.

Informal "Unstructured" Interviews

Informal interviews are often considered to be a form of participant observation. However, an unstructured interview differs from a conversation held during participant observations. While participant observation implies letting a 'cultural consultant' define the form and content of conversations, informal interviews are clearly interviews. That is, when the researcher meets with informants, he or she has a clear plan in mind concerning conversational topics, but does not have a specific set of questions that should be asked. Although the researcher establishes the general direction of the conversation, he or she maintains little control over the direction or topicality of informant's responses. The objective of this type of interviewing is to allow the informant to speak freely and at his or her own pace. These types of interviews are often useful in conjunction with more formal interviews when more than one informant is present.

1.4.6 Sampling

Obtaining a randomly selected and statistically representative sample was not the goal of this study. Rather, for this type of study data are needed from a non-random but systematically selected sample. The intention of this study is to identify knowledgeable "industry experts" and key fishery participants who can identify relationships and associations (both historic and current) between themselves and other fishery participants.

Overview

Given that a specific type of information is desired, and this information is not randomly distributed within the group, efficient gathering of these data required a well defined, targeted approach. Such targeted sampling approaches include quota sampling, purposive sampling, and "snowball" or network sampling. These methods are systematic approaches to the identification of appropriate interviewees. Each is briefly described below.

Snowball sampling may be used as an entre for research with members of various interest and stakeholder groups as a means to identify the full range of groups that are similar to or different from the point of entre. Like most other research of this type, initial field data collection among any particular group identified will almost always begins with informant networking. Networking is a process whereby the researcher requests several key informants to identify others who would be suitable to interview. The process begins with the researcher contacting and interviewing a person who holds a formal status in the group, such as an association executive director, or the like. The informants are apprized of the research project during the interviews, and if they are confident that the researcher will not violate group interests and values, they will usually refer the researcher to other knowledgeable individuals. This sampling technique provides an effective means of building an adequate sampling frame in short order, particularly in a small population where people are likely to be in contact with one another and when the research is focused to the point where the type of information desired is held by a relatively few individuals. Snowball sampling is also a useful tool when studying small, bounded, or difficult to locate populations. In this case, we started with the various industry and/or sector associations and worked outward in addition to recontacting individuals known from previous research.

Quota sampling can be used to a degree to assure adequate coverage of geographical areas, interest groups, and stakeholders. In quota sampling the researcher decides on the categories of interest before the research begins. The sample is selected from those predetermined categories and then a targeted number of individuals are interviewed from each category. That is, the researcher constructs a matrix describing all of the characteristics of information to be obtained. A relative proportion is assigned to each cell in the matrix, and data is collected from persons who possess the characteristics of a given cell. Of all the nonprobability sampling techniques, quota sampling closest to approximating a true random sample. In addition, it guarantees that all the research categories of interest will be represented in the study. In most instances, it is possible to indicate some sort of estimate or evaluation, since this sort of sample represents the population from which it is drawn. Under extremely good conditions, quota sampling results in a stratified random sample, but in most cases it is not possible to determine if members of all categories have had an equal chance of selection. For the purposes of this research, the relatively small number of interviews conducted in any one location, and the focus of such interviews on "key" people and sector/industry experts, would not result in any sort of random sample in any event, however, the research did benefit from well defined categories for the beginning 'matrix' so this did not prove to be a significant difficulty.

Purposive or "Judgement" sampling refers to the selection of a sample based on what the researcher believes will yield the most comprehensive understanding of the subject under study. This sampling technique is similar to quota sampling in that the researcher selects his or her target categories of inquiry based on the objectives of the research. However, for this type of sample there is no overall sampling design that dictates how many respondents from each category are needed for the study. Purposive samples are often used when a researcher wants to select only a few cases for intensive study, when conducting life history research, or when engaging in qualitative research on special populations. The potential problems of defining and enumerating the sampling universe exist for this method as well. This type of sampling, in practical terms, means keeping the design flexible so that, in the words of National Standard 8, "the analysis does not have to contain an exhaustive listing of all communities [or, by extension subcommunities or subsectors] that might fit the definition [of fishing communities]; a judgement can be made as to which are primarily affected" (Fed Reg 1997:41918). Purposive sampling allows for reasoned judgement in adjusting interview targeting strategies once the fieldwork is underway, information begins to be developed, and salient issues begin to become apparent.

Selection of SIA Interview Sample

Use of formal interview instruments that would require OMB approval was precluded by the short time horizon and amount of resources available for the work. Further, it was recognized that representative samples in a statistical sense (at least for some sectors) would not be achievable. A complete characterization of the population before sampling was infeasible (such description was, after all, one of the intended goals of the research), and the random selection (and contact) of interviewees impractical. Given these limitations, the sampling strategy was guided by a statistical description based on historical fishery participation data provided by the NPFMC staff, with special emphasis on the most recently available information (1996). Based on this categorization, and in view of the amount of other information already available and a judgement as to the extent of change in different sectors of the fishery since the construction of the last sector profile, target goals for the adequate description of each sector and a discussion of the dynamics of change in that sector were established. The basic sector descriptive information and these target goals, with the number of actual contacts made, are presented in Table Int-1.

The information goal of interviews conducted for this research was to characterize sector operations as individual entities and aggregate that information to facilitate sector dynamics, particularly with respect to community linkages. To the extent that crew and employment dynamics could also be documented, such information was elicited, but interviews were conducted with operators and managers rather than crew and line employees. Again, this was an explicit decision made in the initial definition of the research problem by the NPFMC staff, in recognition of time and resource limits, to concentrate on the providing the type of information most likely to be needed for the Council to make an informed and reasoned decision on I/O-3.

No attempt was made to contact past fishery participants who were not active in the fishery in 1996. For sectors with a small number of participants it was judged necessary to contact as high a proportion of category members as possible, within the constraints of the project. This was most pressing in the processing sectors. All pollock mothership operations were contacted, and five of seven shore plant operations (the entity processing Bering Sea pollock in Kodiak was not targeted, and direct contact with the Sand Point plant was never established, although that operation was discussed with its management in Seattle, and community linkage information was developed through contacts in Anchorage). One of the three floating processors was contacted, but since one of those not contacted was not a large processor, this represented approximately half of the floating processor entities.

For catcher processors, sampling was more problematic due to the variation in operational size within this sector. Fourteen business entities operated 39 vessels, but one company essentially comprised 40 percent of the sector, in terms of vessel numbers. Only the two largest companies operated both surimi and fillet catcher processors (although others could produce multiple products on the same vessel -- essentially the definition of a surimi catcher processor for I/O-3). We wished to adequately document the sector both in terms of business entities as well as individual vessels. Thus, the two largest companies had to be included in our sample. Clearly, in the case of our information from these companies, vessel-specific information obtained from managers was of a more general nature than that obtained from companies with fewer vessels. We contacted five of the fourteen (36 percent) of the business entities in this sector, operating 26 of 39 (67 percent) of the active catcher processors. Table Int-2 indicates that this sample over represents surimi operations relative to fillet operations, but both are still well represented, not only in terms of entity numbers but also in terms of percentage of sector pollock production

Table Int-1 Numbers of Economic Enterprises Participating in the Bering Sea Pollock Fishery, 1996 with Inshore/Offshore Social Impact Analysis Interview Sample Description						
Inshore/Offshore Category (and Subcategory)		1996 Entities		Entity Contacts		Notes
				Goal	Actual	
Catcher Vessel delivering	Inshore Only	76	117	17	12[1]	Plus interviews with shore plant fleet managers, association manager and officers
	Offshore Only	24		10	6[1]	Five mothership catcher vessels plus two CP delivery catcher vessel operations (3 vessels); plus interviews with mothership managers and catcher processor operations managers
	Both	17		13	4[1]	Apparently more of an artificial category, or at least one very difficult to characterize (and locate)
Processor	Shore-based	7		6	5	No direct contact with Sand Point shore plant; did talk with corporate contacts in Seattle.
	Floating Inshore	3		3	1	Only two entities of real pertinence; contacted corporate owner of one.
	Mothership	3		3	3	
Catcher/ Processor	Fillet	19		10	9	Majority from one owner, and detailed operational information not obtained for each vessel
	Surimi	20		11	18	Majority from one owner, and detailed operational information not obtained for each vessel
CDQ Group Contacts		7		3	2	Contacts in the course of other fieldwork

[1]Includes only individual vessel interviews. See Table Int-3 and test for "fleet" sample information.
Note: Contacts in Seattle and Unalaska for more general community information not enumerated in this table, as they are more difficult to characterize in tabular form. Selected contacts in other communities were made by phone.

Source: NPFMC-supplied data files. These files required manipulation to prevent double-counting of economic entities. Any economic entity which harvested or processed any amount of Bering Sea pollock was counted. This affected mainly the catcher vessels categories and may have "inflated" their numbers somewhat. In some cases information was lacking to adequately identify a harvest data record with a vessel, so that a slight undercount is possible.

Table Int-2 Processing Entity Interview Sample						
Sector	Count of Entities		Pollock Production[1]		Sample %	
	Total	Sample	Total	Sample	Entities	Pollock Production
Shore Plants	7	5	347,458	318,006	71%	92%
Floating Processors	3	1	70,513	****	33%	****
Motherships	3	3	121,623	121,623	100%	100%
Fillet Catcher Processors[1]	19	9	162,804	106,263	47%	65%
Surimi Catcher Processors[1]	20	17	468,244	399,685	85%	85%
[1]See text for qualifications.						

Catcher vessels were a much more difficult challenge, partly because of the larger number of individual entities and the variation among them, as well as the wider geographical distribution of these entities. As with the catcher processor sector, some business entities operated more than one vessel, and in those cases information obtained about individual vessel operations was less detailed than for other entity interviews. These two types if interviews are differentiated in Table Int-3 as "fleet" and "individual" components of the sample. The first is the more general, collective, sort of information and the second is more detailed and specific to individual vessel operations. The first also includes information obtained through interviews with shore plant operators about the fleet delivering to them (whether the plant had an interest in those vessels or not) as well as vessel associations.

For our initial characterization of the catcher vessel sector we used three categories, based on where vessels delivered pollock -- onshore, offshore, or both. We had complete information by vessel for onshore deliveries, but very incomplete information for offshore delivery by catcher vessel. Thus, any vessel with any amount of offshore delivery was classified as an offshore vessel or a "both" vessel. Based on mothership interview information, we can distinguish mothership catcher vessels from other (catcher processor) catcher vessels. If pressed, we can assign most of the "both" vessels to either onshore or offshore, based on the partial information we have. Four appear to be offshore catcher vessels delivering to catcher processors (their onshore deliveries are minimal for 1996). Eight appear to be onshore catcher vessels, although this is not a firm conclusion since offshore

[1] It should be noted that the volume data in this SIA appendix vary somewhat from the pollock volumes by sector as shown in the main document. This is a result of the SIA numbers being based on a data set provided by the NPFMC that was, in turn, based on 'fish ticket' data. The main document, on the other hand, uses 'blended' data. Both data sets are internally consistent, and the analysis is not compromised by this disjunction. It does mean, however, that caution must be taken when making direct, quantitative comparisons of pollock volume figures between this section and the main document.

delivery information is incomplete. For three vessels, pollock deliveries onshore and offshore appeared to be about equal in 1996 -- but again, offshore delivery information is potentially incomplete and thus these vessels may be more offshore than onshore. They did deliver more than 500 tons to each sector. As an aside, only three onshore vessels enumerated in the tables above delivered less than 500 tons of pollock in 1996.

<table>
<tr><th colspan="11">Table Int-3
Catcher Vessel Interview Sample by Delivery Categorization</th></tr>
<tr><th colspan="2" rowspan="3">Catcher Vessel Delivery</th><th colspan="4">"Main" Categorization</th><th colspan="5">"Derived" Characterization</th></tr>
<tr><th rowspan="2">Total</th><th colspan="3">Sample</th><th>Total</th><th colspan="3">Sample</th></tr>
<tr><th>Fleet</th><th>Indiv</th><th>% of total</th><th></th><th>Fleet</th><th>Indiv</th><th>% of total</th></tr>
<tr><td colspan="2" rowspan="2">Inshore Entities</td><td rowspan="2">76</td><td>18</td><td>12</td><td rowspan="2">39%</td><td rowspan="2">84</td><td>19</td><td>15</td><td rowspan="2">40%</td></tr>
<tr><td colspan="2">30</td><td colspan="2">34</td></tr>
<tr><td colspan="2" rowspan="2">Inshore Pollock Delivery Volume</td><td rowspan="2">381,414</td><td>124,850</td><td>115,611</td><td rowspan="2">63%</td><td rowspan="2">414,623</td><td>126,864</td><td>137,764</td><td rowspan="2">64%</td></tr>
<tr><td colspan="2">240,461</td><td colspan="2">264,628</td></tr>
<tr><td rowspan="4">Offshore Entities</td><td rowspan="2">Mothership</td><td rowspan="2">17</td><td>4</td><td>4</td><td rowspan="2">47%</td><td rowspan="2">17</td><td>4</td><td>4</td><td rowspan="2">47%</td></tr>
<tr><td colspan="2">8</td><td colspan="2">8</td></tr>
<tr><td rowspan="2">Catcher Processor</td><td rowspan="2">9</td><td>0</td><td>2</td><td rowspan="2">22%</td><td rowspan="2">13</td><td>1</td><td>3</td><td rowspan="2">31%</td></tr>
<tr><td colspan="2">2</td><td colspan="2">4</td></tr>
<tr><td colspan="2" rowspan="2">Both (Entities)</td><td rowspan="2">15</td><td>2</td><td>4</td><td rowspan="2">40%</td><td rowspan="2">3</td><td>0</td><td>0</td><td rowspan="2">0%</td></tr>
<tr><td colspan="2">6</td><td colspan="2">0</td></tr>
<tr><td colspan="11">See text for discussion of definitions. "Individual" sample is composed of vessels the specific operations of which were discussed with a skipper or owner. "Fleet" sample is composed of vessels for which only selected operational aspects were discussed with a fleet or corporate manager.</td></tr>
</table>

Our interview sample of catcher vessels does over represent vessels which harvest more rather than less pollock. Of the "top 20" onshore pollock catcher vessels in 1996, our sample includes 18 of the 20 entities (10 "individual" and 8 "fleet"). Of the "second 20" the sample contains 11 of the 20 entities (3 "individual" and 8 "fleet"). For offshore catcher vessels, we cannot rank vessels by total harvest. For the mothership catcher vessels, we talked to all three mothership operations, and so talked with the entire sector in terms of fleet management from the mothership perspective. We also talked with eight mothership catcher vessels on an individual operation or catcher vessel "fleet" basis. Thus this component of the fleet was also well represented in our sample. Catcher vessels delivering to catcher processors are perhaps the most sparse part of our sample, but still consists of 4 of 13 entities (or 31 percent of the total). An additional vessel could be included in our sample, as part of this component of the catcher vessel sample, except that it does not appear in the NPFMC data base as delivering pollock in 1991, 1994, or 1996 -- although the operator states that it has made these type of deliveries in the past and is doing so in the present.

Table Int-4 simply presents our interview sample in terms of catcher vessel length classification. It indicates again that the sample is fairly representative in a gross sort of way, and is adequate for the collection of the type of operational/qualitative or linkage information that was sought. In a more intensive study, more small onshore catcher vessels would have been interviewed individually, and more intensive efforts to contact the three vessels delivering both onshore and offshore would have been made.

Table Int-4
Catcher Vessel Interview Sample by Delivery Classification and Length Classification

Catcher Vessel Delivery Category by Length Category		Sample Numbers		Non-Sample Numbers	Total
		fleet	individual		
CV Inshore	L	1	3	4	8
	M	8	7	1	16
	S	10	5	45	60
CV Offshore	M	0	1	3	4
	S	1	2	6	9
CV Mothership	S	4	4	9	17
CV Delivering Both	S	0	0	3	3
TOTALS		24	22	71	117

See text for discussion of definitions. "Individual" sample is composed of vessels the specific operations of which were discussed with a skipper or owner. "Fleet" sample is composed of vessels for which only selected operational aspects were discussed with a fleet or corporate manager.

In addition, field workers in Seattle and Unalaska contacted a number of other people not directly involved in the Bering Sea pollock fishery. The purpose of these contacts was to develop more general information about the linkages between the community and the Bering Sea pollock fishery and/or to develop contextual community background information. There is no simple way to enumerate these contacts. Some were in essence "negative contacts" which revealed the lack of directly applicable information (especially for Seattle and the measurement of the Bering Sea pollock fishery to its economy and social organization). Although these consumed project resources and may not appear to have directly contributed to the research, they were actually quite useful in directing effort away from such lines of inquiry and into other, potentially more fruitful, ones.

1.4.7 Special Issues

There are four interrelated concerns that must be addressed for the successful interpretation of the research. Our discussions will necessarily be brief, not because the issues are unimportant, but because in the final analysis each is dependent on the degree of participation of the industry participants in the research and their general reaction to the project. These topics are industry participation, confidentiality, informed consent, and self-interest. The order is not accidental. All are interconnected, with the latter three being perhaps more complex than the first two.

Industry Participation

The ability to carry out this project depended to a large extent on the active involvement of industry participants. The active participation of industry or sector associations, whether directly involved in inshore/offshore issues (such as the At-Sea Processors Association and the North Pacific Seafood Coalition), or neutral on the issue, but involved as a sector (such as the United Catcher Boats) were critical to the success of this study. Given the real-world constraints associated with this project, we approached this industry organizations early in the study and asked for their assistance in providing aggregated data from their membership. These groups also facilitated contact with member and non-member entities alike.

Confidentiality

The tasks required for the specified scope of work impose substantial challenges in the area of guaranteeing confidentiality for those research participants who desire this protection. Any ethnographic field work in small communities requires that the form of publicly disseminated products be carefully designed and written so that the privacy of individuals are protected. When this is combined with potential financial and operational confidential information concerns, these considerations are even more accentuated. A verbal process of informed consent for research participants, combined with the coding of field notes and a restrained use of information identifying individuals in public reports, is usually adequate to handle these problems. This project will be less problematic in these regards than it could have been because of the clear awareness most industry participants have in these areas, and their familiarity with the Council analysis and decision-making process.

Informed Consent

Informed consent is a very difficult subject, because if everyone were truly "fully informed" of all of the more remote potential consequences of their participation, this would be an extraordinarily extensive discourse, and few would be likely to participate in whatever they are being asked to do. Most social science is conducted within ethical guidelines and with verbal, or even implied, informed consent obtained. Verbal informed consent, though a disclosure of the research goals and process, as well as contractor and sponsor information, and a question of whether or not the individual wished to speak with us was obtained for all interviews. (Notes made about public behavior were not subject to such informed consent.)

Self-Interest

It must be recognized that most of the information, other than that derived from data sets obtained from NPFMC staff, is from parties with a vested interest in the final decision of the NPFMC. As such, all can contain potential sources of bias. This is not an unusual situation, however, and truly "objective" information about any human endeavor is extremely rare. The object is not to eliminate self-interested information from this research, but rather to recognize the potential distortions which self-interest may introduce and to adjust for them. Needless to say, this is not an exact process. Where industry provided data is utilized, it is so noted so that the reviewer can draw his or her own judgements regarding the utility of the data. Further, industry sectors have provided data to the Council independent of this study effort, and have accompanied these data with cross-referencing or 'audit' information that allows the reviewer to understand additional context information.

1.4.8 Field Data Processing and Initial Analysis

As noted, the data obtained in the field were written in field notes during and after interviews. All data files produced by field workers were named in a systematic way which identifies the field site, the researcher, and the date on which the data were recorded. This data recording process has been a standard practice for IAI. This system allows for the quick organization and selection of files, and serves as a rough indicator of how much data has been collected.

One key issue that arises when formulating a data management system is that of defining the units to be managed. Clearly, individual "facts," even if they are identifiable, would be far too numerous to manage. Our system was much more pragmatic and dealt only with logical data units as they are collected. A single data unit may be a document collected from an office, a set of related observations made on one day, notes from an informal interview, or a completed key person interview. As these data units were processed, the different issues that the electronic file contained were extracted and recombined with other data to produce the study products. The fundamental organizational unit, however, are the data units that were collected in the field based on the decisions of field workers. Ultimately (post-field) data were indexed to allow for data sorts by geographic and topical area of reference to enable the required analysis.

1.5 BERING SEA POLLOCK SECTORS: TRENDS OF CHANGE AND PRELIMINARY SIA

Our selection of study communities and industry sectors was based on a preliminary analysis of information provided by the Council staff, previous experience developed in working on similar projects for the Council, and a keen awareness 'real world' constraints imposed by available time and existing resources, modified somewhat by our actual field information collection activities. The tables in this section, summarizing general level sector participation information and trends of change will provide the framework for the general descriptive and SIA discussion.

As in past projects we have undertaken for the NPFMC, the data we are working with has some inherent uncertainties. The "homeport" and similar geographical identification fields is one major area of fuzzy information. The extent to which this information actually represents the operational base of the economic entity is not always clear. Thus, identification of number of operations with any community in the discussion below is only normative at best. For sectors with relatively few participants (shore plants, motherships, floating processors, and, to some extent, catcher processors) we were able to field verify or correct this information and achieve an overall perspective of sector-community linkages. This was not possible for sectors with relatively numerous participants (catcher vessels).

For the tables in this section, each "Inshore/Offshore Category" will be discussed in their terms which make the most sense -- year by year, as a time series across years, or even in comparison with another I/O category. Our goal is to hit the highlights of the relevant trends or issues. More detailed discussion of each sector appear in the profiles that follow this introductory section. The discussion for some sector cells will be necessarily general, as reported harvest and processing numbers cannot be specified for cells with small numbers of operations (due to confidentiality constraints), or such information may simply be unavailable. Table Int-5 presents a summary enumeration of harvesting and processing operations by year for 1991, 1994, and 1996, and is a table that will be relevant to all sector discussions.

<table>
<tr><th colspan="8">Table Int-5
Numbers of Economic Enterprises Participating in the Bering Sea Pollock Fishery, Categorized in Terms of Activity and Inshore/Offshore Processing, for 1991, 1994, and 1996</th></tr>
<tr><th colspan="2" rowspan="2">Inshore/Offshore Category
(and Subcategory)</th><th colspan="6">Year</th></tr>
<tr><th colspan="2">1991</th><th colspan="2">1994</th><th colspan="2">1996</th></tr>
<tr><td rowspan="3">Catcher Vessel delivering</td><td>Onshore Only</td><td>64</td><td rowspan="3">83</td><td>58</td><td rowspan="3">92</td><td>76</td><td rowspan="3">117</td></tr>
<tr><td>Offshore Only</td><td>16</td><td>16</td><td>24</td></tr>
<tr><td>Both</td><td>3</td><td>18</td><td>17</td></tr>
<tr><td rowspan="3">Processor</td><td>Shore-based</td><td colspan="2">7</td><td colspan="2">7</td><td colspan="2">7</td></tr>
<tr><td>Floating Inshore</td><td colspan="2">4</td><td colspan="2">2</td><td colspan="2">3</td></tr>
<tr><td>Mothership</td><td colspan="2">3</td><td colspan="2">3</td><td colspan="2">3</td></tr>
<tr><td rowspan="2">Catcher/Processor</td><td>Fillet</td><td colspan="2">30</td><td colspan="2">20</td><td colspan="2">19</td></tr>
<tr><td>Surimi</td><td colspan="2">24</td><td colspan="2">24</td><td colspan="2">20</td></tr>
<tr><td colspan="8">Source: NPFMC-supplied data files. These files required manipulation to prevent double-counting of economic entities. Any economic entity which harvested or processed any amount of Bering Sea pollock was counted. This affected mainly the catcher vessels categories and may have "inflated" their numbers somewhat. In some cases information was lacking to adequately identify a harvest data record with a vessel, so that a slight undercount is possible.</td></tr>
</table>

The various sector levels of participation over the years may be characterized as follows:

(1) ***Shore-based processors***. Shore-based processing of Bering Sea pollock is centered in Dutch Harbor and Akutan. Seven shore-based plants processed some amount of Bering Sea pollock in each of the years considered (1991, 1994, 1996), but only four of those plants did so in all three years. These were the three plants in Dutch Harbor and the one in Akutan. They accounted for about 90 percent of all Bering Sea pollock shore-based processing (which was significantly less in 1996 than in 1991). Plants in Sand Point and King Cove have also processed Bering Sea pollock as a regular part of plant operations in recent years (1994 and 1996 of the years considered), but at roughly an order of magnitude less than the Dutch Harbor/Akutan totals (approximately 10 percent of the total). Dutch Harbor/Akutan Bering Sea pollock totals have been decreasing in recent years, while Sand Point/King Cove have been increasing, but the absolute difference is still quite large. Kodiak shore-based processors operated at a level similar to this in 1991, but have progressively processed less since then and a relatively insignificant amount in 1996, and the specific Kodiak plant processing Bering Sea pollock differed in each of the years considered.

(2) ***Floating inshore processors***. The number of enterprises operating as floating processors in inshore waters has varied from year-to-year (average of 3), but the level of effort (amount of Bering Sea pollock) has increased steadily since 1991. The weight of Bering Sea pollock processed by floating processors in 1996 was over twice that so processed in 1991, and was equivalent to the throughput of a good-sized shore plant . All floating inshore processors with a significant amount of pollock product are apparently managed and operated out of Seattle.

(3) ***Motherships***. Level of effort from enterprises in this sector-cell has been consistent, both in terms of number of enterprises and in weight of pollock processed, although weight processed in 1991 was above that processed in either 1994 or 1996. The major operations are operated out of Seattle.

(4) ***Fillet catcher-processor vessels***. This sector shrank significantly after Inshore/Offshore I, from 30 vessels in 1991 to 20 in 1994, but has been reasonably stable since, with 19 vessels in 1996. The weight of pollock processed in 1996 was actually greater than in previous years. Of the vessels active in 1994 and 1996, over 75 percent are based in or operated out of Seattle. Vessels in some way tied to Juneau on paper also account for a significant (perhaps 15 percent) of this sector's pollock.

(5) ***Surimi catcher-processor vessels***. This sector-cell has been fairly stable in terms of number of operations since 1991 (24 vessels in 1991 and 1994, 20 in 1996), but has experienced a significant decrease in the weight of Bering Sea pollock it has processed since 1991. Of the twenty vessels active in 1996, sixteen (80 percent) are from Seattle, with three others homeported on paper in Homer. The "Homer" vessels are currently managed and operated out of Seattle.

(7) ***Catcher Vessels delivering Onshore only***. The numbers of vessels have varied from year-to-year, but the level of effort as measured by weight of Bering Sea pollock delivered has remained fairly consistent. Small boats (less than 125 feet) predominate, but medium (125 to 155 feet) and

large (155 feet and longer) vessels also participate. In 1996, of 77 vessels which delivered Bering Sea pollock onshore only, 56 were small, 14 were medium, and 7 were large. Seattle or the Seattle area was given as the homeport for the great majority of the large and medium vessels. For small vessels, roughly a third have Seattle as a homeport, somewhat less than a fourth have Newport as a homeport, a tenth are homeported in Juneau, and another tenth in Kodiak. Seattle is clearly a key community of interest here, but operations in other localities are also significant and will be discussed below in the more extended sector description.

(8) ***Catcher Vessels delivering Offshore only***. Harvest information for this sector is not available. For 1991 and 1994 the number of vessels was the same (16 each year), but increase by over 50 percent in 1996 (25 vessels). Small boats (less than 125 feet long) dominate, with only two being larger. Close to 60 percent of the active 1996 boats homeport in Seattle, with the remainder attributed to a wide range of communities (no more than 2 boats in any one other place). Seattle is again clearly a key community of interest.

(9) ***Catcher Vessels delivering both Onshore and Offshore***. This category was quite small in 1991 (3 vessels), but was relatively stable in numbers from 1994 to 1996 (18 and 16 vessels respectively). Total delivery statistics are not available. Only four vessels were in this category in both 1994 and 1996 (one for both 1991 and 1996). Thus most have been in this category for only one year of record. Most (50 percent) are small boats homeported in Seattle. Several other boats may be homeported in the Seattle area, and Juneau, Unalaska, and Newport each have two or three vessels associated with them. This is a sector category that is not well documented in existing information, and may well be more of a descriptive and analytical construction than a truly separate category.[2] This will be further discussed in the more detailed sector description.

Tables Int-6a and Int-6b enumerate and display all processor I/O-3 categories by year and some measure of ownership or managerial control. Table Int-6a uses the reported address of the vessel/operation owner as the indicator of the likely community of orientation for primary socioeconomic effects. Table Int-6b uses reported homeport, which at least for some vessels in the past has been an indicator more of operational or logistical factors than of ownership. For these tables, ownership and homeport correspond to each other very closely, so that the two tables are quite similar. Ownership and homeport are both heavily concentrated in Washington state, and more specifically in Seattle and the Seattle area. Tables Int-7a and Int-7b are in the same format, but instead of counting the number of operations, the amount of Bering Sea pollock processed is summed. Even without converting the numbers to percentages, it is clear that Washington shore plants and surimi catcher processors produce the bulk of the product, which is expected from the numbers in Tables Int-6a and Int-6b.

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[2] Note: At the April 1998 NPFMC meetings in Anchorage, a question arose at the AP whether or not the 'both" category could be further subdivided using a threshold or 'filter' level to characterize those vessels who had delivered to both inshore and offshore as 'primarily inshore' or 'primarily offshore' or otherwise indicate the relative participation in the inshore and offshore sectors. The data available at the time of the draft document would not allow such a characterization, and these data were not available in a form that would allow the differentiation of these data prior to the release of this document, except in a very rough way (see discussion of sample).

Table Int-6a Number of Processors by Year and State of Ownership						
Year	Ownership State	Inshore/Offshore Category				
		Fillet CP	Surimi CP	Mothership	Floater	Shore Plant
1991	Alaska	4	3	1	0	0
	Maine	1	0	0	0	0
	Rhode Island	1	0	0	0	0
	Washington	24	21	2	4	7
1994	Alaska	4	3	1	0	0
	Maine	1	0	0	0	0
	Washington	15	21	2	2	7
1996	Alaska	3	0	1	1	0
	Maine	1	0	0	0	0
	Washington	15	20	2	2	7
Source: Electronic data file provided by the NPFMC						

Table Int-6b Number of Processors by Year and Homeport State of Processor						
Year	Homeport_S	Inshore/Offshore Category				
		Fillet CP	Surimi CP	Mothership	Floater	Shore Plant
1991	Alaska	4	3	1	Not Specified	7
	Massachusetts	1	0	0		0
	Oregon	1	0	0		0
	Washington	24	21	2		0
1994	Alaska	2	3	1	Not Specified	7
	Maine	1	0	0		0
	Washington	17	21	2		0
1996	Alaska	3	3	1	Not Specified	7
	Maine	1	0	0		0
	Washington	15	17	2		0
Source: Electronic data file provided by the NPFMC						

<table>
<tr><th colspan="7">Table Int-7a
Processors Pollock Production by Year and Ownership State of Processor</th></tr>
<tr><th rowspan="2">Year</th><th rowspan="2">Ownership State</th><th colspan="5">Inshore/Offshore Category</th></tr>
<tr><th>Fillet CP</th><th>Surimi CP</th><th>Mothership</th><th>Floater</th><th>Shore Plant</th></tr>
<tr><td rowspan="4">1991</td><td>Alaska</td><td>2141</td><td>109881</td><td rowspan="4">140807</td><td></td><td></td></tr>
<tr><td>Maine</td><td>***</td><td></td><td></td><td></td></tr>
<tr><td>Rhode Island</td><td>***</td><td></td><td></td><td></td></tr>
<tr><td>Washington</td><td>135572</td><td>703015</td><td>34295</td><td>412159</td></tr>
<tr><td rowspan="3">1994</td><td>Alaska</td><td>51392</td><td>107753</td><td rowspan="3">110815</td><td rowspan="3">***</td><td></td></tr>
<tr><td>Maine</td><td>***</td><td></td><td></td></tr>
<tr><td>Washington</td><td>80381</td><td>511800</td><td>409058</td></tr>
<tr><td rowspan="3">1996</td><td>Alaska</td><td>33232</td><td></td><td rowspan="3">121623</td><td rowspan="3">70513</td><td></td></tr>
<tr><td>Maine</td><td>***</td><td></td><td></td></tr>
<tr><td>Washington</td><td>129433</td><td>468244</td><td>347458</td></tr>
<tr><td colspan="7">Source: Electronic data file provided by the NPFMC</td></tr>
</table>

<table>
<tr><th colspan="7">Table Int-7b
Processors Pollock Production by Year and Homeport State of Processor</th></tr>
<tr><th rowspan="2">Year</th><th rowspan="2">Homeport_S</th><th colspan="5">Inshore/Offshore Category</th></tr>
<tr><th>Fillet CP</th><th>Surimi CP</th><th>Mothership</th><th>Floater</th><th>Shore Plant</th></tr>
<tr><td rowspan="4">1991</td><td>Alaska</td><td>2141</td><td>109881</td><td rowspan="4">140807</td><td rowspan="4">Not Specified</td><td>412159</td></tr>
<tr><td>Massachusetts</td><td>***</td><td></td><td></td></tr>
<tr><td>Oregon</td><td>***</td><td></td><td></td></tr>
<tr><td>Washington</td><td>135279</td><td>703015</td><td></td></tr>
<tr><td rowspan="3">1994</td><td>Alaska</td><td rowspan="2">51122</td><td>107753</td><td rowspan="3">110815</td><td rowspan="3">Not Specified</td><td>409058</td></tr>
<tr><td>Maine</td><td></td><td></td></tr>
<tr><td>Washington</td><td>80997</td><td>511800</td><td></td></tr>
<tr><td rowspan="3">1996</td><td>Alaska</td><td>33232</td><td>80329</td><td rowspan="3">121623</td><td rowspan="3">Not Specified</td><td>347458</td></tr>
<tr><td>Maine</td><td>***</td><td></td><td></td></tr>
<tr><td>Washington</td><td>129433</td><td>387915</td><td></td></tr>
<tr><td colspan="7">Source: Electronic data final provided by the NPFMC</td></tr>
</table>

Table Int-8 is a measure of how dependent each I/O-3 category of processor is on Bering Sea pollock by expressing the amount of Bering Sea pollock they process as a percentage of all Bering Sea fish that they process. The higher the percentage, the more dependent on it they are. An ownership measure is also used in this table, but as for prior tables homeport and vessel state are for the most part redundant.

Table Int-9 is another sort of dependency measure, based on the percentage of an operation's annual wholesale value of production contributed by each species. Both dependency tables demonstrate the extent to which all industry sectors are dependent upon Bering Sea pollock. In terms of weight of product processed from Bering Sea resources, the degree of dependence has been remarkably similar for the period 1991-1996. Surimi catcher processors, motherships, and inshore facilities produced 80 percent or more of their total Bering Sea derived product from Bering Sea pollock. Fillet catcher processors are also highly dependent on Bering Sea pollock. In terms of raw material, pollock comprised 50 to 60 percent of their total Bering Sea input. In terms of annual wholesale value, those sectors with the most dependence upon Bering Sea pollock in 1991 maintained that dependence through 1996, while other sectors increased their economic dependence upon pollock. That is, surimi catcher processors and motherships derive 85 to 90 percent of their revenue stream from Bering Sea pollock, and have since 1991. Fillet catcher process derived 49 percent of their product wholesale value from Bering Sea pollock in 1991, but this increased to 74 percent in 1996. Similarly, inshore processing facilities derived 54 percent of their product wholesale value from Bering Sea pollock in 1991, but 65 percent in 1996.

This pattern makes sense in a straight forward way. The most specialized processors, those most dependent upon a single product form (surimi), were and are those most dependent upon pollock as a raw material. Those processors with a wider range of product options were and are less dependent upon pollock, but clearly rely on it as the single most important component of their raw material mix. Also, the dynamics of the market have either forced or induced these processors to place more emphasis and reliance on pollock.

The information summarized in Table Int-10a is presented here for two reasons. First, it provides an overview of historical (1991, 1994, 1996) sector and subsector harvest and processing of Bering Sea pollock. This information is relatively self explanatory at this point and will be further referenced in specific sector discussions. Second, it can be used in combination with Table Int-11 to draw attention to the nature of the quantitative information on pollock harvest and processing available for various sectors. This information is derived from various and different sources for the different sectors, and do not necessarily result in directly comparable information. For instance, although catcher vessel harvest delivered to onshore processors (Table Int-11) should equal the amount of pollock that onshore plants report processing (Table Int-10a), the actual correspondence in the information currently available is only approximate (reported catcher vessel harvest tends to be higher than reported processing). This underscores that no number should be taken as an "absolute" value, and that trends, relative values, and other relations are better measures through which to evaluate potential effects of any proposed changes.

Table Int-8
"Dependency" Table -- Bering Sea Pollock as a Percentage (by weight) of Total Bering Sea Product

by owner management residence	1991			1994			1996		
	Total	Pollock	% Pollock	Total	Pollock	% Pollock	Total	Pollock	% Pollock
FCP VState									
Alaska	19158	2141	11%	89693	51392	57%	59618	33232	56%
Washington	239622	135572	57%	161078	80381	50%	212840	129433	61%
FCPHPST									
Alaska	19158	2141	11%	71231[a]	51122[a]	72%	59618	33232	56%
Washington	233046	135279	58%	187436	80997	43%	212840	129433	61%
SCP VState									
Alaska	117053	109881	94%	109659	107753	98%			
Washington	740284	703015	95%	555271	511800	92%	514106	468244	91%
SCP HPState									
Alaska	117053	109881	94%	109659	107753	98%	104972	80329	77%
Washington	740284	703015	95%	555271	511800	92%	409134	387915	95%
Mothership[a]	141150	140807	100%	112364	110815	99%	123301	121623	99%
Floater[a]	67644	34295	51%	63514	49004	77%	87876	70513	80%
Shore Plant[b]	463075	412159	89%	465183	409058	88%	435234	347458	80%

[a]Ownership and management in Washington, operates in Bering Sea for pollock.
[b]Ownership and administration in Washington, physically located in Alaska.

Table Int-9 "Dependency" Table -- Percentage Contribution of Selected Species Group to the Processor's Total Annual Wholesale Value					
Inshore/Offshore Class	Year	Pollock	Other Groundfish	Pacific Whiting	Other
Fillet CP	1991	49	51	0	0
Fillet CP	1994	58	41	0	1
Fillet CP	1996	74	26	0	0
Surimi CP	1991	90	5	5	0
Surimi CP	1994	88	4	7	1
Surimi CP	1996	85	3	7	4
Mothership	1991	85	0	15	0
Mothership	1994	88	4	7	1
Mothership	1996	87	1	12	0
Shore Plant	1991	54	21	0	24[a]
Shore Plant	1994	67	10	0	24[a]
Shore Plant	1996	65	18	0	18[a]
[a]Primarily shellfish Source: BSAI Pollock Sector Profiles, NPFMC staff, 09/02/97					

In Table Int-10a, the percentage in each cell expresses that cells value in terms of the comparable 1991 production value. This allows some relative observations within and between sectors to be made. While the onshore sector as a whole, and shore plants in particular, experienced declines in production from 1991 to 1996, floating inshore processors had large relative increases (although their pollock processing in absolute numbers was still relatively small). Similarly in the offshore sector, which also had an overall decline in production from 1991 to 1996, surimi catcher processors had a much steeper decline than did motherships, and fillet catcher processors actually increased their level of production. This is at least one indicator that during this period of time mothership operations were able to successfully compete on some level with surimi catcher processors.

<table>
<tr><td colspan="6">Table Int-10a
Total Bering Sea Pollock Processed, by Sector and Subsector
Metric Tons (Percentage of 1991 Production)</td></tr>
<tr><td rowspan="2">Year</td><td colspan="2">Inshore</td><td colspan="3">Offshore</td></tr>
<tr><td>Shore Plants</td><td>Floating Processors</td><td>Motherships</td><td>Surimi CPs</td><td>Fillet CPs</td></tr>
<tr><td rowspan="4">1991</td><td>412159 (100%)</td><td>34295 (100%)</td><td rowspan="2">140807 (100%)</td><td>812896 (100%)</td><td>138959 (100%)</td></tr>
<tr><td colspan="2" rowspan="2">446454 (100%)</td><td colspan="2">951855 (100%)</td></tr>
<tr><td colspan="3">1092662 (100%)</td></tr>
<tr><td colspan="5">1539116 (100%)</td></tr>
<tr><td rowspan="4">1994</td><td>***</td><td>***</td><td rowspan="2">110815 (79%)</td><td>619553 (76%)</td><td>132119 (96%)</td></tr>
<tr><td colspan="2" rowspan="2">458062 (103%)</td><td colspan="2">751672 (79%)</td></tr>
<tr><td colspan="3">862487 (79%)</td></tr>
<tr><td colspan="5">1320549 (86%)</td></tr>
<tr><td rowspan="4">1996</td><td>347458 (84%)</td><td>70513 (206%)</td><td rowspan="2">121623 (86%)</td><td>468244 (58%)</td><td>162804 (117%)</td></tr>
<tr><td colspan="2" rowspan="2">417971 (94%)</td><td colspan="2">631048 (66%)</td></tr>
<tr><td colspan="3">752671 (69%)</td></tr>
<tr><td colspan="5">1170642 (76%)</td></tr>
<tr><td colspan="6">Source: Based on electronic processor file provided by the NPFMC
*** Suppressed due to confidentiality</td></tr>
</table>

Table Int-10b presents the same information in a somewhat different way. In this table the percentage expresses that I/O-3 category's pollock production level for that year as a percentage of the total pollock processing production for that year. This allows one to make the observation that although shore plants as a sector did lose production relative to their 1991 processing levels, they did maintain their relative percentage of the overall pollock production for each year. That is, they maintained their level of competitiveness in the race for fish. Also, floating processors clearly increased their share of pollock significantly. Motherships held their own or gained a bit, relative to other sectors. Fillet catcher processors also gained a larger relative share of the processing whole, while surimi catcher processors had their share of the yearly pollock production eroded. These two tables in conjunction summarize the dynamics of sector catch history from 1991 to 1996.

Table Int-10b Total Bering Sea Pollock Processed, by Sector and Subsector Metric Tons (Percentage of Yearly Total Production)					
Year	Inshore		Offshore		
	Shore Plants	Floating Processors	Motherships	Surimi CPs	Fillet CPs
1991	412159 (27%)	34295 (2%)	140807 (9%)	812896 (53%)	138959 (9%)
	446454 (29%)			951855 (62%)	
			1092662 (71%)		
	1539116 (100%)				
1994	***	***	110815 (8%)	619553 (47%)	132119 (10%)
	458062 (35%)			751672 (57%)	
			862487 (65%)		
	1320549 (100%)				
1996	347458 (30%)	70513 (6%)	121623 (10%)	468244 (40%)	162804 (14%)
	417971 (36%)			631048 (54%)	
			752671 (64%)		
	1170642 (100%)				
Source: Based on electronic processor file provided by the NPFMC					

Table Int-11 Total Bering Sea Pollock Harvest by Catcher Vessels Delivering Onshore, by Vessel Length Category								
1991			1994			1996		
S	M	L	S	M	L	S	M	L
226243	136205	88371	243926	169553	113544	250104	151190	81270
450819			527023			482564		
Source: Based on electronic catcher vessel file provided by the NPFMC								

Table Int-12 also allows one to make some interesting observations. It displays the amount of pollock processed by each I/O-3 category of processor for 1996, by the mode of harvest of that pollock (that is, self caught or catcher vessel caught). It is the only information we have on the aggregate amount pollock harvested by catcher vessels and delivered to offshore processors (other than for motherships). Motherships and shore plants of course obtain 100 percent of their pollock from catcher vessels. In Olympic fisheries, surimi catcher processors bought 11 percent of their fish from catcher vessels, and fillet catcher processors bought 17 percent. In CDQ fisheries catcher processors essentially did not use *any* catcher vessels to harvest pollock. While this may be stating the obvious, this is a clear indication that it is the race for fish that provides the incentive for speed and capital stuffing and, given the choice of a non-Olympic fishery context, that operators will operate in different ways. This in turn would have create reward structures for other current fishery participants that are quite different from those of the present.

Table Int-12
Open Access, CDQ, and Total Bering Sea Pollock Processed in 1996,
by Sector and Subsector, by Mode of Harvest

Fishery Component or Comparison	I/O Class						
	Inshore	Mothership	Fillet CP - harvest by		Surimi CP - harvest by		Total
			Self	CV	Self	CV	
Open Access	384946	112906	103572	14024	405626	49232	1070306
CDQ	10512	9053	21869	0	51225	115	92774
Total Harvest	395458	121959	125441	14024	456851	49347	1163080
CDQ as % of Total Catch	3%	7%	17%	0%	11%	0%	8%
			16%		10%		
			11%				
CV harvest as % of							
non-CDQ	100%	100%	12%		11%		52%
CDQ	100%	100%	0%		0%		21%
Total	100%	100%	10%		10%		50%

Source: Aggregated information provided by the NPFMC, 1998.

1.6 GENERAL SIA ISSUES

There were a number of general issues or themes that emerged during the study process that will be elaborated in the body of this document. In particular, there are several issues or trends that have emerged since the previous SIA work for the Council. These will be briefly noted here. In addition, we will bullet out potential social impact effects of concern.

- There is a marked difference between participating coastal communities with respect to the role of the pollock fishery in the communities.

    - Unalaska is a major participant in the fishery with a strong presence of both the inshore and offshore sectors. The relative benefits to the community of the two different sectors is a matter of considerable debate, but clearly Unalaska is in a unique position with respect to the degree to which it has benefitted from both sectors. The flip side of this is that Unalaska, while benefitting the most from both sectors, is also the community that is featuring the most divisive debate on the inshore/offshore issue. Unalaska's direct participation is based on its proximity to the fishing grounds.

    - Seattle is also a major participant in the fishery with a strong presence of both the inshore and offshore sectors. The relative benefits to the community of the two can be debated, but clearly the offshore presence is more visible than is the onshore participation, which at times seems to be represented by management and administration as much as by physical product. As with Unalaska, Seattle interests are bitterly divided on the inshore/offshore issue. Seattle's participation is based in part on history and ownership, and on a central administrative and financial role. Seattle and the region also have a number of secondary processing plants.

    - Unalaska, Akutan, King Cove, and Sand Point all have shore plants that participate in the fishery, but the nature of the participation, and of the articulation of the operations with the communities vary. King Cove and Sand Point are more alike than they are like the other communities. Both have resident fleets, and shore plants in both communities take deliveries of pollock from non-resident vessels. Neither is a CDQ community. Akutan has a large shore plant in the community, but the village of Akutan has retained an identity distinct from the shore plant that is quite different from the plant-community relationships found in nearby Unalaska. Akutan is also a CDQ community, which Unalaska is not, though some Unalaska residents benefit from CDQ programs.

- Western Alaska communities have become involved with the fishery primarily through the CDQ program, as opposed to having shore plants in the communities or direct participation of a resident fleet. This means that the fishery articulates with the community in ways substantially different than in other involved Alaska communities.

- Inshore/Offshore management has served to stabilize the fishery between the overarching inshore and offshore sectors, but internal sector dynamics have not been in equilibrium. I/O, designed in part to be a stop-gap measure to avoid potential sector preemption and to avoid the detrimental social impacts resulting from such preemption, has for the most part achieved that goal. It has not, nor was it anticipated to, maintain stable fishery sectors.

  - Within the offshore sector, there has been a great deal of instability on the individual entity level. That is, there has been a great deal of ownership change of entities within the sector, accompanied by considerable consolidation within the sector. This has created a wide range of variance among sector participants, increasing the likelihood that the effects (positive or negative) of any change in the current system will be differently shared by sector participants. Further changes in the pollock quota allocation may well exacerbate these internal sector dynamics, leading to further consolidation.

  - Within the inshore sector, particularly for the shoreplants proper, there has been a degree of stability in terms of ownership of individual enterprises not seen in the offshore sector. This has been at a time of decreasing value of product, of decreased access to the fish resource, and increased internal competition.

  - In a sense, trying to make sector social impact assessments is an attempt to talk about the financial and overall vitality of individual corporations, some of whom have adapted better to the current set of conditions that others. This returns to the issue of internal variability within any given sector and subsector, and the potential effects that allocating additional quota toward or away from that sector or subsector would have.

  - At some fundamental level, the relationships between industry subsectors have changed while I/O has been in place. One of the more striking differences between sector relations between I/O 1 and I/O 3 is the relationship of the shore processors to their catcher fleets. Although individual operations vary, for the sector as a whole there is much more commonality of ownership or control of catcher vessels by processors than previously. Vertical integration (economic entities owning interests in more than one pollock industry sector or subsector) seems to have increased. (Reasons given for acquiring a increased degree of control varied from operation to operation, and the range included such diverse factors as simply trying to retain steady access to a predictable volume of fish for processing, to making strategic positioning acquisitions of catch history in anticipation of a future harvest history based management system, such as ITQs.) A social impact assessment may be of most utility if expressed in terms of whether allocation readjustments would accelerate or counter observed ongoing dynamics within sectors.

- While sectors may be reasonably well-defined and "stable" in terms of each other for Bering Sea pollock, participation in other fisheries cross-cuts these sectors in a number of ways. Aside from vertical integration, several economic entities have interests in more than on sector. Some economic entities that are competitors in the Bering Sea pollock fishery are cooperative in other fisheries, or vice versa (for instance, catcher vessels that deliver pollock to motherships may be contracted to delivery cod to catcher processors). The actual effects of a change in inshore/offshore pollock allocation could potentially be more profound because of these "peripheral" connections than due to the more "direct" changes in the pollock fishery itself. The "simple" tabulation of positive and negative effects becomes very complex, because so much of the information about individual entity participation in other fisheries and the "co-dependence" of fishing participants from different sectors is lacking.

- The creation of a separate mothership sector is not seen, in and of itself, as detrimental to the interests of either the onshore or offshore sector. Although there were exceptions, individual entities in both sectors thought that having motherships a separate category would not negatively impact their operations, so long as a motherships allocation was based on their past pollock processing history, so that other sectors did not experience a quota decrease because of this. The relative stability of the mothership subsector in terms of percentage of TAC processed ans the similarity in mode of operations for individual entities (variation in scale of operations rather than business or product mix differences) may be one of the reasons this appears to be one of the less contentious aspects of I/O.

  On the other hand, it is imperative that if motherships are recategorized as inshore or made into a separate category that it be done in a way which preserves the factors of stability which have apparently existed since I/O-1, or at least the recognition that such factors may be changed by a reclassification of motherships. Those entities most likely to be motivated to attempt to operate as motherships which are not already doing so are catcher processors and floating processors. Floating processors at present operate in fixed locations within protected state waters. As long as catcher processors have fished off the same quota as motherships, they have not been motivated to emulate the mothership mode of operation. If the mothership quota is separated from that of catcher processors, however, less efficient catcher processors may be tempted to compete for a portion of the mothership (or inshore) quota as a mothership rather than a portion of the catcher processor quota as a catcher processor. Multi-vessel operators may be more tempted by this possibility than smaller companies. Mothership operations have exhibited the greatest degree of stability in the offshore sector since I/O-1, and it would be ironic if I/O-3 were to disrupt this pattern.

- There a number of issues associated with the regulatory or decision-making process that may potentially foster, or are currently contributing to, various social impacts in the Bering Sea pollock communities. These cannot be dealt within this work, but include:

  - The inshore/offshore allocation process itself, particularly the reallocation debate, has had negative social impacts. That is, the issue has been a divisive one, requiring the devotion of considerable resources by both inshore and offshore sectors to the issue. Further, the issue has polarized the fishing industry, and the divisiveness has had an impact on support service sector businesses, particularly in Unalaska/Dutch Harbor.

  - Individual enterprises have been making business and strategic decisions based on the inshore/offshore environment (as well as other regulatory regimes that are currently in place and/or hedging their bets in regard to future regulatory regimes that can be reasonably foreseen).

  - Alaska hire issues have come to the forefront as a result of inshore/offshore issues. Under the inshore/offshore reallocation environment, individual entities are making more concerted and targeted efforts to hire more Alaskans than was the case in the past. In some cases this has become confounded with issues concerning the CDQ program and economic and community development in western Alaska.

  - CDQs have become closely associated with the offshore sector. Although inshore/offshore "neutral" at their creation, they are clearly more closely tied at present to the offshore than onshore sector (six offshore CDQ partners, two onshore CDQ partners), although in some cases inshore and offshore CDQ partners are cooperating.

  - Foreign ownership is the subject of much debate among the different sectors. Ownership patterns were not addressed in this document, but it was clear that there has been a consolidation of control in both onshore and offshore sectors, and that cooperative relationships, if not ownership relationships, have developed between foreign and domestic owners to effectively achieve a degree of consolidation of control of the fishery that was not seen at the time of earlier SIA work.

- There is a also a bundle of issues centered around catcher vessels that may or may not be related to I/O. They may be more reflective of the overall dynamics of the fishing industry, and include:

    - Decline in number of independent boats
    - Difficulty in obtaining and keeping markets
    - Increasing vertical integration -- processor ownership, long-term contracts
    - Decreased crew opportunities -- reduced crew size, demise of replacement crew, lack of turnover
    - Catcher vessels becoming integrated with processing sectors

There is a range of allocative alternatives that is being considered -- expiration of the I/O program, a rollover of the current I/O management regime, or a shift of pollock allocation inshore or offshore. These considerations are not taking place within the context of a stable fishery. Changes are occurring to the fishery as whole as well as within each of the component sectors. A consideration of social impacts must take into account these current dynamics. In the following summary section at the end of this document, we portray the relevant allocative alternatives in relationship to the existing structure and some of the identified trends of the fishery.

In the next major section, descriptive information is provided on a sector-by-sector basis. This is followed by a section that provides information on sector and community links on a region/community basis.

2.0 PARTICIPATING SECTORS ENGAGED IN THE BERING SEA POLLOCK FISHERY

This section provides a detailed description and assessment of the various sectors engaged in and dependent upon the Bering Sea pollock fishery. These are: (1) the inshore processing sector; (2) the catcher-processor sector; (3) the mothership sector; and (4) the catcher vessel sector. At present, only the inshore processing sector is consistent with current and (most) proposed future management structures. At present, the offshore sector is comprised of both catcher-processors and motherships. These are discussed separately in this section as one of the several allocative alternative options of I/O-3 is separating motherships from catcher-processors to form a new (third) major sector (i.e., motherships in addition to 'inshore' and 'offshore/catcher-processors'). Finally, catcher vessels, while not an inshore/offshore category unto themselves, are nevertheless truly dependent upon and engaged in the Bering Sea pollock fishery such that I/O-3 decision making may differentially impact their sustained participation in the fishery and, further, their ties to specific communities that are Bering Sea fishing communities clearly warrant their inclusion in this analysis. Each of these sectors discussed in turn in this section.

2.1 BERING SEA POLLOCK INSHORE PROCESSING SECTOR

The inshore processing sector includes two physically different types of entities – onshore processing plants and floating processors. Further, there is differentiation within the onshore processing plants with respect to the centrality of Bering Sea pollock to their overall operations, and this coincides with geographic distribution of the plants.

2.1.1 Overview

There are four large onshore plants in the Unalaska/Dutch Harbor-Akutan area for which Bering Sea pollock is a mainstay in terms of overall processing operations. At present (1996 base year and in 1998), there are two plants in the Gulf of Alaska region that also process Bering Sea pollock, and these are located in Sand Point and King Cove. These plants are not discussed separately in this sector description, except on a general level, due to data confidentiality restrictions. They are discussed in qualitative terms in the community profiles section with respect to their relationship to their 'host' communities.

The following table presents summary processing information for shoreplants for the relevant years. As can be seen, pollock makes up the vast majority of the total groundfish processed. Information on cod is also presented, to show the relative level of volume pollock to cod, and then to all groundfish species combined.

Table SP1 Inshore Sector: Shoreplant Subsector Bering Sea Pollock Processing Volumes Unalaska, Akutan, King Cove, and Sand Point			
Year	Pollock	Pacific cod	Total Groundfish Retained (all species)
1991	387,104	29,113	424,175
1994	396,216	46,575	450,035
1996	345,399	74,711	427,864

As shown in the summary table, overall the volume of pollock processed by shoreplants increased between 1991 and 1994, then declined from 1994 to 1996. There are several trends noticeable in the individual plant data that are not apparent in the summary data. For shoreplants as a sector, pollock declined by somewhat over 10% over the three years, but this was not the case for all plants. There are two trends of change that are obvious, based on a geographic distribution between King Cove-Sand Point plants on the one hand, and Unalaska-Akutan plants on the other. No pollock was reported as processed in the King Cove-Sand Point plants in 1991, and there are increases for each of the plants from 1994 to 1996. These plants are mixed in their relative volumes of pollock and Pacific cod – for one plant pollock volume exceeds Pacific cod volume for both years, and for the other plant the pattern is reversed. For Unalaska/Dutch Harbor-Akutan plants, for all operations, pollock volume is orders of magnitude higher than cod volume – a much higher percentage difference than is seen in the King Cove-Sand Point plant where pollock exceeds cod. For Unalaska/Dutch Harbor-Akutan plants, the trend of change over the years varies from entity to entity (and it is important to remember that one of the larger plants was not yet fully operational during 1991). For two of the plants, volume of pollock is highest for 1991, and decreased in 1994 and again in 1996. For the other two plants, the pattern is mixed – for one plant 1994 represents the highest of the three years and for the other 1994 represents a valley between the highest year of 1991 and a rebound (but lower peak) in 1996. In sum, for none of the four plants was 1996 the highest year of pollock production. Declines over peak years range from approximately 10% to approximately 40%, depending on the operation. It is also significant to note the relative scale in the King Cove-Sand Point versus Unalaska/Dutch Harbor-Akutan plants has changed. Whereas no pollock was processed in King Cove-Sand Point in 1991, by 1996, the difference in volume between the highest producing of the King Cove-Sand Point plants and the lowest producing of the Unalaska/Dutch Harbor-Akutan plants was smaller than the range of sizes internal to the Unalaska/Dutch Harbor-Akutan plants – both in terms of absolute volume and relative volume differences.

The floating processor subsector has also changed over the years covered in this study. The following table presents groundfish summary data for the subsector, illustrating the relative roles of pollock and cod to the overall volume of groundfish processed.

Table SP-2 Inshore Sector: Floating Processor Subsector Bering Sea Pollock Processing Volumes			
Year	Pollock	Pacific cod	Total Groundfish Retained (all species)
1991	34,295	20,890	67,644
1994	***	***	***
1996	70,513	11,865	87,876
Note: specific data are omitted from display for 1994 because of confidentiality issues.			

There are two trends readily apparent in the summary data that differentiate this subsector from the shoreplants. First, pollock has increased over this time frame, opposite of the shoreplant sector as a whole. Second, the volume of Pacific cod is decreasing, again opposite of the trend for shoreplants.

Several trends are also apparent in the individual floating processor data that are not apparent in the aggregated data. First, the number of entities has changed over the years. For 1991, there were four entities in this category. In 1994, there were only two, and in 1996, there were three. There are two operations that have reported for each of the three reporting years. A second trend is that the trajectory of change for the floating processors is different from the shoreplants that are in the same sector. For entities reporting across the relevant years, 1991 is not the peak year, unlike several of the Unalaska/Dutch Harbor-Akutan plants. For relevant entities, the 1996 volume is more than double the volume of pollock processed in 1991. With this increase has come a shift in the relative size of operations across subsectors. While as a subsector, the floating processors processed approximately 20% of the volume of pollock processed by the shoreplant subsector, by 1996, the highest volume floating processor had surpassed the volume of pollock processed by the lowest volume Unalaska/Dutch Harbor-Akutan shoreplant. This change is especially striking when one considers that in 1991, the volume processed by this floating processor was less than 30% of the volume of the same shoreplant.

2.1.2 Floating Processors

Floating processors are discussed to a lesser extent in this profile than are shoreplants because of the relative volume of the floaters versus the onshore operations, and due to the different nature of their articulation with local communities, and thus implications for social impact analysis. What is important to keep in mind, from a social impact analysis perspective, is that: (a) floating processors are included in the definition of inshore processors; (b) floating processors have potentially quite different relationships with communities than onshore plants; and (c) the relative amounts of pollock being processed by onshore plants and floating processors has been changing.

It may be argued that all inshore processing operations are, to a degree, industrial-enclave like in their nature. Following this line of reasoning, while there may be a continuum – some plants are more self contained or 'enclave-like' than others – floaters would simply represent one extreme end of this continuum (i.e., they are physically isolated from communities). While this may be true to an extent, there are some ways in which the degree of difference between floaters and onshore plants is so large that it does not make sense to think of them on the same continuum. For example, while at some plants in Unalaska there may be little day-to-day interaction between processing line workers and community residents who are not involved in the seafood industry, the plants still are intertwined in the local economy in complex ways (including property tax, fish tax, sales tax, and other types of municipal revenues along with expenditures associated with workers, etc.). For a floating processor anchored in Beaver Inlet on Unalaska Island, on the other hand, the relationship to the community of Unalaska is very different. Being outside of the municipal boundaries, there is no local taxation, and, though the operation may be supported to a degree out of Unalaska (with the community acting as a logistics base), the nature of the interaction between the economic entity and the community is very different – both in terms of revenues to the community and socioeconomic/social ties to the community. With this in mind, it is important to retain the fact that inshore allocations do not end up on a one-for-one basis being delivered to and processed in local communities. That is, for each unit of fish allocated inshore, a certain percentage of that fish does not end up being processed by shoreplants in communities. This percentage pollock processed inshore but not in communities is not insignificant, and has increased over the years encompassed by this study.

Employment data for floating processors cannot be discussed in the same way as can employment data for shoreplants. This is for two primary reasons. First, confidentiality considerations preclude discussion of 1994 because of only two entities reporting during that year. Second, data from one of the larger operations known to be operating in 1996 is missing from the data set, rendering the remaining data unusable. What can be discussed, however, is the scale of employment seen for the floating processors in comparison to the shoreplants. For the years in which data are available, employment at the larger floater processor operations ranged from approximately 190 to 225 average positions per quarter (keeping in mind that employment data presented here are subject to the same restrictions noted in the employment section of the shoreplant discussion -- they are useful as relative indicators, not as enumerations of individual employees). This makes them smaller that the smallest of the Unalaska/Dutch Harbor-Akutan shoreplants, with the largest floating processors accounting for roughly 75% as much employment as the plants with the fewest employees. It should be noted, however, that in terms of the relationship of employment to volume of pollock processed, employment does not vary directly with volume. That is, for floating processors, the dramatic jump seen in volume processed has not been accompanied by a proportional jump in the number of employees. (Similarly, where there have been sharp declines in the volume of pollock produced at various shoreplants, there has not been a proportional decline in employment.) In terms of the proportion of Alaska resident employees, for the years data are available, Alaska resident employees ranged between less than 1% to approximately 12% of the floating processor workforce, depending upon the individual entity.

2.1.3 Shore Plants

Shore-based processing of Bering Sea pollock is centered in Unalaska/Dutch Harbor and Akutan. Seven shore-based plants processed some amount of Bering Sea pollock in each of the years considered (1991, 1994, 1996), but only four of those plants did so in all three years. These were the three plants in Unalaska/Dutch Harbor and the one in Akutan. They accounted for about 90 percent of all Bering Sea pollock shore-based processing (which was significantly less in 1996 than in 1991).

Plants in Sand Point and King Cove have also processed Bering Sea pollock as a regular part of plant operations in recent years (1994 and 1996 of the years considered), but at roughly an order of magnitude less than the Unalaska/Dutch Harbor/Akutan totals (approximately 10 percent of the total). Unalaska/Dutch Harbor-Akutan Bering Sea pollock totals have been decreasing in recent years, while Sand Point/King Cove have been increasing, but the absolute difference is still quite large.

Kodiak shore-based processors operated at a level similar to the Sand Point/King Cove plants in 1991, but have processed progressively less since then. By 1996, the amount of Bering Sea pollock processed in Kodiak was relatively insignificant. Another illustration of the 'marginal' position (in geographic and volume terms) of Kodiak with respect to Bering Sea pollock processing is seen in the fact that the specific Kodiak plant processing Bering Sea pollock differed in each of the years considered. This being the case, and coupled with the difficulty introduced by confidentiality restrictions in discussing a single operation, the Kodiak operation(s) will not be discussed further. That is, in social impact assessment terms, Kodiak processors are not likely feel significant social impacts from changes in its shoreplant operations as a result of the potential alternative allocative shifts being contemplated for Bering Sea pollock.

Given the centrality of the Unalaska/Dutch Harbor-Akutan plants, these operations are updated in some detail in this sector profile. The King Cove and Sand Point operations are problematic for detailed discussion, based on data confidentiality restrictions. These plants are discussed in more qualitative terms, however, in the community description section of this document.

Unalaska/Dutch Harbor - Akutan Based Operations

The shoreplants covered in this section, consistent with the assumptions that are guiding this report, are those plants, and only those plants, that processed Bering Sea pollock for the years in question. This is important to keep in mind for the purposes of understanding community linkages, and the role of shore processing in these communities. For example, there are other shoreplants (and seasonally present floating processors) located in Unalaska/Dutch Harbor that are a part of that community but that do not process pollock. Those plants are not included in this sector profile, so one must not generalize from this profile to the impact of all shore processing in the community. The plants that do process pollock are the larger operations in the community, to be sure, but they are still a subset of the overall shore processing that takes place within the community.

Like other sector profiles, this description is a composite of information derived from individual economic entities; it is not a intended as a profile of individual entities, nor a profile of a hypothetical "normative" operation. The Bering Sea shoreside processing sector is represented by facilities in a number of communities, but operations have become concentrated in the Unalaska/Dutch Harbor-Akutan area. These neighboring communities are home to more Bering Sea shoreside operations than all other locations combined; additionally, they are home to all of the large-scale pollock operations in the region.

This sector varies internally in a number of different ways, including the fact that various processors have different foci of species utilized. Variation in species and products is related quite closely to plant size. The larger plants are multi-species oriented, and each has a surimi operation within it. How central pollock processing has become to the large operations is evident in the contrast in volume between crab and groundfish processing totals in general, and the role of pollock in particular. Although detailed comparisons across species were not made in this update, which focuses exclusively on pollock operations, data from a 1994 study indicated that among the Unalaska/Dutch Harbor-Akutan plants, pollock accounts for 95% of the volume groundfish processed, and groundfish as a whole accounts for 90% of the combined groundfish and crab total volume (IAI 1994).

The present concentration of shore processing in the Unalaska/Dutch-Akutan area can be traced to the King crab boom of the late 1970s and early 1980s. In Unalaska, for example, there were two small processors in the early 1960s; by 1983 there were seven processors in the community, the two largest of which each had the capacity to run 1,000,000 pounds of crab per day and employed between 500 and 600 processing workers during the peak seasons. With the decline of crab landings, a number of processors diversified in varying degrees into groundfish, with a particular emphasis on surimi. Surimi operations did not immediately follow the big King crab years; the first surimi operation in Unalaska/Dutch Harbor opened in 1986. For a period, this species expansion and added focus on surimi changed formerly seasonal processing operations into year round operations. Subsequently, the shorted pollock seasons have fostered a return to seasonal operations.

History of Facilities and Operations

The history of facilities and operations varies widely by individual economic entity. Included in the largest operations are entities that trace their roots back to the early crab era and plants that have become operational as late as 1991.

One of the larger entities occupies a facility that, when built in the early 1960s, was the first shore processor within the city limits of Unalaska. This facility has seen several ownership changes over time. With changing times and changing owners, the plant has undergone several types of modifications. At the other end of the historical spectrum, another of the larger entities did not come on line until 1991. It is being operated by its original owner, and it was built more-or-less for the current mix of species and products that the plant is running.[3] Yet another large entity began local operations on a barge in the mid-1970s and expanded shoreside, taking over facilities that were previously owned by other entities as well as building new facilities. One plant built in the early 1980s has focused on groundfish from the beginning, but has varied its products over time.

Facilities also vary in their spatial relationship to their communities. Some facilities are essentially stand-alone complexes removed from residential and even other commercial areas; others are located in mixed land use areas. The plant in Akutan may be thought of at one end of a continuum in being perhaps the 'most distinct' from its host community, while the plants in Unalaska vary in their spatial relationship to other business and residential areas. In this sense, day-to-day interactions between sector employees and other community residents vary from entity to entity. In Unalaska at least, this tends to be a matter of degree only, however, as each plant is largely or totally self-contained with respect to the co-location of work and residential facilities for the vast majority of the work force, and workers from the plant farthest away from the 'main' area(s) of town do come into the community and use recreational facilities, etc. The degree or nature of 'involvement' with the community tends to be related to specific employment categories particular plants, which are themselves, as a generality, correlated with longevity or length of residence in the community. For example, although there are individual exceptions, 'middle management' and 'upper management' positions tend to be occupied by individuals who have been with their company and located in Unalaska/Dutch Harbor for an extended period of time; these individuals tend to be more involved with community affairs than processing line workers who, as a category, have a much higher job turnover rate (and shorter average length of stay in the community).

Diversification in terms of other regional ventures and extra-regional operations varies widely between Bering Sea shore processors. For example, one of the major processors owns a range of local enterprises that are not directly fisheries related, including food and beverage and lodging establishments. Some entities have shore processing facilities in more than one location inside and/or outside of the region; some have degrees of common ownership interests with other shore and/or non-shore processing entities. Among the entities that have multiple ownership interests, coordination between facilities (i.e., the degree to which the individual facilities are operated as independent entities) varies widely. At least one of the larger entities closely coordinates catch and production between facilities in the Bering Sea/Aleutian Islands area and Gulf of Alaska, such that the distinction between those two areas as separate units of analysis is blurred. Detailed documentation and analysis of these inter-sector and inter-regional ties was beyond the scope of this research. They are, however, clearly important to understanding the overall dynamics of the pollock industry as a whole, and the likely impacts of proposed resource management changes. The general nature of the inter-regional ties for pollock shore processing itself are discussed in the Sand Point/King Cove section of the community discussion.

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[3]This facility was constructed on an existing (but non-seafood) industrial site and did incorporate some existing structures into its current operation.

Patterns of domestic and foreign ownership also vary by type of operation and influence the relationship between processing sector, and even catching and processing sector, components. For example, the ability to have common ownership of shoreplants and catcher fleet is influenced by the degree of foreign ownership of the shoreplant. (Similarly, floating processors must be 75% U.S. owned if they are to engage in coastal trade; this caps the degree of ownership interest a foreign shoreplant owner can have in these types of operations.) Again, however, degree of common ownership does not always equate to degree of cooperation or even 'control'; some entities with a smaller degree of common ownership coordinate efforts more closely than others with a larger degree of common ownership interests. As noted in the discussion of the catcher vessel sector, one of the most striking changes in the overall industry in the past few years is the ownership relationship or, more accurately, the common control relationship between shoreplants and their catcher fleets. That is, shoreplants have come to effectively have an ownership interest in their fleets in a way that is very different from that seen in the early years of the developing pollock industry. This dynamic is discussed in more detail in the section on catcher vessels.

Processing Volumes

Historically, the larger facilities that include surimi among their products were typically run as if they were two separate operations: a seafood plant and a surimi plant. These "plants" utilize different technology and, depending on the individual entity, have had more-or-less separate managerial and production work forces. (This degree of separation has become less apparent at most plants over time, as several factors have influenced the coordination of work between plant areas.) While the "surimi side" utilizes pollock as its input, a typical "seafood" side will use a wide variety of species, depending on market conditions, existing equipment, catcher fleet success, and the perceived desirability of diversification. Again, however, this report does not address the relative production of pollock to other species.

While major construction has slowed since an active expansion period in the late 1980s-early 1990s (a period which encompassed the construction and opening of one of the major pollock plants), more subtle increases in processing capacity have continued. Some of these have been based upon changes in the plant itself, some have come from repositioning the B Season, and some have come from changes in personnel scheduling and management (and a natural learning curve associated with a 'maturing' business). In addition to increasing overall capacity, there has been an increase in recovery rate over time, although exact recovery rates are typically held close to the vest. The magnitude of this increase, and how consistent it is across individual processors, is unknown.

Daily volume capacity varies by plant. Production figures are a function of not only capacity (and, of course, supply), but also of desired end product. Processing capacity also varies by season. One superintendent noted that at his plant there is approximately a 25% increase in daily capacity from the A Season to the B Season, based on the 'processability' of the fish.

Aggregated production data for shoreplants are presented in the introductory section of this sector description. To give an idea of the range of plant sizes, in terms of volume, in 1996 the volume of pollock processed at the lowest volume plant in Unalaska/Dutch Harbor-Akutan was somewhat less than 40% of the volume produced at the highest volume plant for that same year.

Processing Annual Cycle

Increases and decreases of activity at individual plants are, of course, a function of season openings and closing for the various species processed. For the years 1986 through 1989, Bering Sea DAP pollock seasons began on January 1 and lasted through December 31 of each year. This was a time of dramatic increase in shoreside pollock landings, and shoreside plants were expanding in conjunction with the growing landings. Pollock processing operations differed significantly from the other species then being processed at the plants, due to its year round nature. Processing became less seasonal, and this strongly influenced all areas of operations, including labor force requirements and the nature of employment. Following this time, the "annual cycle" began to change dramatically. In 1990, the pollock opening was on January 1, but the season closed for the year on June 30, giving a total of 180 open days. All pollock processing was necessarily concentrated in the first half of the year. This had a number of impacts that varied somewhat in their specifics by individual operation. One thing that changed for all multi-species operations was distinct shift in the work force requirements of coordinating pollock and non-pollock species production.

In 1991, split seasons ("A" and "B" Season) for pollock were introduced, which resulted in a bimodal distribution of processing effort that has continued to present (although days per season has not remained constant). As noted in earlier studies, capacity increases have occurred during the time of declining seasons; ironically, over a period of time when it was considered a truism that there was overcapitalization of processing (and harvesting) capacity in the fishery in general, the perception of the management of at least some of the larger shore processors was and is that further capitalization has been required to simply maintain market share.

Employment

The following table presents comparative information on the number of employees in the shoreplant sector for Bering Sea pollock shoreplants over the years shown. It should be noted that these data are intended for comparative purposes only, and do not reflect actual positions (see note at bottom of table).

Table SP-3 Employment Information: Bering Sea Pollock Shoreplants Average Number of Employees per Quarter			
	1991	1994	1996
Total Employees	2,692	2,649	2,925
Note: Data presented herein are derived from the sum of quarterly data for the year, divided by four to arrive at an average number of persons employed per quarter			

What these data show is that total employment is approximately 9% higher in 1996 than it was in 1991 for the overall sector. It is important to note that this increase has occurred despite a decline of approximately 10% in volume of pollock processed by this subsector over the same period. It should also be noted that these aggregated data do not portray the complexity seen at the individual entity level. For one of the entities, employment has declined slightly over this period; for other entities employment is up, but the magnitude of increase differs from entity to entity.

Annual Fluctuation

At each of the Bering Sea shoreplants, employment fluctuates markedly by season and by the type of product being run, even within the same species. These fluctuations do not influence all components within the work force of any particular plant, however. For each plant, there is typically a core of administrative, management, and maintenance staff that is more-or-less constant year round, and at least a few production workers are required during otherwise "down" periods to handle processing odds and ends. Other processing components require a steady number of persons to function at all, relatively independent of volume fluctuations. For example, fish meal plant components may be automated to the point where they require a fixed number of persons to operate, regardless of the volume run through the plant.

Employment peaks have changed dramatically during the 1990s. This change is most apparent in the larger operations, and results from the changing timing of the pollock processing season(s). As a result of the shorter seasons, there are fewer workers on an annual basis than in previous years, even in those cases where peak employment has remained at or near the same levels. The peaks may be as high, but they do not last as long as in the past.

For all of the plants, A Season features the highest employment figures of any given year, and A Season overlaps with the processing of other species as well at all of the plants. Given the way plants organize their workforces, 'pollock jobs' are less separable from 'seafood jobs' than in years past, due to increased integration of operational crews, although this varies from plant to plant.

There is a considerable range in the number of workers present at the individual plants, with the largest of the plants reporting during 1998 interviews that approximately 1,000 total workers were on site during the peak time that coincides with A Season and the concurrent processing of other species. This figure includes total company workers, including those not directly tied to seafood processing. Two other plants peak at between 600 and 700 workers, with the smallest peaking at around 400 workers. All of the plants noted that during the slowest parts of the year (when processing was still taking place to any degree at all) they employed a 'core staff' that is approximately 25% of their peak A Season workforce.

The decline of total workers from the peak to the 'valley' does not occur all at once, and varies from operation to operation, depending on the species processed and products produced. Some variation is introduced by level of participation in the Aleutians season. Several other species are processed after A Season closes, and production winds down to the summer months, before increasing again for B Season. At all operations the B Season workforce is smaller than the A Season workforce, in part because of the roe processing that occurs during A Season. The size of the workforce 'spike' during B Season relative to A Season/multi-species processing varies from plant to plant, ranging as low as 50% to a high of over 80% of the annual peak, depending on a number of variables. Following B Season, the workforce again declines, but does not normally reach the summertime low, due to continued processing of other species.

The following table provides employment figures, by quarter, for the entire Bering Sea pollock shoreplant sector. The same caveat applies to this table as to the others that use quarterly employment figures, that is, quarterly employment cannot be summed for a yearly total because there is no provision to control for double counting between quarters.

Table SP-4
Quarterly Employment Figures, 1996
Bering Sea Pollock Shoreplant Sector

	Q1 1996	Q2 1996	Q3 1996	Q4 1996
Total Employees	3,430	3,129	2,571	2,569

Table SP-5 provides a look at annual fluctuation for workers at the inshore processors on a monthly basis for 1996. These figures are derived from Alaska Department of Labor Current Employment Survey, as reported in Table EM.4, page 82, of "Tab 6" of the NPFMC April 1998 I/O-3 document. It should be noted that the numbers in this table represent the number of employees who were issued a paycheck on the 12^{th} day of the month listed. It does not differentiate between pollock related employees and others, nor between job classifications. Again, the reader is reminded that the only plants listed are those that run pollock as part of their operations, so this does not represent total processing employment in the communities listed.

Table SP-5 Monthly Employment, Bering Sea Pollock Shoreplants, 1996												
Shoreplant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Unalaska												
Unalaska #1	301	416	411	382	265	213	214	160	253	253	240	141
Unalaska #2	776	796	775	751	531	288	281	327	545	555	472	325
Unalaska #3	504	526	509	358	354	355	320	317	323	246	199	152
Total Unalaska	1581	1738	1695	1491	1150	856	815	804	1121	1054	911	618
Aleutians East Bor.												
Akutan	192	857	870	929	744	755	730	803	518	363	253	264
Sand Point	48	215	218	233	186	189	183	201	130	91	64	67
King Cove	513	510	485	340	366	419	413	229	289	308	217	127
Total AEB	753	1582	1573	1502	1296	1363	1326	1233	937	762	534	458

Worker Residence/Point of Hire

It is important to note at the outset of this discussion that worker 'residence' is not a straightforward issue for the shoreplant sector. This is due, in part, to the fact that definitions of 'residence' vary from source to source, with different individuals and different groups having varying perspectives on who is a 'resident' of particular communities. For example, one of the extreme definitions of residency was given by a long term resident of one of the communities – he felt that unless you were planning to be buried in the local graveyard, you were not truly a local resident. In communities that have historically seen a great deal of short term employment, such definitions are not trivial. This definitional issue of also of considerable importance to various agencies and enterprises for political and fiscal/economic purposes, as it has an impact such diverse issues as determining revenues to communities that are derived from intergovernmental transfers, to the political alignment of entities for the purposes of resource management issues, such as the inshore/offshore debate at hand. With this cautionary note, it is now useful to discuss residence in terms of relative length of stay in a community, the ties between residence and employment, and the historical patterns of residence.

Place of employee residence by state and/or point of hire by state was obtained from three of the larger shoreplants during the 1994 study. Differentiation of residential patterns at the level of regions, within individual states, or by community is problematic, given the varying records kept (or released) by the individual entities. Not only does level of detail vary, but interpretation of the data and/or comparability of the data between entities is not straightforward. For example, a significant number of employees at one of the entities listed the worksite community as their residential address;

few employees of another entity with a work force known to be similar did so. It is unknown whether this is a function of the way the data were gathered, differences in perception on the part of employees within the two work forces, or some unknown variable. For the entity that released records by point of hire included in this table, the entity had at least one or more points of hire in each of the states listed, and it is assumed that this bears a relatively strong correlation to residential patterns. How this influences resulting data (as opposed to actual residential patterns of employees) when compared to companies with fewer hire sites is unknown. Given these known limitations of the data, Table SP-6 should be used for a general comparison only.

Table SP-6
Bering Sea/Aleutian Islands Shore Processors' Employee Residence Listing, 1994

State	Percent of Work force
California	41%
Washington	40%
Alaska	8%
Oregon	7%
Other	4%
Total	100%

Notes: represents peak work force for two processors and off-peak for another.
Source: processor personnel records.

The following table presents percentage data of Alaska resident employees by entity for all Bering Sea pollock shoreplants for the years 1991, 1994, and 1996. These data show that while there are fluctuations between individual entities, for the sector as a whole, the percentage of Alaska residents working in shoreplants has remained stable for these three years. There is also wide variability between entities. For example, in 1996, for one of the entities, roughly two of every five employees was an Alaska resident, while for another of the entities, less than one in ten employees was an Alaska resident.

Table SP-7 Alaska Residents as Percentage of Total Workforce, Bering Sea Shoreplants: 1991, 1994, and 1996 by Individual Entity and Sector Total						
Entity	1991		1994		1996	
	Alaska Resident	Non-AK Resident	Alaska Resident	Non-AK Resident	Alaska Resident	Non-AK Resident
A	19%	81%	8%	92%	8%	92%
B	24%	76%	22%	78%	24%	76%
C	22%	78%	18%	72%	17%	83%
D	21%	79%	23%	77%	26%	74%
E	31%	69%	36%	64%	39%	61%
Total Sector	20%	80%	19%	81%	20%	80%
Source: Data derived from NPFMC provided figures for quarterly employment. Quarterly employment figures per year were summed and then percentages derived from summed figures.						

Another data set provided by the Alaska Department of Labor, Research and Analysis (included in the NPFMC Updated Employment Information supplement dated April 17, 1998 as part of the I/O-3 EA/RIR/IRFA) showed that for the Bering Sea inshore sector in 1996, there were a total of 5,687 total workers, of whom 85.3% were non-residents; for 1997, this figure was 5,908 total workers, of whom 86.3% were non-residents. This is a different data set than used in the above table, but the figures are quite close, with the differences likely attributable, at least in part, to the inclusion of floating processors, which as a subsector appear to have a lower percentage of resident workers than do the shoreplants themselves (two of the larger firms reported in the same NPFMC provided ADOL data summary show 89.5% and 99.5% non-resident workers for 1996 and 85.4% and 99.6% non-resident workers in 1997).

The NPFMC Updated Employment Information supplement dated April 17, 1998 also provided a table of residency of employees hired by onshore companies in 1996 and 1997 for Alaska residents. For 1996, Unalaska/Dutch Harbor[4] was the leading community, with 396 residents, followed by Anchorage with 193. Sand Point, King Cove, St. Paul Island, Akutan, and Kodiak had 56, 54, 28, 23, and 21 residents employed respectively. No other community had ten or more employees listed. False Pass, Bethel, and Fairbanks each had 9 employees – no other communities had more than 5 listed. Cordova and Wasilla had 5 each, and Palmer, Mountain Village, and Chefornak had 4 each. Seven different communities had 3 employees, seven other communities had 2 employees each, and

[4] 'Unalaska' and 'Dutch Harbor' are listed as two separate 'places' in this database, as the data are organized by postal zip code and 'Unalaska' (99685) and 'Dutch Harbor' (99692) have unique zip codes. As discussed in the text, however, both are encompassed by the City of Unalaska and, for the sake of clarity, are combined in this discussion.

a total of 24 communities were listed as the home of one employee each. For 1997, again Unalaska/Dutch Harbor was the leading community by resident, with 342 residents as employees. Anchorage was again second, with 187 employees. Sand Point, King Cove, Kodiak, and Saint Paul Island had 53, 46, 41, 41, and 23 residents employed respectively. No other communities had 10 or more residents employed in the onshore sector. Juneau had 9 residents employed, and Alakanuk, Fairbanks, and False Pass each had 6 residents employed. Ketchikan, Wasilla, and Petersburg had 5 employees each, and Cordova, Mekoryuk, and Soldotna each had 4 residents employed. Five different communities had 3 employees each, 12 communities had 2 employees each, and a total of 23 communities had one resident each employed in the onshore sector. (An interesting point of contrast to the offshore sector is that while Unalaska/Dutch Harbor is the leading place of residency for onshore workers, no residents of Unalaska/Dutch Harbor are reported as working for the APA fleet, although Anchorage, as with the onshore sector, features prominently in the hiring composition of Alaskans [it is the #1 place of residency for the APA fleet Alaska residents]. There is also obviously more concentrated employment in Alaska for the onshore sector -- for example, in 1996, excluding Anchorage [and counting Unalaska/Dutch Harbor as one community] there were 6 Alaska communities for the onshore sector that each had more employees than the community with the most APA fleet hires; for 1997 [again excluding Anchorage and counting Unalaska/Dutch Harbor as a single community], there were 5 communities that had more onshore employees than the community with the largest number of APA fleet employees. Indeed, the total number of residents of the state of Alaska listed in this data set for the APA fleet in 1996 (159) is fewer than the onshore employees listed as for either Unalaska/Dutch Harbor or Anchorage; for 1997, the total for Alaska state residents for the APA fleet (298) surpasses Anchorage hires for the onshore sector, but not Unalaska/Dutch Harbor hires as a single community.)

"Point of hire" as a concept varies significantly from one entity to the next. For example, for one entity, there are technically only two "points of hire" for all employees -- Seattle and Anchorage. Although multiple interview sites are used to contact potential employees, the company provides transportation to the worksite only from these two locations, not from the interview sites. For another entity, the point of hire for all workers is technically Seattle, although this company does hire at least a few long-term Bering Sea community residents. Points of hire have changed somewhat over the past few years, as nearly all sectors involved in the Bering Sea pollock fishery have sought to increase Alaska resident hires. As shown in the table above, there have been mixed results in this effort among shoreplant owners (and some companies have concentrated on Alaska hires more than others).

Historically, very few individuals who grew up in the communities of the region work at the shoreplants.[5] There are a number of individuals who work at the plants, however, who have been

5 Reasons for low 'local entry' employment, particularly in processing positions, are varied. Many revolve around the fact that processing positions tend to involve long hours for relatively low pay compared with other local employment opportunities (which, combined with the high local cost of living [and the fact that group housing is not a draw for individuals who already have homes in the community], make entry level seafood employment unattractive). Similarly, few processing-level workers from elsewhere tend to move into the local job market outside of the seafood industry, for a variety of reasons.

residents of the communities for long periods of time and who are active or even central in a variety of community affairs, including political leadership. These individuals tend to be relatively few in number in relation to the total work force, and tend to occupy management positions with the various companies, although there are exceptions to this generalization. In other words, management personnel of the plants tend to be local residents, but local residents outside of the seafood industry do not become managers; people from the community tend not to take entry level positions, and managers typically are promoted from within. This is the paradox of community 'residency' analysis for seafood processing workers, and specifically for management staff where the issue is a complex one.

Changes in perception of shoreplant employee residence have taken place over the past several years. During those years when the shoreplants were operating on a year-round basis, employees were more likely to consider the shoreplant community as their community of residence. This represented a marked change from the previous pattern of seasonal (only) employment, where workers (other than management) nearly universally considered the Bering Sea communities a worksite only. According to facility managers, this trend has reversed with the shorter seasons, at least for the processing work force. As noted below, however, there are components of the work force that are year round in nature, such that for those individuals the worksite community is more likely to be considered the community of residence. Particularly in Unalaska/Dutch Harbor, permanent employees (management, maintenance, technical) think of the community as their place of residence rather than merely a place of employment. These employees normally develop cross-cutting ties to the community, typically leaving for annual vacations rather than leaving the Bering Sea communities permanently after a brief employment period.

Type of Employment Contract

Employment contracts at the Bering Sea shore processors have changed during the span of years encompassed by the inshore/offshore era. Historically, six-month contracts with a specified hourly wage were the norm during the King crab boom days, and this pattern continued until there was significant plant diversification into groundfish. During those years when pollock processing took place on a year round basis, several of the plants did away with the specified period contract system and hired workers on an hourly wage basis for an indefinite period of time, with incentives provided for longevity. With advent of short pollock seasons, however, hiring practices have come to more closely resemble the term contract basis, in general form if not in contract particulars.

One of the plants describes its employees as being on a "seasonal" contract basis whereby they are now hired for a particular processing season, rather than for a fixed amount of time. This type of contract allows for flexibility due to unknown dates of season closures that will result in a sharply reduced need for processing workers. At another entity, workers are hired on a 1,500 hour contract but, according to management staff, the current short seasons dictate layoffs before 1,500 hours can be reached for most processing employees. One of the entities utilizes a straight six-month contract for its processors, similar to conditions prior to groundfish diversification.

Typically, hourly processing and maintenance workers receive wage increases based on cumulative length of service. At the large plants, the large majority of processing workers are contract employees who work the particular season for which they are hired and then leave the facility and community to return (or not) for the next large processing season. According to senior staff at one of the entities, it is becoming increasingly difficult to get experienced re-hires, due to the shorter and shorter seasons.

Beyond changes in types of contracts, job responsibilities have changed over the years. According to the staff of one entity, because of seasonal fluctuations in the level of activity at the various company facilities, management of the various and formerly semi-autonomous facility components has been totally integrated. With this structure, workers within one area of operations may receive temporary assignment to another area of operation. For example, if a particular crab species processing season only lasts four to five days, new workers are not hired for this operation, but are merely assigned from other duties.

Employee Turnover/Longevity

Employee retention or turnover has been changing at the Bering Sea shoreplants in the past several years, according to entity managers and personnel directors. The situation remains rather complex, as turnover varies between entities and within entities among job categories and operational areas assigned.

Rate of retention/return varies from entity to entity. According to 1998 interviews, rehire rates at all plants are higher for B Season than A Season, due to the fact that B Season requires fewer employees. At one plant the figure was put at greater than 90% for the B Season, and around 65-70% for the A Season. During the 1994 SIA study, the personnel director at another plant estimated that the overall the rate of return for employees is approximately 78% for both the surimi and seafood processors, and that an additional 4% or so were "old" returnees, i.e., people that worked for the company previously, but not the immediate past season. During 1994, retention among pollock/surimi workers varied by season. At one of the plants, it was estimated that there was a rate of return of approximately 40-45% for the "A Season" but for the "B Season" in 1993, 100% of the workers were rehires (i.e., they were a subset of the processors who had worked the previous "A Season"). Other entities report rates of return for "A Season" employees up to 75%. Only one of the entities reported no significant difference in rate of return between the "A" and "B" seasons, putting the overall figure at approximately 60%.

Retention/return also varies by job category. As noted earlier, each of the entities have a core group of employees (approximately one-quarter of the total peak workforce at each entity) that remain through the activity peaks and valleys. For one of the entities, date of hire data were available for 120 employees in the non-peak work force for 1994. Among those workers, 12% had been with the company for one year, 28% had been employed for two to three years, 34% for between four and six years, and 27% for seven or more years.

At each of the entities, there is a cadre of employees who have been steady workers for the company over a long period of time. Further, management positions at nearly all of the shore processors are occupied by long-time residents of the community or the region. Individuals who have worked for more than one company and have gained ten to twenty years experience in their shoreplant community and/or the region are not uncommon. Individual owners and -- in the case of "permanently" moored floating processors -- even the physical plants themselves may come and go, but individuals in upper level management positions tend to remain in the business and in the area.

Employee Housing

All Bering Sea shoreside processors provide housing services for employees. There are a number of different housing configurations that vary from entity to entity to accommodate both long-term steady employees and seasonal influxes of large numbers of employees.

Several of the entities have added housing in the past few years, and improved the quality of housing offered. Facilities range from free standing houses (for senior management) to bunkhouses with multiple occupancy rooms; individual entities vary in their housing inventory mix. One of the processor's housing inventory includes some free-standing dwellings and numerous apartments for various management levels employees, with the majority of housing consisting of various two- and three-person per room bunkhouse facilities. Housing at another entity consists almost entirely of double occupancy rooms in large bunkhouse type buildings. Another entity features "apartment style" units for processing employees, with configurations and occupancy varying by job category. Foreman housing is self contained, with cooking and laundry facilities, and there are both one and two bedroom units. Leads have units that each have a bedroom, bathroom, and living room; some are single occupancy and some are double. Processors have one or two persons per unit in the offseason and four per unit at the peak. While it would appear that shorter seasons would alleviate some of the historically high demand for housing at the processors, housing capacity is not a function of average but, rather, peak employment needs.

Employee Demographics

Individual entities vary in the detail of the demographic information they keep or release regarding their work force. In spite of the unavailability of some data, it is apparent that there has been a shift in demographics over recent years. Age composition of the work force is one dimension that has apparently changed in the past few years, with the work force getting somewhat older. In the 1994 SIA work, one personnel manager stated that the "over 30 years of age" category in particular has grown as a percentage of the work force in recent years. Age information provided by one of the processors is represented in Table SP-8.

Work force sex ratio was obtained from two of the processing entities in 1994. Consistent with historical trends, both work forces are predominantly male. At one of the plants the work force was 75% male and 25% female; at the other it was 81% male and 19% female.

Table SP-8 [Unnamed] Bering Sea Shoreplant Work force Age Structure, Spring 1994	
Age Range	Percent of Work force
Age 16-25	17%
Age 26-40	54%
Age 41-55	22%
Age 56-65	6%
Age 66+	<1%
Total	1

Ethnic composition of work force has changed somewhat over the years. Traditionally, a significant number of processing jobs have been held by members of several different ethnic groups. Detailed ethnicity listing was obtained from two of the shoreplants in 1994. Those data were combined, and are displayed in Table SP-9. Interview data from 1998 suggest that this type of distribution within the workforce is still typical.

Table SP-9 Bering Sea Shoreplant* Work force Ethnicity, 1994	
Race/Ethnicity	Percent of Work force
Asian/Pacific Islander	46%
Hispanic	29%
White	19%
Black	4%
Native American	1%
Total Specified	100%
*Information obtained from two shoreplants only.	

Range of Job Categories

There are a broad range of job categories at each of the Bering Sea shoreplants. One of the entities provided information on the work force structure using the general categories listed in Table SP-10.

Table SP-10
[Unnamed] Bering Sea Shoreplant Work force Departmental Structure:
Summary Categories, Spring 1994

Department	Percent of Work force
Administration*	3%
Production**	84%
Other***	13%
Total	100%

* Management and Administrative Staff
**Seafood Production, Surimi Production, and Van Loading
***Engineering, Environmental Compliance, Safety/Security, and Housing/Food Service

Patterns of management structure were developed in the 1994 SIA and appear to have remained consistent since that time. That is, with the dramatic shortening of the pollock seasons that accompanied the start of the inshore/offshore era, several of the plants have reduced their management level employees, both in upper management and middle management positions. Among the positions eliminated were a number of plant manager and assistant plant manager positions as operations were consolidated between surimi and seafood portions of the business, with the effect that now overall top level management is in direct contact with production supervisors. Upper and second level management (and often foreman-level) have come to consider themselves permanent residents of the shoreplant communities, at least in Unalaska-Dutch Harbor. At least one of the entities actively encourages employees with families to come to the community to further stabilize the work force.

Experience of the "upper middle" management of plants, such as production supervision and management, varied by entity, but typically these workers had degrees from four-year colleges or universities, supervisory and/or management experience in other fields, and worked their way up through the hierarchy of the organization that presently employs them, which is more often than not the only organization they have worked for within the seafood industry. In at least one case, an individual has worked their way up from an entry position on the processing line itself.

"Upper middle" management positions have been cut substantially in recent years, accompanying reorganization efforts resulting from the shortening of the fishing seasons, particularly the pollock seasons. "Downsizing" varied in its scope from entity to entity. Whereas in the relatively recent past plants would typically run virtually independent operations for surimi and (other) seafood, this is no longer the standard. In consolidating operational components, companies have tended to not only reduce the overall work force, they have changed the organizational structure reducing the ratio of managers to production personnel and often cut at least one "layer" of positions between top management and line workers. The eliminated layer has been "upper middle" management, and has included the former top supervisors of the individual operational components. The extreme reported case among the Bering Sea shoreplants involving cutting over two-thirds of the positions at this level.

Following reduction in numbers in recent years, these types of positions appear to be fairly stable with regard to turnover. Persons in this category tend to treat at least Unalaska-Dutch Harbor as their long-term community of residence, and have brought families to the community with them. One ventured the opinion that having family in the community is a key to long term job satisfaction as "Dutch Harbor [can be] brutal if you don't have someone here." Workers at this level are year round rather than seasonal employees, typically leaving the worksite for several weeks to two months per year as vacation during the slow seasons. According to one individual, the draw of this type of employment is that "you can hit it hard while you are here [often working 18 hour days] and play hard while you are away."

Foreman and lead positions, typically first line supervisors to line workers (or analogous positions in other departments), vary in somewhat in their particulars from plant to plant, with foremen having greater spans of responsibility. Whereas lead positions tend to be a function of the number of shifts and operational components in production at any one time (and have apparently been changing in direct proportion to changes in the general production work force), foreman or other "middle middle" management positions in at least some plants have been cut disproportionately with downsizing, similar to the changes seen with "upper middle" management.

Foremen and managers of a similar level tend to have worked in skilled trades or supervisory positions in other industries in positions with responsibilities similar to those they hold in their current jobs; some have college degrees (and at least one interviewee had a graduate degree). Foremen tend to be among those core workers who stay at the plants year round, whereas leads tend to spend more time away since seasonal reductions. According to one foreman, over his eight year's experience "four to five months per year of work has been lost" as a result of seasons becoming shorter; however, this same individual also noted that he still works 48 to 50 weeks per year. Whereas plant time has been lost, he and others of his job category are typically needed even during non-production times.

The processing line workers in the Bering Sea shoreplants are a highly diversified group in many respects, including both demographic characteristics and experience within the industry. Although they are not high paying jobs by most standards, processing line jobs are seen as highly desirable by many workers, and are used as the basic source of income for many extended families. Line workers vary widely in their previous experience. It is not uncommon for individuals originally from overseas to have a wide range of employment backgrounds, including some professional backgrounds, but be unable to apply those skills in the United States.

The vast majority of the processing workers interviewed during the 1994 study heard about the job by word of mouth through friends or relatives, giving kinship a primary role in the recruitment process (or, more precisely, that part of the recruitment process prior to the interview stage). Workplace relations are at least partially an outgrowth of prior existing friendship, kinship, and community of origin relationships for a significant number of workers. As plants are relatively self-contained in their operations, this web of relationships tends to be reinforced on the job site. Among workers interviewed, those who had relatives or friends (whom they knew before working at the shoreplant) also working at that particular shoreplant or in the industry outnumbered those who did not by more than three to one.

Given that line work is not steady on an annual basis, processing workers do a variety of things during the slow times, including returning to their home communities. Some of those workers from overseas return to their country of origin for two to three months per year. More typically, processing workers have family in the Pacific Northwest or California, and stay there during the offseasons.

There is a significant amount of movement of workers between facilities within the shoreplant sector and a lesser amount between shore and offshore processing sectors, based on limited interview data. Some of the larger shoreplants are considered to have better working conditions and/or living conditions compared to the smaller plants, and a few workers report having worked at smaller local plants as an entre to the area until an opening came up at one of the larger plants. Some workers also move between the larger operations due to perceived differences between the companies. Some shoreplant workers also have had experience on at-sea processors, and in one interview the person stated she began work at a shoreplant when the ship that originally employed went into bankruptcy. Another stated she left a catcher-processor because of better shoreside conditions: "Things [services] are free here. You just work, eat, and sleep."

Movement of workers between entities within the shore sector tends to take place between seasons rather than during an individual season. It is easier to switch employers prior to the beginning of the "A Season" given the lower rates of return for that opening compared with those for other seasons. Among those interviewed, workers with experience at more than one processing entity were about twice as common as those with experience at only one entity; generally, those who had worked for more than one company had several years experience in the industry, while those with their original processing employer tended to have less than three years experience. Again, there were notable exceptions to this generalization, and the number of persons interviewed was small, but these data are suggestive.

Employee Wages

Detailed wage information by specific type of position was provided by one shoreplant entity during the 1998 study effort, so wage specific ranges by type of position cannot be discussed due to confidentiality restrictions. (Another entity did provide compensation information on an aggregated hourly and salaried basis, and those are discussed below.) Relative information may be gleaned from the 1994 SIA study, when specific and comparable information was obtained from three entities. Pay per position varies somewhat between processors. In 1994, wages for processors ranged from $5.00 to $6.20 per hour, depending on cumulative hours. Leads and forklift operators ranged from $6.77 per hour to $7.20 per hour. Laundry and janitorial position rates typically fell between processors and leads; kitchen position wages were approximately equal with processor wages, or slightly higher. Some types of engineer positions along with tally, quality control, administrator, clerk, and accounting positions fell within the lead/forklift operator wage range. Skilled labor positions, such as maintenance engineers, carpenters, mechanics, and so on, earned in the range of $9.00 to $15.00 per hour, depending on the specific job and individual experience. Again, these are 1994 figures, and should be used only to give a sense of the relative pay of the different types of hourly wage positions. Increases in pay have been made across all positions in the subsequent years (with higher percentage increases apparently occurring in the lower pay categories). Shoreplant workers normally receive a range of services from employers while at the worksite. In addition to hourly wages, processing workers typically receive airfare from Seattle or Anchorage (provided they fulfill a contract) and room and board at the shore facilities.

For the 1998 data that were obtained, few specifics can be discussed because data are not available from enough entities to aggregate the information to avoid confidentiality problems. A number of points, however, may be discussed qualitatively or in general terms. One entity provided a breakout of total wages for hourly and salaried employees, by month, for 1990 and 1997. These data are illustrative in that they provide a sense of scale of the relationship between salaried and hourly employees, and how this varies over the course of a year. For example, as one would expect, in general, salary wages are relatively flat throughout the year, as these positions are steady employment relatively independent of processing volume fluctuations. The exception to this generalization is found in the practice of paying bonuses and travel allowance at two points during the year. In 1997 these were in the months of July and November (and there was also a December 1997 based bonus that was paid in January 1998). Again, confidentiality considerations preclude discussion of specific figures, but bonus and travel allowances increased salary income roughly on the order of 40-50% over the prior month's compensation for relevant months. In 1990, spikes in salaried worker earnings appear in the months of June and December. Hourly wages show a very different pattern during the year. For 1997, there were sharp peaks in wages in the months of February and September, and pronounced valleys in the months of June, August, and December (with a one-month peak in July). The 1990 data show a somewhat different pattern. There is a noticeable peak in February, and a slowdown during the summer, but the secondary peaks occur in September and December. What is most striking, however, in comparing the 1990 with the 1997 pattern is the relative difference between the peaks and valleys in the different years. For example, in 1997, the June 'valley' represented wages equaling approximately 20% of the hourly wages paid in the February 1997 'peak.' In contrast, the 1990 June 'valley' represented approximately 48% of the hourly wages paid in the February 1990 peak. Simultaneously, total payroll was down between 1990 and 1997. In other words, with the shortening of the pollock seasons and the drop in volume processed, overall hourly wages fell (despite increases in pay per hour) and the 'peaks and valleys' of the hourly employees at the operation became greatly accentuated. Salaried wages were up between 1990 and 1997 for the operation as a whole, reflecting the fact that salaried type of work needs to be accomplished at a plant relatively independent of fluctuations in processing volume, and the fact that wages have increased over the period. One can see this in the fact, for example that salaried wages for the month of February 1997 were approximately 12% of the hourly wage total for the same month; in contrast, for the month of June 1997, salaried wages were approximately 62% of the hourly wage total. (December 1997 proportion of salaried wages was even higher in relation to hourly wages [approximately 72%], but bonus figures for the month were not available – but these would push the numbers even closer together.)

The following table (Table SP-11) displays wage information relative to residency information for one shoreplant in the Unalaska/Dutch Harbor-Akutan area. Of particular note is the high proportion of total wages paid to Alaska residents in relationship to their proportion of the overall workforce. This makes intuitive sense, given a working knowledge of the structure of employment at shoreplants. Most entry level positions (typically processor positions) are disproportionately filled by non-Alaska residents, and these positions are at the low end of the wage scale. As persons stay with their employer in Alaska, two things happen. First, with longevity comes wage increases within particular positions and/or promotion to better paying jobs within the workforce. Second, as people stay in Alaska working at the plants, they may become Alaska residents. Even given this understanding, the proportion of wages paid to Alaska residents compared to their representation in the workforce is still striking. As the type of detailed breakout information required to construct this table was only provided by one entity, it is not known how representative this proportion of residents to proportion of wages is to the sector as a whole. It should be noted, however, that in a separate data set provided by the NPFMC (which shows a good correspondence of percentage Alaska employees with the individual entity provided data) that this particular entity is at neither end of the continuum for percentage of Alaska employees. Given this information, and a general knowledge of the structure of the industry, it would appear to be a reasonable conclusion that Alaska residents are disproportionately highly compensated within the inshore sector in relationship to overall representation in the workforce. Another way of say this is that Alaska resident jobs are "worth more" than non-resident jobs or that Alaska resident jobs bring in more income than non-resident jobs, on average.

Table SP-11 Employment Summary, One Bering Sea Pollock Shoreplant Percentage of Alaska Resident Employees and Percent of Total Wages Paid to Alaska Residents, 1990-1998		
Year	% Alaskan Employees	% of Total Wages AK Residents
1990	29.08%	45.73%
1991	24.07%	44.68%
1992	19.40%	42.43%
1993	20.27%	43.07%
1994	22.74%	43.90%
1995	31.40%	45.88%
1996	22.69%	48.27%
1997	16.37%	33.19%
1998*	19.96%*	29.58%*

*1998 Figures are for 01/01/98 through 02/21/98 only.
Source: Constructed from confidential employment figures, specific [unnamed] Unalaska/Dutch Harbor-Akutan shoreplant.

Table SP-12 provides a relative comparison by state of residence of employee for the inshore sector. These data are derived from personnel records at two different shore plants.

Table SP-12 Proportion of Total Compensation by State of Residence of Employee, Two Plants, Inshore Sector, 1996			
Employee State Of Residence	% of Total Wages and Benefits	% of FTEs (1920 hours/FTE)	Indexed Wage/FTE
Alaska	31.4	29.4	1.07
Washington	37.3	33.4	1.12
Other	31.3	37.1	0.84
Total	100.0	99.9	1.0

Based on information from only two shoreplant entities, thus compensation numbers cannot be released and direct comparisons with the offshore sector is not possible. Confidence in the "representativeness" of these data would be increased by adding information from other entities. Note: "state of residence" is likely NOT to coincide with ADOL derived residency data. The data in this table are based on personnel record mailing addresses, which may or may not correspond to legal residence (e.g., an Alaska resident employee may have a Washington address in their personnel file, and would thus be counted as an Alaska resident in the ADOL database and a Washington resident in this table).

Table SP-13 provides a breakout by job category of wages and benefits and FTEs by major job category for two inshore plants for 1996. This table displays the relative size of the production other categories and the relative rates of compensation per FTE for the major job categories.

Table SP-13
Relative Compensation by Job Classification, Two Plants, Inshore Sector, 1996

Job Category	% of Total Wages and Benefits	% of Total FTEs (1920 hours/year)	Indexed Wage/FTE
Administrative	19.9	11.7	1.7
Production	53.2	68.6	0.8
Engineering	18.5	12.1	1.5
Hotel & Galley	8.4	7.5	1.1
Total	100.0	99.9	1.0

Based on information from only two shoreplant entities, thus compensation numbers cannot be released and direct comparisons with the offshore sector is not possible. Confidence in the "representativeness" of these data would be increased by adding information from other entities. Note: see "state of residence" caveat, Table SP-12.

Table SP-14 presents more data that allows a comparison of wages received per employee by state. Of note here is that Alaska resident employees receive approximately twice the wages of Washington employees (and residents of 'other' states), and that Alaska employees work more hours than do residents of other states. As Table SP-12 shows, a 'Washington FTE' is worth more at an Alaska shoreplant than is an 'Alaska FTE' (within the limits of the data, as noted in the table), but Alaska residents work enough more hours, as shown in Table SP-14, that 'Alaska jobs' are worth more than 'Washington jobs' in Alaska shoreplants (again, within the noted limits of the data).

Table SP-14
Relative Individual Employee Characteristics by State of Residence of Employee, Two Plants, Inshore Sector

Employee State Of Residence	% of Total Different Employees	Index of Wages Received per Employee (Average of Total = 1)	Index of FTE Actually Worked per Employee (Average of Total = 1)
Alaska	17.4	1.8	1.7
Washington	39.8	0.9	0.8
Other	42.8	0.7	0.9
Total	100.0	1.0	1.0

Based on information from only two shoreplants. Thus compensation numbers cannot be released and direct comparisons with the offshore sector is not possible. Confidence in the "representativeness" of these data would be increased by adding information from other entities. Note: see "state of residence" caveat, Table SP-12.

Catcher Fleet Relationships

The Unalaska/Dutch Harbor-Akutan plants vary in the size of their delivering fleets, from a low of 7 vessels delivering pollock to one plant on a regular basis, to a high of 20 vessels delivering pollock on a regular basis to another plant. (Fleet characteristics of catcher vessels are discussed in the catcher vessel sector profile in this document.) Given the needs of processors to maintain optimal production levels, and the degradation of fish quality with time in the catcher vessels holds, the delivery rotation is carefully scheduled for each plant. This is not to say that schedules are optimal for the catcher fleet, from their perspective. Indeed, it was a common remark during interviews with vessel skippers that shoreplants tend to be 'overboated' for the A Season – where the catching capacity of the fleet exceeds the processing capacity of the plant such that the effort of the catcher vessels is limited by the delivery rotation openings at the plant. Such 'overboating' for A Season is deemed necessary to supply a market for all of the vessels that are needed by the plants during the 'scratchier' fishing during the B Season.

One of the fundamental changes that has taken place in the shoreplant sector over the span of years that encompass the inshore/offshore era is the change in the relationship of the shoreplants to their catcher fleet. While individual entities have varied in their approach to this relationship, as a generality the shoreplants have a much higher degree of ownership or management control of delivering vessels than was the case in even the recent past. (Note: to be technically accurate, in some instances the vessels are not owned by the shoreplant entity itself but, rather, by a related or cooperating corporate entity. In this way, ownership issues that could prove problematic, including the degree of foreign ownership restrictions on catcher vessels, are addressed. The main analytic point of the issue at hand, however, is not the formal structure of ownership so much as it is management control of the vessels. This is a fundamental change in the industry.)

As of 1998, only one of the Unalaska/Dutch Harbor-Akutan shoreplants had not pursued the ownership of catcher vessels. In interviews, it was stated by the management of this company that they were not interested in being vessel owners. For other entities, the circumstances and timing of acquiring ownership interest in catcher vessels has varied from entity to entity. One of the firms has had an ownership interest in a number of their delivery vessels for many years, and used to be unique in that type of relationship. Today, all plants, with a single exception, own and/or effectively control part of their delivering fleet. Based on interview data gathered from the on-site superintendent or manager of each of the shoreplants, ownership/control of the fleet, as a proportion of the delivering fleet varies between entities. Expressed as a percentage figure, at the low end of the range, one processor owns/controls all or part of 45% of the vessels in its delivering fleet. At the other end of the range, one of the processors owns/controls all or part of 86% of its delivering fleet.

Reasons given for the move to catcher vessel ownership varied from entity to entity. In some cases, the move was made to secure a stable source of fish for the plant. In other cases, the ownership of vessels was being pursued by plant owners at least in part as a strategic move to obtain catch history for the company (or a related company) in anticipation of a catch history based management system for pollock (such as an ITQ system). That is, shoreplant owners did not want to be caught in a relatively disadvantageous position with respect to catcher vessels (and potentially the offshore sector) were there to be a move toward a catch history based management system.

The ownership/control of vessels by the shoreplants has had several ramifications for the catcher fleet. While there was already reduced flexibility to participate in other fisheries on the part of catcher vessels with specialization geared toward improving their vessels as pollock trawl boats, the move toward corporate ownership of vessels has further reduced the options for independent vessel owners as 'the market' for their catch has been reduced. In actual practice, there was not a great deal of fluidity in recent years of boats moving between plants during seasons, without respect to ownership per se, as both vessel owners and plant operators desired a stable market/supply for pollock. In that limited sense, increasing ownership/control by plants and related entities has not brought about a fundamental shift in patterns of deliveries during seasons. During interviews, however, independent vessel owners did express concerns that they were in a somewhat precarious position should the management structure of the fishery change. If, for example, the methods of management were changed to reduce the 'race for fish,' in the case of some plants, the needs of the plant may be more able to be supplied exclusively or nearly exclusively by company owned or managed vessels. In one specific example given, if the need for 'overboating' by plants during the A Season were eliminated, it would seem logical that the relationships with independent vessels would be severed before relationships with vessels that were partially or wholly owned by the plants or related entities.

The continuing vertical integration of the inshore sector, as seen through common management of effort from the catching of the fish, through the processing stages, and to market is perhaps a natural evolution of a maturing pollock fishery. On the other hand, it has potentially profound consequences for the differential distribution of impacts (within and between subsectors of the CV fleet, as well as on a geographic basis) were there to be a significant allocative shift in pollock quota.

One of the specific operational changes that has occurred with the shift in ownership patterns is the 'effective homeport' of vessels have changed. Vessels owned or controlled by Alaska-based processors are more likely to tie up in the shoreplant community between seasons to save expenses and to have minor repair work done during down time. (This varies, however, between processors, based on the physical characteristics of the shoreplant site. For one of the processors, none of the company owned/controlled boats ties up in Unalaska/Dutch Harbor during the offseason, because the plant dock facilities are not sheltered well enough from swells to protect the vessels during storm conditions.)

2.2 BERING SEA POLLOCK CATCHER-PROCESSOR SECTOR

Catcher-Processors (CPs) will be discussed as a group, although they are only one component of the offshore sector as it is currently defined. If motherships are split out from catcher-processors (either as part of the inshore sector or as a category of their own), then the offshore sector is reduced to catcher processors. It is thus necessary to describe and analyze catcher processors separately from motherships.

2.2.1 Overview of Sector Structure

The detail of the 1994 SIA sector profile for catcher processors will not be reproduced here. Most of the background historical information should be familiar to readers of this document, and can be referred to if desired. This prior effort also had a broader charge and considered all groundfish fisheries, as well as incorporating information on vessel participation in other fisheries. This document concentrates upon the Bering Sea pollock fishery, although other fishery information is included as it is available and where it is useful to do so.

As used in this document, a Surimi Catcher-Processor (SCP) is a catcher processor which is capable of producing surimi. It may also produce fillets and/or mince, and fishmeal. A Fillet Catcher-Processor (FCP) produces fillets, but cannot produce surimi. Prior tables have summarized the most salient aspects of the sector's historical dynamics. FCPs declined from 30 in 1991 to 20 in 1994 to 19 in 1996. SCPs numbered 24 in 1991 and 1994, but declined to 20 in 1996. In addition, three of the 1996 SCPs are currently fishing in foreign waters, although they still hold American licenses. In terms of pounds of Bering Sea pollock processed, SCPs as a subsector in 1996 only processed about 58 percent of the amount it processed in 1991. This appears to have been due to the relatively stable number of vessels, inshore/offshore allocations and definitions, slightly declining Bering Sea TACs and pollock catches, and a decrease in the value of surimi in relation to fillets. The production of FCPs as a sector in this same period of time increased modestly -- 1996 production was 117 percent of the 1991 production. This appears to be due to the reduced number of FCP vessels, countering the reduced overall pollock harvests, and perhaps the relative value of fillets compared to surimi.

Ownership in the sector has shrunk and consolidated even more since 1994 than it had during the 1991-1994 analytic period of the license limitation sector profile. At least five companies have gone bankrupt and ceased operations since 1994. Most vessels have been acquired by other operations, although as mentioned previously, one FCP and 4 SCPs that operated in 1991 did not in 1996. As displayed in Table CP-1, the 39 vessels of the 1996 fishery are currently (1998) operated by 14 owner-companies. Eighteen of these vessels are operated by one company (three outside of Alaskan waters since 1996), and five by another. Four other companies operate two vessels each, and all other operations own only one vessel. Only the two largest companies operate both SCPs and FCPs, although some smaller operations can produce both surimi and fillets on the same vessel.

Table CP-1 Catcher Processors Active in the Bering Sea Pollock Fishery in 1996, With 1998 Ownership				
Vessel	Length	I/O-3 Category	Notes	Owner in 1998
1	386	SCP		A
2	239	SCP		B
3	240	SCP		C
4	285	SCP		D
5	280	SCP		D
6	272	SCP		D
7	224	SCP		D
8	214	FCP		D
9	213	FCP		D
10	195	FCP		D
11	341	SCP		D
12	341	SCP		D
13	336	SCP		D
14	296	FCP		D
15	220	FCP		D
16	218	FCP		D
17	217	FCP		D
18	204	FCP		D
19	304	SCP	fishing in foreign waters 1997-98	D
20	292	SCP	fishing in foreign waters 1997-98	D
21	244	SCP	fishing in foreign waters 1997-98	D
22	334	SCP		E
23	272	SCP		E
24	276	SCP		F
25	201	SCP		F
26	270	FCP		G
27	166	FCP		H
28	206	FCP		I
29	204	FCP		I
30	190	FCP		J
31	140	FCP		J
32	160	FCP		K
33	151	FCP		L
34	199	FCP		M
35	273	SCP		N
36	270	SCP		N
37	262	SCP		N
38	210	FCP		N
39	188	FCP		N

Shaded companies were those which provided aggregated employment and compensation information for 1996 and 1997 through APA, with the following qualifications for entity D:

1996 sample: vessels 4-13 only, and only shipyard employment for vessels 11-13
1997 sample: vessels 4-18

Source: NPFMC electronic data file, At-Sea Processing Association

The issue of foreign ownership will not be developed here. Ownership will be discussed only in terms of the which hold and manage these vessels, in relation to the actual locations of these activities (fishing, offload, hiring, management and administration). All such companies are based in the Pacific Northwest (PNW), primarily in Seattle. One multi-vessel company bases its vessels in Tacoma. Almost all regular vessel maintenance takes place in Seattle or PNW shipyards, although the largest catcher processor operator has used the Ketchikan shipyard to drydock several of its vessels, and temporary or emergency work has been done in various Alaskan ports. Operating expenditures are made in Alaska, and are significant (e.g., fuel sales out of Unalaska/Dutch Harbor), but the bulk of regular expenditures and outfitting expenses are made in Seattle and the Pacific Northwest region.

2.2.2 Personnel and Employment

Much of the following material is drawn from the previous sector profile (IAI 1994), supplemented by interview information and aggregated industry-supplied employment/ compensation data. Use of earlier profile information is problematic in that it included not only SCPs and FCPs, but also head and gut catcher processors. Thus, an allowance for these operations must be made in interpreting the information from this earlier analysis.

According to industry figures, in the recent past the catcher processor fleet employed about 7,600 "full time equivalent" (FTE) personnel allocated to both at-sea and shore-based positions (AFTA 1993:2-1). These data indicate that total number of at-sea positions aboard the catcher processor fleet equaled 7,271 FTEs (about 96 percent of total sector employment), aboard 58 vessels (or about 125 FTEs per vessel). This sample clearly included more than the pollock catcher processor fleet. Since these data were compiled (1993), several companies have ceased operation with their vessels being acquired by others, other companies have tied up some vessels, and in some instances operations and the size of crew have changed. Interviews conducted for the groundfish license limitation analysis SIA collected estimates of company employment from catcher processor operators (IAI 1994). Again, this sample included more than pollock catcher processors, but excluding non-pollock catcher processors from this data to the extent possible, 17 companies operated 28 vessels with approximately 4235 employees, or about 151 employees per vessel (or adjusting for administrative employees, 145 employees actually on an "average" vessel).

Past (1994) interviews indicated that the number of crew aboard pollock catcher processors ranged in size from about 60 to 287, most typically 85 to 140. The number of crew varies by vessel type, fishing seasons, products produced, company philosophies, and other operational considerations. Generally, vessels that produce both surimi and fillets have the largest crew followed by those vessels that are primarily surimi producers. Vessels that produce only fillets usually have fewer crew than surimi vessels. The fish-processing or "factory" crew usually account for the majority of persons on all catcher processors. As Table CP-2 (Crew Composition) indicates, processing jobs account for between 55% and almost 75% of all positions among these example crews.

Table CP-2 Example Crew Composition for Vessels by Length and Product Production Type					
Category	Fillet 200-250'	Surimi 250-300'	Surimi 250-300'	Surimi & Fillets 250-300	Surimi >300'
Captain/Master	1	1	1	1	1
First Mate/Mate	2	1	1	3	2
Chief Engineer	1	1	1	1	1
Asst. Engineer	2	1	2	1	3
Electrician	0	1	1	4	1
Oilers	0	4	1		2
Boatswain	2	1	2	2	2
Deck Hand	2	7	4	2	6
Galley	4	3	5	5	6
Factory Manager	1	1	1	1	1
Factory Engineers	2	2	4	2	4
Foreman/Asst.	2	2	2	2	2
Q.C. Tech.	2	2	2	2	2
Surimi Tech.	0	7	0	8	2
Processors	38	41	66	98	50
TOTAL	59	75	93	132	85
Processor %	64.41%	54.67%	70.97%	74.24%	58.82%
Source: IAI 1994					

Crew positions have differing statuses and receive differential compensation. The wheelhouse (captain, first mate, mate), engineering, deck, and factory manager/foreman are the most highly compensated positions. Factory technicians who can repair the processing machinery are also especially valued, since these machines are a key to the overall ability of a vessel to produce products and thereby generate income. In the past, fish processing crew positions had a lower status. However, there is an emerging preference for stable factory employees and a recognition of their overall contribution to the profitability of vessel operations, especially as seasons shorten and experienced crew seek out options that are favorable to their own employment and financial goals. The overall effect of these circumstances appears to be an increase in competition for experienced workers and an awareness of the value of retaining productive crew.

Table CP-3 Catcher Processor Sector Contribution to Employment, Washington and Other States 1996				
State of Residence	Employment Opportunities	Gross Pay & Benefits	FTE Years of Employment	Pay per FTE Year
Alaska	177	$2,140,853	77.5	$27,623.91
Washington	1958	$52,652,553	1296	$40,626.97
Oregon	109	$2,674,243	69.9	$38,258.13
Idaho	43	$1,214,044	29.9	$40,603.48
Montana	27	$516,623	17.4	$29,690.98
California	257	$4,340,637	136.9	$31,706.63
other	353	$9,052,872	213.6	$42,382.36
TOTAL	2924	$72,591,825	1841.2	$39,426.37
per vessel (15)	195	$4,839,455	123	
AS PERCENTAGES				
Alaska	6%	3%	4%	
Washington	67%	73%	70%	
Oregon	4%	4%	4%	
Idaho	1%	2%	2%	
Montana	1%	1%	1%	
California	9%	6%	7%	
other	12%	12%	12%	
TOTAL	100%	100%	100%	
Source: APA provided information				

Tables CP-3 and CP-4 summarize employment and compensation information obtained from the At-Sea Processors Association for its member firms for 1996 and 1997. The 1996 sample consisted of essentially 11 surimi catcher processors and 4 fillet catcher processors. The 15 vessels represented 38 percent of the fleet (55 percent of surimi CPs and 21 percent of fillet CPs), but 57 percent of total fleet production (63 percent of SCP production, 37 percent of FCP production). The 1997 sample consisted of 14 surimi catcher processors and 9 fillet catcher processors, or 59 percent of the fleet (70 percent of SCPs and 47 percent of FCPs). The 1997 sample represented 78 percent of the sector's total production (81 percent of SCP production and 72 percent of FCP production). This sample thus may under represent smaller firms and smaller fillet catcher processors, but is reasonably representative of the sector as a whole, especially in terms of production.

Table CP-4 Catcher Processor Sector Contribution to Employment, Washington and Other States, 1997				
State of Residence	Employment Opportunities	Gross Pay & Benefits	FTE Years of Employment	Pay per FTE Year
Alaska	366	$4,720,743	196	$24,085.42
Washington	2663	$76,254,686	2180	$34,979.21
Oregon	151	$3,292,628	111	$29,663.32
Idaho	51	$1,658,172	48	$34,545.25
Montana	28	$652,514	20	$32,625.70
California	338	$7,455,701	272	$27,410.67
other	517	$13,979,158	426	$32,814.92
TOTAL	4114	$108,013,602	3253	$33,204.30
per vessel (23)	179	$4,696,244	141	
AS PERCENTAGES				
Alaska	9%	4%	6%	
Washington	65%	71%	67%	
Oregon	4%	3%	3%	
Idaho	1%	2%	1%	
Montana	1%	1%	1%	
California	8%	7%	8%	
other	13%	13%	13%	
TOTAL	100%	100%	100%	
Source: APA provided information				

FTE years per vessel is at best a rough indication of work force, but is a reasonable approximation. With a reduction for administrative (non-vessel) hours (estimated from Tables CP-5 and CP-6), the adjusted FTE approximations for 1996 and 1997 would be 119 and 125 respectively. This is consistent with past statistical data as well as interview information.

The NPFMC Updated Employment Information supplement dated April 17, 1998 also provided a table of residency of employees hired by the APA fleet in 1996 and 1997 for Alaska residents. For

1996, Anchorage was the leading community, with 30 residents, followed by Dillingham with 21, and Togiak with 14. No other community had ten or more employees listed. Manokotak, Shaktoolik, and Stebbins each had 9 employees, and Emmonak had 6 residents listed as employees – no other communities had more than 5 listed. Kotlik and Spenard each had 4 employees. Seven different communities had 3 employees, ten other communities had 2 employees each, and a total of 12 communities were listed as the home of one employee each. For 1997, again Anchorage was the leading community by resident, with 66 residents listed as employees of the APA fleet. Dillingham, Emmonak, Togiak, Kotlik, and Alakanuk had 36, 22, 15, 12, and 10 residents employed respectively. No other community had ten or more employees listed. Manokotak had 8 employees, New Stuyahok and Stebbins each had 7 residents employed, and Bethel and Fairbanks each had 5 employees listed – no other communities had five or more employees listed. Homer, Mountain Village, Napakiak, Palmer, Soldotna, and Shaktoolik each had 4 residents working as employees of the APA fleet. Three different communities had 3 employees, ten different communities had 2 employees each, and a total of 25 communities were listed as the home of one employee each. (An interesting point of contrast to the onshore sector while the APA fleet has no Unalaska/Dutch Harbor residents employed, it is the leading place of residency for onshore workers with 396 and 342 workers in the years 1996 and 1997, respectively. Anchorage also figures prominently in the onshore sector employment place of residency, with 193 and 187 workers employed in the two years respectively.) These data show that Alaska resident hires for the APA fleet went from a total of 159 in 1996 to a total of 298 in 1997.

Table CP-5: Pay and Benefits by Job Category, 1996

Job Category	Employment Opportunities	Employment (FTE Years)			Pay and Benefits ($)		
		Total	Median	Average	Total	Median	FTE Year
Administration	163	120	1.01	0.7362	7487199	33324	62393.325
Fishing	206	157	0.95	0.76214	12677129	58715	80746.04459
Processing	2144	1244	0.56	0.58022	37556059	13858	30189.75804
Engineering	281	218	0.96	0.7758	11132897	28787	51068.33486
Hotel and Galley	130	102	1.04	0.78462	3738541	27740	36652.36275

NOTES:
One full-time equivalent (FTE) year of employment is calculated as 240 eight-hour days (1980 hours).
Table includes 1,417 employment opportunities with job category unknown allocated in proportion to those opportunities with known category.
Source: APA 1998 (Industry-provided data)

Table CP-6: Pay and Benefits by Job Category, 1997							
Job Category	Employment Opportunities	Employment (FTE Years)			Pay and Benefits ($)		
		Total	Median	Average	Total	Median	FTE Year
Administration	390	358	0.94	0.91795	17018555	32425	47537.86313
Fishing	290	314	1.02	1.08276	17894068	50718	56987.47771
Processing	2919	2138	0.59	0.73244	57872709	12890	27068.61974
Engineering	347	294	0.73	0.84726	11034621	15816	37532.72449
Hotel and Galley	168	147	0.78	0.875	4193647	19752	28528.21088

NOTES:
One full-time equivalent (FTE) year of employment is calculated as 240 eight-hour days (1980 hours).
Source: APA 1998 (Industry-provided data)

Data provided by AFTA for an earlier study broke down job categories in somewhat different terms. These data, from 1994, are presented in Table CP-7.

Table CP-7
Salary Range by Position: Seattle Catcher Processor Fleet (1994)

Position	Range (dollars per year)
Processors	24,000 - 35,000
Factory Foreman	96,000 - 128,000
Stewards/Chefs	56,000 - 80,000
Deck Hand	44,000 - 90,000
Mate	55,000 - 117,000
Engineer	>100,000
Captain	100,000 - 200,000

Vessel Operations Crew

Vessel operations positions have a reasonably strict division of labor which may have all or a subset of the following categories: captain, first mate, chief engineer, assistant engineers, mechanics, electricians, boatswain and other deck hands, galley staff, and housekeeping personnel. The "Crew Composition" table lists example crews for vessels of different types and sizes. As this table clearly indicates, regardless of size, the number of wheelhouse positions on most vessels is about the same. The number of engineering staff may vary according to the complexity and size of the engines and other mechanical characteristics of a vessel. The number of deckhands varies according to the size of nets used and the type of groundfishery pursued. Factory engineers are limited to those vessels with fillet or other processing machinery, and surimi technicians are obviously limited to those vessels that produce that product. The number of processors varies by the nature and amount of the on board processing machinery, vessel size, and type of fishery. For example, in the table, the surimi vessel that has 66 processors does not produce a fillet product which is produced by the vessel with 98 processors. Fillets require the flipping and inspection for parasites and bones that is not required in the surimi-only operation, consequently there are more crew on this vessel.

Some vessels have employed a "fishing captain" who was responsible for all fishing activities, but this appears to be a declining practice. A "night captain" or night "fish master" may be used on some vessels. The captain is responsible for operation of the vessel as well as finding and catching fish. The mate acts as the captain's assistant and may perform purser functions, and other on-board management tasks such as dealing with personnel issues. The chief engineer is responsible for maintaining all machinery on-board with the exception of fish processing machinery. The engineering staff may also contain a licensed first and second assistant as well as oilers, wipers, and electricians. "Factory engineers" are responsible for the maintenance of filleting and surimi machinery. They work independently of the chief engineer and usually report to the factory manager. The boatswain and deck hands handle the gear for catching fish. Boatswains usually operate the hydraulic equipment on deck and may also be responsible for overall deck operations and safety. Two or more deck hands will be responsible for deploying and retrieving the trawl nets. Galley staff consists of stewards and cooks, with stewards performing the routine galley work and the cooks or chefs having responsibility for meal preparation. Some vessels also have housekeeping staff who wash clothes for crew and otherwise attend to the cleanliness of the vessel.

Factory Operations Crew

Factory operations crew are responsible for the processing of fish. They are usually the most numerous category of crew on board catcher processors. The factory crew is composed of management and processing staff. A factory manager and factory foreman perform the on-board management functions for fish processing. The factory manager has responsibility for the overall operation of the factory, while the factory-foreman is responsible for the supervision of staff engaged in fish processing. The composition of fish-processing factory staff varies according to the products produced.

On surimi and fillet vessels there are fish sorters as well as machine operators, usually one feeding fish into a machine and one to two others who ensure the fish feed through and emerge from the machinery. In fillet operations there may be inspectors and "flippers" as previously described. A "scooper" layers the fillets into trays and puts these into a basket. Packers then pack the baskets into pans which are loaded into freezers by "loaders." Surimi machinery is usually operated by specialized "technicians." One to several quality control personnel perform special tests on surimi to ensure product composition and quality. Quality control staff may report directly to the factory manager or sometimes the factory foreman. Factory engineers are responsible for the machinery in the factory, including the filleting and surimi machinery. The technicians who operate this filleting machinery are among the most highly skilled and well-compensated staff in the factory. One to four or more such technicians and two regular mechanics may be in the factory.

Crew Demography, Recruitment, and Compensation

The demographic composition of the catcher processor fleet can only be accurately described with survey or other census data. Our discussion will be based primarily upon aggregated information obtained from APA (summarized in Tables CP-3 though CP-6 above, nature of the sample also discussed above), combined with information from interviews with human resources personnel, managers, and owners about the overall demographic trends of this fleet[6].

Crew members are hired primarily from communities in the western United States and, according to the companies, increasingly include individuals displaced from the logging industry in Washington, Oregon, and California. In terms of the APA sample, Washington residents far outnumbered all other employees, filling 67 percent of job opportunities, 70 percent of FTE years of employment, and receiving 73 percent of the total gross pay and benefits. For 1997 these percentages (and the pattern) were similar at 65, 67, and 71 respectively. For 1996, Alaskan residents occupied only 6 percent of the sample catcher processor employment opportunities, 4 percent of the total FTE years of employment, and received 3 percent of gross pay and benefits. Figures for 1997 are similar, though higher, at 9 percent, 6 percent, and 4 percent respectively. Note that these figures would indicate that Washington residents tend to work for longer periods of time than do Alaskan residents (Washington FTEs are higher than job opportunities, whereas it is the reverse for Alaskan residents), and pay per FTE year is highest for Washington residents and lowest for Alaskan residents for both years.

Interview information indicates that males represent about 75-90% of the crew and the most common ages are between 20 and 35, although there is a trend toward older employees. Some companies have as high as 25% females whereas others have less than 5%. About 60-70% are single and in the aggregate whites outnumber most other ethnic groups. On some, but not all, vessels

[6]The draft of this SIA used descriptive employment information from a sector profile produced in 1994 for the analysis of the potential effects of license limitation in the Bering Sea groundfish and crab fisheries. This information was quite divergent from that obtained from APA in 1998 for the pollock catcher processor fleet. The probable reasons for this are various. First, the "catcher processor sector" was defined much more broadly in 1994 than for I/O-3, including all groundfish trawl catcher processors in the Bering Sea and Gulf of Alaska, rather than just those for Pollock in the Bering Sea. Thus more smaller, potentially Alaska-based (and cod-oriented) vessels were included in the 1994 sector definition. Expressed in a different way, the I/O-3 sector definition is a subset of that used in the 1994 analysis, and includes only the larger and most "Seattle-oriented" vessels in that sample. Second, the 1994 information was obtained through field interviews with human resource specialists, managers, or owners of industry entities who were asked for their best estimates of the residential composition of their work forces. As such, these estimates would be "body counts" with no measure of service length or compensation attached to them (and thus tend to over represent Alaskan residents, who tend to work for shorter periods of time than do non-Alaskan residents). Thus there is no way to compare the 1994 employment information to FTE or other standardized employment measures. Third, the 1998 data encompass only APA members, so their may be some different sampling issues arising out of member and non-member firms, however, it is clear that the 1998 APA provided data is the best available data for use for the task at hand.

Asians, Pacific Islanders, Hispanics, and African-Americans dominate the processor jobs. On those vessels with strong minority representation among processors, there is an increasing trend for Hispanics to be employed in these positions.

Most of the crew are recruited by consulting with connections within the industry or other word-of-mouth means. There is some limited advertising for processing positions among the larger companies in the fleet. There are also placement agencies that specialize in marine employment and some of the deckhand, engineer, and other wheelhouse positions may be hired from such sources. In the past, processing crew were acquired by various means, including gathering labor from any available source, but that practice has waned. CDQ group residents have become an increasingly important source of employees (discussed briefly in a separate section below) and other recruiting in Alaska has increased. Job fairs are conducted in conjunction with NPFMC and other fishing-related meetings, and at least one catcher processing company has an Anchorage employment office.

In general, captains, chief engineers and other management level personnel are hired directly by the vessel owners. The captains are responsible for hiring deck hands and other key on-board personnel. Factory managers or supervisors usually hire the factory foremen and the processing staff are hired by the shore-based personnel office of the ownership or management companies. Interview data collected for this study indicate that hires from walk-ins to the company offices are not uncommon among individuals seeking processing or deck hand positions, but a referral from an existing employee is a decided advantage in securing a position. Family connections account for some hiring. There is a tendency to seek balance in the hiring of family members and friends among processing crew while at the same time building a crew based on recommendations and reputation within the industry.

In the recent past the turnover rates among crew has ranged from about 20% to 60% per year, with the processing crew accounting for the majority of turnover. There are indications that the average turnover rate is closer to the lower end of this range than the upper end, although on smaller vessels with fewer crew, higher turnover rates have occurred. It was not uncommon for some turnover to occur from trip-to-trip, but once processing crew made it past one trip, they more often than not repeat as crew for several trips or longer. In general, turnover among deckhands and wheelhouse crew appears to be much less than the crew overall. These tend to be more stable positions, especially among the wheelhouse crew of chief engineer, captain, and factory managers/supervisors. It also appears that some of the companies that have been engaged in this fishery have a relatively stable core of key crew. For example, one such company representative noted, 'More than fifty percent of our crew has been with us over seven years and all of the officers have been with us since we started fishing.' Although a survey of such crew would be required to demonstrate this as a trend, informants from several of the larger companies in the fleet noted a tendency for lower turnover among wheelhouse crew. Several smaller companies claimed little or no overall turnover.

With progressively shorter fishing seasons, two seemingly contradictory points of view about turnover were expressed. One point of view is that crew desire to maintain their positions in order to receive the income they expect. In the recent past, a crew might stay on a vessel only for the profitable pollock "A" season and not fish the less profitable "B" season. They would usually be able to find a crew position on the same or another vessel for the next pollock "A" season. Now, there is a tendency to perceive that holding on to their current positions is necessary in order to maintain income levels and future income potential. The second and apparently contrasting point of view is expressed by vessel owners who observed that with shorter seasons, crew are seeking positions in which there is more of an income potential. As vessels spend less and less time fishing, crew seek other options for income, and if these options are found before another trip, then turnover increases.

Most crew sign-on a trip-by-trip basis. The vessel income for each fishing trip is the basis for compensation. There is no one universal method of compensating crew within the catcher processor fleet, but most methods are based on the idea of crew shares per trip. Some companies use a percentage of the net or gross value of the catch that is allocated as shares among the crew. Other companies allocate a percentage of the gross or net value of the catch (in the range of 25-30%) for the crew and then each person is allocated a percentage depending upon position and longevity. Some companies pay their crew based on a per case of product basis. In some instances, key positions such as captains and chief engineers are guaranteed a salary that represents the bottom of the range of what they can get paid. Other companies also offer minimum daily guarantees for all crew. However, regardless of the details of the compensation approaches, they are based on the idea that participants in the fishing trip share in its rewards or failures.

The career path and length of time in the industry is variable by position. Captains, mates, and engineers are licensed positions and these persons are usually career-oriented with a history in the industry. Boatswain and deckhand positions require specialized knowledge to conduct the fishing operations on these vessels, and consequently they tend to be filled by persons with deck experience rather than completely unskilled and inexperienced workers. There are some deckhands who move in and out of the industry looking for short term employment, but the trend seems more towards those whose steady work is life on deck. Some of these individuals aspire to wheelhouse positions, and see their time on deck as a rung on the ladder to these positions. These aspirations are founded in the examples of owners and captains who have been life-long fishermen that have worked their way up from deckhand to wheelhouse and then to the owners' office. There is also sentiment that deckhand positions are not usually life-long jobs. Processing jobs have a limited career path since there are relatively few factory foreman and factory manager jobs available. Yet, the level of compensation for some individuals with modest educations results in an increasing tendency for longer-term processing crew throughout the industry. On some vessels there are "combi" positions in which the person works both in the factory as well as on deck. These are more desirable jobs since they offer an opportunity for diversity in work as well as more career path options. Increasingly, there is a tendency for a more "professional" crew in all positions within the catcher processor fleet.

The interview data also indicate that personnel in this industry generally do not have employment other than their work on catcher processors. Crew schedules are usually either one or two months on and one or two months off. "Off" time is recreational or family time. Indeed, one of the incentives and values of working in the catcher processor fleet is the time off between fishing trips. According to interview data, this time off is a meaningful part of the motivation to work in this industry. As one informant noted, "There are three important questions you need to ask when you are looking for a job. One is how much money will I make? what do you fish for?, and how much town time do I get?" The level of the compensation within the industry has allowed "town time" to be used for recreational activities, being with family members, or otherwise engaging in non-work activities. There is some information to suggest that shore time is used to work other jobs. For example, one deckhand noted that he has his own fishing boat in Oregon and when he is not fishing in the catcher processor fleet, he fishes for himself. The extent of alternative employment industry-wide could not be ascertained from the interview data collected for this study. However, informants indicate that time off is highly valued among crew within this fleet as a necessary break in routine from the stress and hard work while at sea. It also appears that the catcher processor work force is relatively geographically dispersed (when away from the work site) and with rather general skills that would certainly be transferable to other fish processing operations, and a more generally to a number of other industrial contexts.

2.2.3 Overview of General Operations

The seasonal round of SCPs is different from that of FCPs, primarily due to the product specialization of the former. While our collection of information on other fisheries which Bering Sea pollock operation participated in (and depended on) was necessarily very limited, it was clear that many if not most surimi catcher processors produced primarily surimi, and are confined at present to pollock and whiting as potential sources of raw material. Thus the Bering Sea pollock fishery and the west coast whiting fishery represent their potential scope of operations, and both fisheries require licenses based on past participation. FCPs, on the other hand, have more options in terms of potential alternative or supplemental species to pollock, but do have some operational constraints (economic scale, bycatch issues). Tables *5a and *5b demonstrate these points, but also indicate that FCPs have also become more dependent upon the pollock fishery.

There has been an increased tendency for catcher processors to take at-sea delivery of pollock (and cod, although again this was not a focus of investigation) from catcher vessels. Information on such at-sea deliveries is not available at the individual vessel level at present, but is for sectors (and subsectors) as a whole for 1996. Such at-sea deliveries to catcher processors are assumed to have been minimal in 1991. Information for 1994 was not developed for this document. For 1996, 9.8 percent of total catcher processor production was from fish purchased from catcher vessels. By subsector, the numbers are about 10 percent for FCPs and 9.75 percent for SCPs (based on electronic data provided by the NPFMC). During our interviews, those catcher processor operators who used catcher vessels as a regular part of their operations tended to estimate that they obtained approximately 10 percent, or a little more, of their pollock in this way (and a greater percentage of their cod).

Reasons for a catcher processor to use a CV to supplement its own harvesting operations are fairly easy to understand. Maximum catcher processor processing capability tends to exceed maximum catcher processor harvesting capability during "average" conditions, and especially during the "B" season when fish tend to be more dispersed. In the race for fish, the marginal costs of purchasing fish to maximize return from the factory plant has appeared to be a good investment. Not all catcher processors use Catcher vessels, but most seem to. Catcher vessels also can "scout" for fish for the catcher processor, and serve other support needs (running parts and people to and from port, for instance) so that the catcher processor can maximize the time it spends on the fishing grounds. The scale of the total fishing operations influences the perceived need to use a CV to aid catcher processor operations. The largest company, with 18 vessels (15 in American waters), owns one CV and contracts with several others, but does not maintain a 1:1 ratio of supplemental CV to catcher processor, as do most smaller companies which use supplemental delivery catcher vessels. They rationalize this by the large part of the sector harvest capacity which their catcher processors represent. Of the fish caught be a supplemental CV, about 40 to 50 percent represents fish that one of their catcher processors would have harvested in any event. Thus the added benefit of the CV's fish to their overall operations is less than for operators with fewer catcher processors. Other catcher processor operators do own catcher vessels, but few or none seem to have acquired these catcher vessels with the intent to use them in conjunction with catcher processor operations. No catcher processor operators expressed a desire or need to acquire CV ownership for this purpose.

Community Development Quota (CDQ) pollock are quite important for catcher processor operations in at least two respects. First, as Table Int-12 indicates, they represent 11 percent of that sector's total catch (16 percent for FCPs, 10 percent for SCPs). Secondly, CDQ pollock allow those operations which possess them to "fire up" their plants prior to the open access fishery and thus ensure that they are operating at maximum efficiency when the open access fishery starts. This was cited in our interviews as a competitive advantage both by those who had CDQ contracts and those who did not. The CDQ quota also allows operations owning such rights to time the harvest of at least that portion of their production at a time when they judge the quality of the resource to be highest, in a manner that allows them to extract the most value from it. As opposed to their practice in the 1996 open access pollock fishery, catcher processors used catcher vessels to harvest CDQ pollock only to a very limited extent. We did not collect information on the pattern of use of catcher vessels by catcher processors in the 1997 and 1998 pollock CDQ fisheries in our interviews.

Most catcher processors operate primarily as independent operations, or in conjunction with one other vessel that is part of the same company. Only two companies operate more than two catcher processors, but one of these represents nearly half of the sector's capacity. This company does explicitly manage its fleet so as to maximize the return to the company, rather than to its individual vessels. For instance, at present it has three vessels in Russian waters, even though they have permits for the American fishery (but they are managed under a separate corporate entity, although the owners are the same). This mode of operation has the potential to raise problems with crew retention, who are paid a crew share based on the performance of the individual boat on which they work. This was not raised as an explicit issue, other than to admit that this was a possibility and that the company did attempt to provide opportunities for all of its employees to earn a reasonable living.

In conjunction with this to some extent, fillet catcher processor operators especially are trying to develop additional fisheries in which they can participate. These opportunities are of course limited, especially in relation to the catcher processor capacity available, but the two main potential areas discussed were salmon and cod. Neither has been very lucrative in the past, but both could provide additional fishing time for the catcher processor and crew, as well as provide opportunities for catcher vessels to develop markets with catcher processors. We were not able to develop this topic to any great extent, but several catcher processor companies also linked these potential developments to their participation in CDQ partnerships.

One point consistently stressed about the catcher processor sector was the past instability, as evidenced by the exit of vessels from the sector and especially by the consolidation of the sector into a smaller number of companies. While the sector is relatively stable at present, in comparison to the recent past, the continued possibility of a pollock allocation shift continues to affect the financial operations of catcher processor companies. Loans for competitive upgrades or other acquisitions are difficult if not impossible to obtain. One operating officer/owner stated that he had to pledge his personal credit to obtain such a loan. Surimi catcher processors especially have experienced a decline in the amount of pollock they process, both in absolute terms as well as in terms of a percentage of the total pollock harvest. A reduction in the quota to which they have access, given the past history of change in the sector, may well result in further sector consolidation. The Stevens bill is another source of concern and reason for continued instability in the sector, but cannot be addressed here.

One alternative that does not formally reduce pollock allocations, but would affect the "quota pool" to which catcher processors have access, is the idea to split motherships apart from catcher processors, either as a separate category or as part of the onshore sector. The net result of this on catcher processors is not obvious. Motherships have apparently maintained their harvest share in relationship to catcher processors (and perhaps increased it, depending on the fishing conditions of any given year), so such a split would appear to be neutral or slightly positive for the catcher processor sector as a whole. The primary concern on the catcher processor side was that if motherships were split off that they not be allocated a quota larger than their historical share.

2.3 BERING SEA POLLOCK MOTHERSHIPS

This section profiles the groundfish mothership operations currently active (in 1996 as the baseline year, but in 1998 as well) in the Bering Sea pollock fishery. This profile is constructed from aggregated data from the NPFMC about motherships, as well as vessel-specific information and comments from sector participants gathered during face-to-face individual interviews. Interviews were conducted, wherever possible, with a combination of company owners or other key administrators, vessel operators, and personnel administrators. Our sample includes all groundfish mothership operations currently active in the North Pacific groundfishery. As for other sector profiles, this description is a composite of information derived from individual economic entities; it is not a intended as a profile of individual entities, nor a profile of a hypothetical "normative" operation.

2.3.1 Overview

A mothership is a relatively large vessel that does not fish itself, but rather acts as a mobile processor. The inshore/offshore definition of "true mothership" for Bering Sea pollock is "a vessel that has processed, but never caught, pollock in a 'pollock target' fishery in the BSAI EEZ" (NPFMC Newsletter, 10/08/97). Motherships buy fish or crab from a fleet of catcher vessels (CVs). The ownership or contractual relationship of these catcher vessels to the mothership varies. catcher vessels may be owned by the mothership corporation, independent, or be members of a cooperative which itself owns the mothership. catcher vessels may have formal or informal contracts with the mothership. Groundfish motherships in the North Pacific range from 280 feet to 635 feet in length. Groundfish motherships are equipped to operate in relatively heavy seas, but depend on relatively small catcher vessels to fish for them, and so are only productive during "small boat" fishing weather. The catcher vessels off-load their catch to the mothership for processing, and the mothership, in turn, offloads the finished product to "trampers" (cargo vessels) for transport to foreign or domestic markets. At times, especially at the end of a season, the mothership itself may make a delivery of product rather than transfer product to another vessel for shipment.

All three Bering Sea pollock motherships have been fishery participants since JV days in one form or another. All have operated in essentially their present forms since at least 1991, and are owned and operated out of Seattle. All produce surimi as a primary product, as well as pollock roe and fish meal. In 1994, two of these vessels could produce 100 tons of surimi a day, and the other 200 tons. None have experienced much success with cod fillets in the past, and only one operation expressed any possible interest in fillet product in the future. All are highly specialized in terms of making, and marketing, surimi.

Motherships are currently part of the "offshore" sector in terms of inshore/offshore allocation regulations. Although they currently process less pollock than they did in 1991 and express concerns about their ability to compete with catcher-processors (CPs), they have apparently been able to do so at least in the recent past. In 1994, both motherships and catcher processors processed 79 percent of the Bering Sea pollock that they had in 1991. In 1996, catcher processors processed only 66 percent of what they had in 1991, while motherships processed 86 percent of their 1991 total. One factor mentioned by both catcher processor and mothership operators is that mothership catcher vessels can fish within the CVOA, whereas catcher processors cannot during B Season. Also commonly mentioned was the relatively good fishing weather in the past several years (bad weather would tend to penalize the harvesting ability of the catcher vessels delivering to the motherships, while catcher processors could still fish effectively). One mothership participates in a CDQ partnership, but so do five catcher processor operations. There is no doubt that CDQ participation is a competitive advantage for any one operation over another, but is not necessarily a determining factor for success within or between sector operations (catcher processor, mothership).

Dependency Tables Int-8 and Int-9 above indicate that motherships are heavily dependent on pollock, as would be expected from the characteristics of mothership operations displayed in Table MOTH-1. Hake, or Pacific whiting, is the other significant species and, even though it accounts for much less of mothership volume and cash flow than pollock, it is still quite significant. While the catcher vessels delivering to motherships all have long histories in the Bering Sea pollock fishery, each mothership catcher vessel fleet is also designed to ensure access to the hake fishery. The hake fishery is limited entry, so that the mothership catcher vessels must have the required permits. In addition, there is a tribal hake fishery, and one of the motherships gains access to this fishery through two vessels which are owned and operated by tribal members.

Table MOTH-1
Mothership Sector Vessel Characteristics

Vessel	Length	CVs			Species used	Employment[a]		
		Owned	Independent			Mothership	Office	CVs
			Alaska	Pacific NW				
A	280	2	2	1	pollock hake	77-120	5	25-32
B	367	0	1	5	pollock hake	100-140	9	30-38
C	635	0	0	8[b]	pollock hake	190-221	11	40-50

Products -- all entities produce surimi, pollock roe, and fishmeal. Fillets have been attempted in the past by various operations with various species, but to all intents and purposes all are now specialized surimi and roe operations.

[a]Estimates by mothership managers.
[b]Seven vessels are members of a cooperative owning the mothership, one is independent.
Source: IAI 1994; 1998 interviews

2.3.2 Personnel and Employment

Detailed characteristics of mothership employees were not available. Rough estimates from interviews with individual mothership managers are included in Table MOTH-1 above. More systematic information aggregated for the three motherships, compiled by the industry, was provided to the researchers and the NPFMC following the April, 1998 meetings as requested by the researchers. Unfortunately, it was not possible in the time between receipt of these figures and the release of the public review draft to ensure that these data were compiled in a means methodologically consistent with the employment data for other sectors. That is, these data were not audited (as in the case of the catcher processor employment data), nor aggregated from individual entity data by the researchers or derived from a governmental database (as was the case for the other sectors portrayed in this document). This being the case, it was decided not to include these figures in this document. The numbers that industry provided were consistent with those in Table MOTH-1 and, based on a knowledge of the sector itself, are without a doubt more accurate. Given the interpretive restrictions that result from the methodology of their compilation, however, these figures are not included in the main body of this document, though it is the understanding of the researchers that they will be available to the interested reader of this document in the public comment section. The composition of the work force in terms of state of residence was not available.

Mothership employees are reported to come form "all over" and, other than for the CDQ participant, no special attempts were reported by any of the operations to specifically recruit Alaskans as a target or goal (although some recruiting has taken place in Alaska). Even the CDQ participant operation indicates that most of its employees are non-Alaskans, again due to lack of turnover and its long history of participation in the fishery, based out of Seattle.

Overall turnover was reported to be low, and job satisfaction high. The one mothership which participates in a CDQ partnership reserves 20 entry level positions for CDQ community residents, and has no trouble filling them. The rate of return to these positions is not yet clear, since this is a fairly new undertaking, but experienced workers do seem to return for later trips. In addition, some of these experienced workers have advanced to other positions, "freeing" an entry level position for another CDQ community resident. This CDQ group also places members with the other motherships, some catcher processors, and even with shore plants (although relatively few, and relatively unsuccessfully -- see brief CDQ discussion below). Of note here is that the CDQ group must place these people elsewhere because turnover on their partner's mothership is so low that positions for them do not exist on that vessel. Since they prefer work, reportedly, on motherships, this could be indirect measure that turnover on other motherships is relatively low as well.

2.3.3 Mothership Operations and Sector Dynamics

Mothership operations have perhaps been the most stable of the Bering Sea pollock fishery sectors since 1991, although this may be partially an artifact of the three years used for the time series data. The number of operations for these three years (but not necessarily the years in between) has remained the same, processing approximately the same (or somewhat higher) percentage of the overall pollock harvest, although there has been a decrease in the absolute value of the poundage of pollock processed annually. The number of catcher vessels delivering to the motherships is approximately the same as in 1991. A substantial number of the catcher vessels themselves are the same, although some operations have had more changes in that respect than others. Mothership catcher vessel operations are in some ways highly variable by operation, and in others are similar. For the most part these operations are discussed in the catcher vessel sector description.

Mothership operations could be affected by the proposed actions in two ways -- by a change in the size of the pollock allocation for which they fish, or by a change in their classification as "offshore" operations. The effects of the first are fairly simple to evaluate. Motherships currently process about 10 percent of the total Bering Sea pollock harvest. Any shift of TAC allocation away from motherships that would provide a significant positive benefit to some other sector could be fatal for one or more mothership operations. As they currently operate, all of the motherships claim that they are essentially breaking even. Catcher vessels are apparently providing an adequate income for their owners, skippers, and crews -- but this is an expense for the processing mothership. One of the motherships is partially vertically integrated with its catcher vessels, but has no plans to increase the extent of this vertical integration. One mothership demonstrates a "negative vertical integration" in that the catcher vessel owners are shareholders in a cooperative that owns the mothership, a reverse of the type of vertical integration pattern seen between processing and catcher vessel entities for shoreplants.

At present, motherships share a Bering Sea pollock allocation with catcher processors as part of the offshore sector. Since the implementation of inshore/offshore, motherships as a 'subsector' have been able to compete with catcher processors and in essence maintain "their share" of the pollock resource. If motherships were to remain a component of the offshore sector, with a reduced allocation, it would be expected that motherships would continue to compete with catcher processors and thus would experience about 15 percent of whatever the overall offshore allocation decrease was (catcher processors experiencing the other 85 percent -- in the event of an allocation shift to offshore, motherships would experience about 15 percent of the gain). Thus a shift of 5 percent of the pollock TAC away from the offshore sector would represent a change for motherships from 10 percent of the TAC to 9.25 percent of the TAC, and a potential loss of 7.5 percent of its pollock gross revenues, which is its main revenue stream. Catcher vessels may be able to absorb the "lost" deliveries that this would represent, in terms of lower vessel earnings, but the mothership may not be able to do so.

Motherships operators have also expressed a fear that, if push came to shove, or if weather and fishing conditions do not continue to be as favorable as in the past, that they may not be able to continue to compete successfully with the catcher processor sector. Motherships cannot increase their level of effort. That is one reason the mothership sector has been relatively stable. Their factories are limited by the space they have available, and the number of catcher vessels they take deliveries from is limited by their factories. Mothership operators also point out that, while they share some of the operating characteristics of catcher processors, their overall mode of operation is closer to that of shore plants. They are mobile, like catcher processors, but must buy all their fish from catcher vessels who deliver to them, like shore plants. Further, in bad fishing weather or in years when the fish are found only in deeper waters, motherships are at a disadvantage in relation to catcher processors. The relatively small catcher vessels which deliver to motherships cannot fish in the sort of rough weather that catcher processors can, and are not as effective fishing deeper waters. One operator worried that one season of bad weather could wipe the mothership sector out. Thus, the alternatives that mothership operators tended to talk about the most were those which moved their operations to the inshore sector (along with a quota allocation that represented at least their historical pollock share, using the same logic as above) or the establishment of a separate mothership category with its own quota allocation (again representing at least its historical pollock share).

Mothership operators think that they would be able to adequately compete with shore plants, if they were made part of the inshore sector and were thus fishing on the same quota. Mothership operators believe that they share the same sort of cost structure as a shore plant, and their delivery fleets operate in much the same way. Most mothership operators initially expressed no strong preferences for a separate mothership sector or for motherships to be part of the inshore sector, but most eventually expressed a somewhat stronger preference for a separate mothership sector. This seemed to be based not only on the differential effects that the two alternatives would potentially have on mothership operations themselves, but also on their potential differential effects on other sectors, due to motherships possessing different operating characteristics form both catcher processors and shore plants. As part of the inshore sector, motherships would of course share in any gain (or loss) of quota share by that sector, and felt confident that they could compete with shore plants. They felt that to prevent any future conflicts due to perceived shifts in percentages of total pollock harvested due to different operational structures that they should be split apart from both catcher processors and shore plants. As a separate sector they would be guaranteed a certain total amount of pollock and could potentially establish some sort of cooperative on the model of the Pacific whiting fishery, although they admit the conditions are not quite the same because of the number of catcher vessels involved.

The one concern that was most commonly expressed was that if motherships were moved from the offshore sector, either to the inshore sector or their own category, then some provision would need to be made to protect existing motherships from new entrants. They pointed out that all other operators in the fishery were protected by a moratorium and limited entry, but that at present any catcher processor can declare itself a mothership. As long as catcher processors and motherships are fishing on the same quota there has been little incentive to do this. If motherships obtain their own quota, or are placed with shore plants, there may be some incentive for some catcher processors to "switch" sectors and try to operate as motherships. Thus, mothership operators would want a fairly rigid definition of mothership -- not so much to preclude other mothership operations entering the fishery, so much as to close the "loophole" which allows catcher processors a flexibility that no other operator in the fishery possesses. This was also perceived as a potential problem, perhaps even a more severe problem, if motherships were recategorized as "inshore" along with catcher processors. This would potentially open up a larger "slice of quota" to attract additional mothership operators.

Perhaps because of the apparent stability of the mothership sector since 1991, there appears to be little objection to the establishment of a separate mothership sector, at least as a hypothetical construct, as long as the quota assigned to such a category did not come at the expense of some other sector. That is, the quota assigned should reflect the "historical percentage" of the Bering Sea pollock fishery processed by motherships. Since that is the minimum that mothership operators would want, and the maximum that other sector participants are likely to allow, the only remaining question would be on how to determine the proper percentage. Most people seemed to agree on an approximate value of 10 percent (reflecting the 1996 season).

Potential effects of any proposed changes (both positive and negative) upon mothership operations are most likely to be expressed in Seattle, where these operations are based. The full extent of these effects would be difficult to predict. The effects on the operation as a whole would be to shorten the period of processing by various amounts of time, up to an extreme case where the operation would cease to operate altogether. Because of the competitive nature of the fishery, it is assumed that motherships will continue to operate at full capacity, as long as they continue to operate at all. That is, a mothership would not reduce its labor force and catcher fleet to scale down operations if its access to pollock quota were restricted -- it would essentially experience a shortened season. Bering Sea pollock would still be an Olympic system. Thus, a mothership's labor force would be faced with reduced earning potential, but approximately the same number of people would be employed. If the worst were to happen and a mothership were to cease to operate, it does not appear likely that it would return to the fishery with new operators. In this case, some people would be at least temporarily displaced. While motherships reportedly have fairly stable labor forces, the skills this labor force possesses would make it reasonably possible for them to find alternative employment in the fishing industry, should they so choose. Because of the close coordination of one of the motherships with its pollock CDQ partner, any changes in this mothership's operations would also likely affect its CDQ partner, at least in the short term. However, the CDQ arrangement is renegotiated or rebid every three years, and new partnerships can be formed.

2.4 BERING SEA POLLOCK CATCHER VESSELS

While catcher vessels (CVs) are not an Inshore/Offshore sector in the allocative sense, they are an industry sector which will be potentially substantially affected by whatever decision is made for I/O-3. Some CVs, as noted in previous sections, are owned and/or controlled by other inshore or offshore processing related entities, and some are independent operations. In terms of deliveries, some catcher vessels deliver offshore exclusively, some deliver onshore exclusively, and some deliver to both[7] primary sectors. This section will deal, at least in general terms, with vessels in all three 'subsector' categories.

2.4.1 Overview

As for other sectors, the previous sector description document (IAI 1994) was much broader in its discussion than this section will be. That document dealt with 155 trawl and an additional number of miscellaneous vessels participating in fisheries in 1992, as opposed to the 83 (in 1991) to 117 (in 1996) catcher vessels which reported some harvest of Bering Sea pollock. For I/O-3, information was collected and analyzed in terms of three length categories -- less than 125 feet, 125 feet to 155 feet, and greater than 155 feet.

Four trawl categories were used for the 1994 work, but the pollock catcher vessels to be discussed here fell into three of them. TH1 was the code used in 1994 to indicate trawlers greater than 125 feet that may also use pots. They are primarily midwater trawlers with large auxiliary engines, generally with the capability to deliver both onshore and offshore. Owners are typically not Alaskan, vessels require 100 percent observer coverage, and most have three licensed officers on board. This 1994 category is a combination of the I/O-3 two larger size categories. TH2 was the code used in 1994 to indicate trawlers between 90 and 125 feet that may also use pots. They are primarily midwater trawlers with large auxiliary engines, but generally do not have the capacity to deliver large amounts of fish onshore. Owners are typically not Alaskan and vessels require 30 percent observer coverage. This 1994 category consists of the larger vessels in the smallest I/O-3 size category. TH3 was the code used in 1994 to indicate trawlers between 58 and 90 feet that may also fish with longline gear and/or pots. They are more likely to use bottom trawl gear than mid-water trawl gear since they generally lack large auxiliary engines. Ownership is concentrated in Alaska (Kodiak) and the Pacific Northwest. This 1994 category consists of the smaller vessels in the smallest I/O-3 size category.

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[7] As noted in the introductory section, the category of catcher vessels that deliver to 'both' inshore and offshore sectors is an analytic construct. At the time of the production of the draft of this document, data were not available to 'filter' the delivery volume data to determine, among the vessels that reported both inshore and offshore deliveries, whether they were 'primarily inshore' or 'primarily offshore' or nearly even in their delivery volumes. This issue arose during the AP session of the April 1998 NPFMC meetings, but the data could not be recast and rerun prior to the release of this document.

The length categories of interest for IO-3 thus crosscut those used for the 1994 document, but our discussion will be able to use both to a degree. Table CV-1 presents size class information on Bering Sea pollock catcher vessels for 1991, 1994, and 1996 by both sets of size categories. Most catcher vessels harvesting Bering Sea pollock fishery from 1991-1996 fell into the 1994 "TH2" category, with significant numbers of vessels (20 to 33) 90 feet or less in length (almost all between 72 and 90 feet) and about an equal number (20 to 28) 125 feet long or longer.

Another potential area of interest for us was to determine if the inshore/offshore processing categorization was paralleled in the harvesting (catcher vessel) sector. This area of inquiry was initially examined through the harvest data files provided to us for analytical purposes through the NPFMC, with Table Int-5 as one summary result (from which the catcher vessel component is reproduced below as Table CV-2). The information available for analysis had certain limitations. The most notable was that the amount of pollock which catcher vessels harvested and delivered offshore (to motherships or other entities) is not readily available (although NPFMC staff provided us with a total sector estimate for 1996, displayed as a component of Table Int-10). Thus, we were able to determine which catcher vessels delivered pollock offshore, but not how much pollock. Such information on the vessel level is confidential in any event, although we were able to use better estimates of onshore delivery to form a rough "ranking" of catcher vessels in terms of weight of onshore delivery of pollock. As could be expected, this was related to such power/capacity factors as overall size, horsepower, and hold capacity. In any event, the incomparability of the quantitative catch information available for catcher vessels forced us to count any vessel which delivered any amount of Bering Sea pollock as a Bering Sea catcher vessel. Thus some vessels which seldom, if ever, actually target pollock may be included.

Table CV-1
Length of Catcher Vessels Reporting Harvest of Bering Sea Pollock--1991, 1994, 1996
By Size Category (License Limitation 1994, Inshore/Offshore 1998)

	Size Category			
I/O-3 Category	S		M	L
1994 SIA Category	TH3	TH2	TH1	
Length (feet)	<91	91-124	125-155	>155
YEAR				
1991	21	42	15	5
1994	20	44	17	11
1996	32	57	20	8

Source: IAI 1994; electronic data file provided by NPFMC

Table CV-2
Numbers of Catcher Vessels Participating in the Bering Sea Pollock Fishery, Categorized in Terms of Inshore/Offshore Activity, for 1991, 1994, and 1996

Catcher Vessel delivering	Year					
	1991		1994		1996	
Inshore Only	64		58		76	
Offshore Only	16	83	16	92	24	117
Both	3		18		17	

Source: NPFMC-supplied data files. These files required manipulation to prevent double-counting of vessels. Any vessel which harvested any amount of Bering Sea pollock was counted. This may have "inflated" their numbers somewhat. In some cases information was lacking to adequately identify a harvest data record with a vessel, so that a slight undercount is also a possibility.

Examining the catcher vessel numbers from year to year, there are several striking changes of note. The number of catcher vessels reporting the harvest of Bering Sea pollock has increased steadily, growing by 11 percent from 1991 to 1994, and by 27 percent from 1994 to 1996. Catcher vessels delivering only to onshore processors numbered 64 in 1991, declined to 58 in 1994, and increased to 76 in 1996. Catcher vessels delivering to offshore processors numbered 19 in 1991, increased to 34 in 1994, and increased further to 41 in 1996. For 1991, 3 of these "offshore catcher vessels" also delivered pollock to onshore processors, increasing to 18 vessels in 1994 and 17 vessels in 1996.

The number of "offshore catcher vessels" in 1991 matches the number reported to deliver to the three mothership operations fairly well (i.e., the number of catcher vessels delivering to other vessels in the offshore sector -- the catcher processors -- would be very small). The three catcher vessels that delivered to both offshore and onshore processors were not documented, but may have made only incidental deliveries to one sector or the other. This is the likely explanation for the change in numbers from 1991 to 1994. Vessels delivering only to onshore processors actually declined, while those delivering to both sectors increased greatly, while dedicated offshore catcher vessels remained at their 1991 levels. This suggests that both catcher processors and catcher vessels were experimenting with offshore delivery in 1994 -- catcher vessels making a supplemental delivery to a catcher processor when their onshore delivery schedules permitted, and catcher processors taking an occasional delivery to maximize their factory throughput. Mothership catcher vessels were more likely than not to deliver pollock only to their offshore processor (especially if the mothership had another fishery in which to utilize the catcher vessels after the pollock season). Other catcher vessels may have fished primarily for catcher processors. Several catcher vessel operators suggested that some of this pattern resulted from the simple fact that in 1991 there was no inshore/offshore split and that all vessels fished the same open access season, whereas in 1994 the offshore season closed earlier than the onshore season. Thus those catcher vessels which had been delivering to offshore processors (and especially catcher processors) could also develop a "windfall" onshore market during the period after offshore had closed and onshore was still open. Thus, it is likely that in 1994 the apparent increase in offshore delivery by catcher vessels was a combination of the growing interest by catcher processors in at-sea delivery from catcher vessels, and the disjunction of the inshore and offshore pollock seasons. It is not clear if overall catcher vessel harvesting effort actually increased in 1994 relative to 1991, since our counts are based on any Bering Sea pollock harvested, and not whether it was a primary fishing activity of that vessel.

The changes from 1994 to 1996 further support this interpretation. More catcher vessels (24) delivered pollock only to offshore processors in 1996. Of these, 14 delivered only to motherships (and 3 other mothership catcher vessels delivered pollock both offshore and onshore), so that about 10 catcher vessels were dedicated to delivery to catcher processors in 1994. An additional 15 catcher vessels probably delivered to both catcher processors and shoreplants. Overall catcher vessel effort was probably increased from earlier years, although again this is uncertain. The length of the Bering Sea seasons was shorter in 1996 than in 1991, but more for the offshore sector than for inshore.

The tables which follow present information on the residency of catcher vessel owner/operators that is known to be redundant. They are included because of the unreliable nature of much of this information in current vessel databases. In one database in which most included vessels had several entries, more than one vessel had entries with different states listed for residency indicators. Still, with those qualifications, residency information was reasonably consistent from one record to another. Table CV-3 is a rough-and-ready table to indicate the degree to which the three indicators of residence of vessel owner/operator tended to agree. As can be seen, the degree of agreement was quite high. The shaded blocks indicate cases of "perfect matches" -- where residence of owner = homeport of vessel = city of vessel. It is clear that most vessels are owned in the Pacific Northwest. It also appears that those boat owners who claim Alaskan residence generally have an Alaskan homeport, whereas owners with a residence of other than Alaska are more variable, although they also have a strong tendency to homeport in their home state. The right side of the table does have more cells filled in than the left, however, and definitely has more "mismatches."

Table CV-3
Reported Homeport by Two Indicators of Residence of Owner of Vessel for Catcher Vessels Delivering Onshore

Homeport	Vessel State by Resident=Alaska				Vessel State by Resident=Other				Vessel State = Unknown and Resident= Unknown
	AK	CA	OR	WA	AK	CA	OR	WA	UN
1996									
Alaska	15				6	2		2	2
California						2			
Oregon							20	1	1
Washington							1	60	4
UN									
1994									
Alaska	8				5	2		2	3
California						2			
Oregon			1				8	1	
Washington				1	1	2	1	51	4
1991									
Alaska	6				7	2		3	
California						3			
Oregon							10	1	
Washington	2			2			2	45	

NOTE: Shaded blocks are "perfect matches" where residence=homeport=vessel state
Source: Electronic data file provided by the NPFMC

Table CV-4 summarizes the number of catcher vessels by length categories by year in a simpler format than Table CV-1. It clearly indicates that Bering Sea catcher vessels are predominately less than 125 feet in length. The increase in catcher vessel numbers from 1991 to 1994 was almost totally in large and medium sized catcher vessels, the majority of which delivered both to onshore and offshore processors that year. It is likely that these vessels delivered predominately onshore, however. From 1994 to 1996, catcher vessel numbers again increased, but almost totally in the small vessel category, with most of these vessels delivering onshore, but a number delivering offshore (almost certainly to catcher processors), and a few delivering to processors in both sectors.

Table CV-4
Catcher Vessels by Delivery Mode and Length, by Year

Year (total # of boats)	Delivery Mode by Length Category								
	Small (<125')			Medium (125-155')			Large (>125')		
	ON	OFF	BOTH	ON	OFF	BOTH	ON	OFF	BOTH
1991	44	16	3	15			5		
(83)	63			15			5		
1994	38	16	10	12		5	8		3
(92)	64			17			11		
1996	55	22	12	14	2	4	7		1
(117)	89			20			8		

Source: Electronic data provided by NPFMC

Tables CV-5a through CV-5c are fairly self-explanatory, demonstrating that the vast majority of vessels participating in the Bering Sea pollock fishery originate in the Pacific Northwest, and especially in Seattle and the greater Seattle area. Again, while this discussion is much more focused than the 1994 SIA trawl catcher vessel sector, the discussion of TH2 and TH3 coded vessels in that document establishes the Pacific Northwest, and more specifically Washington, as the community of orientation (ownership, repair work, crew recruitment). On the other hand, the 1994 document used vessel information which indicated that none of the vessels had a homeport in the Pacific Northwest, whereas the data files provided by the NPFMC for the current analysis indicate that most of the vessels claim to be homeported in the Pacific Northwest. There is no clear explanation for this difference, other than that this is an area of very soft information. Besides Washington, a significant number of vessels as listed from communities in Oregon (Newport, for example), but data were not readily available to pursue the documentation of these number of vessels. When the pollock harvest attributable to each of these collections of vessels is examined, it becomes more obvious that Washington state (and the Seattle area) is the major region of orientation for this sector. Vessels with Washington state ownership, a Washington state homeport, or a Washington state "vessel state" record account for about 75% of the Bering Sea pollock delivered onshore. As might be expected, larger catcher vessels are disproportionately from the Pacific Northwest, and more specifically from Washington state. The 1994 document included the Gulf of Alaska pollock fishery, among others, and included information on many vessels in the 75 foot to 110 or 125 foot range that did not fish the Bering Sea. Oregon vessels also tend to be in the smaller size category.

The 1994 document discusses the seasonal round of trawl vessels as of 1994, and the evolution of the fishery to that point. The discussion there of what are termed TH1 and TH2 vessels is the most pertinent (although some current Bering Sea pollock catcher vessels are also "large TH3" vessels). Few catcher vessels operating in the Bering Sea are less than 80 feet, but the flexibility and economic operating characteristics of vessels in Bering Sea fisheries have apparently resulted in a preference for vessels less than 125 feet in length among newer entrants into the pollock fishery -- or it may be that this is the niche available for those with recently unused licenses.

Table CV-5a
Catcher Vessels by Residence of Vessel Owner
by Delivery Mode and Length of Vessel (1991, 1994, 1996)

Year	Res	Delivery Mode by Length Category								
		Onshore			Offshore			Both		
		S	M	L	S	M	L	S	M	L
1991	Alaska	8			1			1		
	Other	36	15	5	15			2		
1994	Alaska	8			1			1		
	Other	27	9	8	14			9	5	3
	Unknown	3	3		1					
1996	Alaska	8			5			2		
	Other	44	12	7	16	1		10	4	1
	Unknown	3	2		1	1				

Source: Electronic data file provided by NPFMC

Table CV-5b
Catcher Vessels by Homeport State of Vessel
by Delivery Mode and Length of Vessel (1991, 1994, 1996)

Year	Homeport State	Delivery Mode by Length Category								
		Onshore			Offshore			Both		
		S	M	L	S	M	L	S	M	L
1991	Alaska	10	6		1			1		
	California	2			1					
	Oregon	10			1					
	Washington	22	9	5	13			2		
1994	Alaska	11	3		1			3	2	
	California				1			1		
	Oregon	8			2					
	Washington	19	9	8	12			6	3	3
1996	Alaska	15	3		5			2	2	
	California	1			1					
	Oregon	17			3			2		
	Washington	22	11	7	13	2		8	2	1

Source: Electronic data file provided by NPFMC

Table CV-5c
Catcher Vessels by Vessel State of Vessel
by Delivery Mode and Length of Vessel (1991, 1994, 1996)

Year	Vessel State	Delivery Mode by Length Category								
		Onshore			Offshore			Both		
		S	M	L	S	M	L	S	M	L
1991	Alaska	10	3					2		
	California	2	2		1					
	Oregon	11						1		
	Washington	21	10	5	15					
1994	Alaska	9	1					3	1	
	California		1	1	1			1	2	
	Oregon	9			1					
	Washington	17	7	7	13			6	2	3
	Unknown	3	3		1					
1996	Alaska	13	1		5			2	1	
	California	1			1				2	
	Oregon	16			2			3		
	Washington	22	11	7	13	1		7	1	1
	Unknown	3	2		1	1				

Source: Electronic data file provided by NPFMC

2.4.2 Vessel Operations (Shoreside Catcher Vessels)

Vessel operations are quite similar for many of the vessels represented in interviews which make deliveries to inshore processors. Many of the vessels have undergone a number of changes during their years of operation, including moving between gear types and having structural alteration work done. A number of these vessels began as crabbers, and then were converted either to trawl vessels or to combination trawl and pot boats. For example, one current 148' vessel, set up for bottom and mid-water trawl, was lengthened from 123' and "repowered" at the same time. With the conversion, the vessel had 50% more capacity and horsepower than it did previously. Like a significant number of other vessels in this class, this particular vessel began as a crabber, and with each successive modification has become more narrowly focused on trawling. Other vessels enjoy varying degrees of flexibility in their operations, depending upon their individual configurations. While these vessels were inherently flexible in design at the time of construction the installation of extensive trawl gear makes season to season conversion problematic for some vessels.

Currently, the typical annual cycle for a pollock catcher vessel is to fish the "A" and "B" seasons in the Bering Sea as the primary effort. Vessels do a variety of things during other times of the year, and this varies from vessel to vessel. Some "do some salmon tendering during the summer." Others concentrate on crabbing during the non-pollock seasons, though there is variability here as well, with at least some vessels "stepping out" of pollock fishing during "A Season" to catch opilios. Whether or not this is 'worth it' is reportedly based on a number of different factors, including the specific prices of pollock and opilio and, more importantly, the configuration and capacity of the individual vessel. Put most simply, what is good for the larger trawl vessels is not always good for the smaller vessels when it comes to making diversification decisions between pollock and other species, particularly given that pollock requires a high-volume turnover due to its low price per pound. One skipper noted that while he used to trawl for cod, he has not done that for two years, switching to opilio during that time. Another skipper noted that while they concentrate on pollock, they also fish king and bairdi crab, as well as cod and bycatch, as "fishing whatever it takes to make it is the reality now." Some vessels also participate in fisheries off the Oregon-Washington coast for part of the year. Since the 1994 sector profile, there does appear to have been some specialization, especially with the largest size catcher vessels. These are designed specifically to deliver pollock efficiently to shore plants, but are not as efficient for other fisheries.

It should also be noted that the changes seen in CV ownership patterns also influences the movement of vessels between fisheries. That is, more CVs are now owned by shoreplants than was the case in the past, and decisions on how to fish those vessels take into account the need to both keep the vessel and the plant profitable – but the relative importance of that balance in the decision making has taken on a different aspect with joint ownership/management. During interviews, for example, a number of skippers noted that with common ownership, plant operators may be making more long-range, strategic decisions regarding individual vessel operations than may have been possible when the vessel was owned and operated as an independent boat (with more acute seasonal cash-flow concerns).

Some efforts at diversification among pollock trawl vessels have not been successful, while others are less than desirable but have worked. One vessel that is set up primarily as a pollock boat reported that they "have tried cod in the past, but that did not work out. In general, the bottom trawl is in trouble; there are bycatch problems that are not going to go away . . . We also tried yellowfin sole, but there is a dismal market for that." One skipper noted that for his vessel in particular, "fishing is changing . . . [the] seasons are so much shorter now. Pollock fishing is what would prefer to do . . . [we] wouldn't want to crab if didn't have to. We have fished crab for the last three years. For the six years before that we did not crab." According to one trawler skipper, the increase in crabbing by trawlers has not gone unnoticed by those vessels that specialize in crabbing. He remarked that "crabbers and trawlers are like oil and water."

Typically pollock catcher vessels go to Unalaska/Dutch Harbor for services and small repairs, and to the Pacific Northwest area for maintenance and repair on an annual basis during a lull in the fishing seasons. Increasingly, maintenance schedules are starting to be spaced out, with major work in the Pacific Northwest for some vessels taking place every 18 months or two years now, rather than annually as was common in the past. According to interview data, the change toward more corporate ownership of CVs (linking them to shoreplants) has also influenced the frequency of trips to the Pacific Northwest (PNW), as more off-season light maintenance is performed in conjunction with, and at, the shoreplant facilities.

Table CV-5d Catcher Vessels Bering Sea Pollock Harvest by Residence of Vessel Owner by Delivery Mode and Length of Vessel (1991, 1994, 1996) (% of Yearly Onshore Catcher Vessel Harvest)										
Year	Res	Delivery Mode by Length Category								
		Onshore			Offshore			Both -- SEE NOTE		
		S	M	L	S	M	L	S	M	L
1991	Alaska	13177 (4%)						14380[a]		
	Other	157504 (44%)	109332 (31%)	76668 (21%)						
1994	Alaska	18652 (5%)						***		
	Other	133059 (37%)	98130 (28%)	64159 (18%)	Information Not Available			36857	40800	44192
	Unknown	19074 (5%)	23213 (7%)							
1996	Alaska	14706 (4%)						***		
	Other	165344 (43%)	107712 (28%)	73309 (19%)				10161	21324	***
	Unknown	20343[a] (5%)								

NOTE: Delivery information for vessels which delivered both onshore and offshore includes ONLY onshore deliveries, as information for offshore catcher vessel deliveries is not available.
*** Information suppressed due to small number of entities in cell
[a]Cells combined to increase number of entities in cell
Source: Electronic data file provided by NPFMC

Table CV-5e
Catcher Vessels Bering Sea Pollock Harvest by Homeport State of Vessel
by Delivery Mode and Length of Vessel (1991, 1994, 1996)
(% of Yearly Onshore Catcher Vessel Harvest)

Year	Homeport State	Delivery Mode by Length Category								
		Onshore			Offshore			Both -- SEE NOTE		
		S	M	L	S	M	L	S	M	L
1991	Alaska	30100 (8%)	41808 (12%)					7400		
	California	***								
	Oregon	20548 (6%)								
	Washington	119077 (33%)	67524 (19%)	76668 (22%)				6980		
1994	Alaska	43116 (12%)	32684 (9%)					7138	***	
	California							***		
	Oregon	22251 (6%)			Information Not Available					
	Washington	105418 (30%)	88659 (25%)	64159 (18)				26784	22753	44192
1996	Alaska	42503 (11%)	25238 (7%)					***	***	
	California	***								
	Oregon	34726 (9%)						***		
	Washington	105018 (28%)	96490 (26%)	73309 (19%)				9099	***	***

NOTE: Delivery information for vessels which delivered both onshore and offshore includes ONLY onshore deliveries, as information for offshore catcher vessel deliveries is not available.
*** Information suppressed due to small number of entities in cell
[a]Cells combined to increase number of entities in cell
Source: Electronic data file provided by NPFMC

Table CV-5f
Catcher Vessels Bering Sea Pollock Harvest by Vessel State of Vessel
by Delivery Mode and Length of Vessel (1991, 1994, 1996)

Year	Vessel State	Delivery Mode by Length Category								
		Onshore			Offshore			Both -- SEE NOTE		
		S	M	L	S	M	L	S	M	L
1991	Alaska	26093 (7%)	13177 (4%)		Information Not Available			***		
	California	18263[a] (5%)								
	Oregon	22540 (6%)						***		
	Washington	121092 (34%)	78848 (22%)	76668 (22%)						
1994	Alaska	27685 (8%)	***					8565[a]		
	California		***	***				22066[a]		
	Oregon	27812 (8%)								
	Washington	96214 (28%)	80394 (24%)	64099 (19%)				26784	65518	
	Unknown	19074 (6%)	23213 (7%)							
1996	Alaska	29603 (8%)	***					***	***	
	California	***							***	
	Oregon	33460 (9%)						3076		
	Washington	112857 (31%)	96620 (26%)	73309 (20%)				7085	***	***
	Unknown	20343[a] (6%)								

NOTE: Delivery information for vessels which delivered both onshore and offshore includes ONLY onshore deliveries, as information for offshore catcher vessel deliveries is not available.
*** Information suppressed due to small number of entities in cell
[a]Cells combined to increase number of entities in cell

2.4.3 Vessel Operations (Offshore Catcher Vessels)

There are two sorts of offshore catcher vessels although, of course, they are not necessarily mutual exclusive and can also mix in deliveries to onshore processors. Still, there is a basic distinction between mothership catcher vessels and catcher processor catcher vessels. Mothership catcher vessels tend to deliver only to the mothership, and also tend to participate in as many of the mothership's fisheries (typically "A" and "B" Bering Sea pollock and Pacific whiting) as they can. Not all mothership catcher vessels have permits for all the mothership's fisheries, however, and some mothership catcher vessels will choose to pursue some fisheries of their own choice in the North Pacific rather than go south for Pacific whiting. Most will fish both pollock seasons, and fill in with other fishery activities when the mothership is not active. Some will fish for cod, either for onshore deliver or for catcher processors. Some may crab or tender salmon. As is the case with vessels delivering inshore, individual vessel decisions regarding participation in various fisheries depends on individual vessel characteristics (e.g. flexibility of design, investment in gear, etc.), ownership composition, history of participation in different fisheries, strategic positioning for retention of access to fisheries for the future (i.e., accumulation of catch history), and interests/desires of individual owners, skippers, and crew.

Catcher vessels working with catcher processors are a relatively recent development, and are not universally accepted as a useful innovation or necessary adjunct to catcher processor operations. The primary rationale for their use is to maximize the throughput of the catcher processor's factory, which on a typical catcher processor has tended to exceed the harvesting capability of the catcher processor. Catcher vessels also serve other functions, however. They can scout for fish, and in this way increase the harvesting efficiency of the catcher processor. A catcher vessel can "run errands" for the catcher processor, ferrying parts and people to and from port, and thus maximize the catcher processor's time on the fishing grounds. It is also important to note that the use of catcher vessels varies by 'type' of fishery. As noted elsewhere, no catcher vessels are used by catcher processors for supplemental harvest during the non-open access (i.e., the CDQ) pollock fishery.

There are also times when a catcher processor may take delivery of pollock from catcher vessels on a transient basis, such as when a catcher processor is leaving port from Unalaska/Dutch Harbor (such as after an in-season offload) and is traversing the CVOA (where it cannot fish), it can take on a load of pollock from a catcher vessel and start its factory on the way to the fishing grounds. In this case, the delivery may be from an 'inshore' CV that has the time to make its rotation schedule commitment to the shoreplant, but can supplement its operation with a delivery to a CP.

2.4.4 Ownership and Operations

Ownership patterns of catcher vessels have been changing in the pollock fishery. One trend evident since the 1994 sector profile has been the functional, if not directly ownership-based, vertical integration of catcher vessels into processor operations (shoreplants, catcher processors, motherships). From the vessel skippers or owners interviewed, it would appear that it is not uncommon for the processor or a related or cooperating management entity to have an ownership interest in its catcher vessel delivery fleet, especially for larger vessels. Some vessel owners have taken a less active at-sea role and have instead become more involved in "the business of fishing" as the vessels they own have grown larger and have come to require more logistical and general business support. Some skippers have a partial ownership interest in the vessel. As noted in the Bering Sea inshore processing sector profile, one of the larger shoreplants has historically had a direct ownership interest in a substantial portion of the pollock catcher fleet that delivers to it. In recent years this has become the norm, with all but one of the Unalaska/Dutch Harbor-Akutan onshore processors (or a cooperating/related company) having acquired ownership/management interest in at least a portion of their delivery fleet. (For some processors, the degree of foreign ownership of the company may complicate direct ownership of catcher vessels, hence relationships have developed appropriately structured corporations. In this way processors may effectively assert control over the vessels through relationships with the third party, if not actually own the vessels outright. It should also be noted that minority interest in vessels does not equate to effective control, however, as was pointed out several times during interviews.) This appears to be one adaptation to the intense competition for fish and the need to ensure as predictable a supply of pollock as possible. (Individuals also noted during interviews that such purchasing decisions also take into account the possibility of future changes in pollock management strategies, so that if a ITQ or other system predicated upon catch history were put in place, the processing entities would have access to significant amounts of catch history.)

For independent vessels, contracts with shoreplants for delivery of pollock are common, but the nature of these contracts varies from shoreplant to shoreplant, and may actually only be a mutually understood agreement. The longest contract spoken of in interviews was five years, while others are year-to-year, if not season-to-season, with "escape clauses" in case things go very wrong with the fishery. Longer-term contracts seem to be more common than previously was the case, however, especially for those processors which are not as active in acquiring ownership interests in catcher vessels. Some contracts have provisions in them for the shoreplant (or related company) to essentially have the 'right of first refusal' should the ownership of independent vessels change hands, so as to ensure continued access to the catch capacity the delivering fleet represents.

Shoreplants, and motherships and catcher processors for that matter, schedule the fishing effort of those boats that deliver to them to maximize processing activities and product quality. Thus the controlling variables revolve around (a) not having boats sit idle with fish in the hold or net, while (b) simultaneously providing the plant with a steady stream of fish so as not to have costly processing down time, but (c) not creating a glut in the factory whereby there are too many fish to process before they start to lose quality. While this, for the most part, seems to work as a coordinated, cooperative effort, some interview data suggest that relationships between harvester vessels and shoreplants are not always smooth. While there may be some worries about short weights or other forms of "cheating," more institutionalized sorts of problems are recognized as structural aspects of the fishery. Most processors tend to be "overboated" for the pollock "A" season and relatively "underboated" for the pollock "B" season. The two seasons are generally contracted for together, so that the same catcher fleet is available for both, although pollock tend to be school much more and are caught faster in the "A" season. This means that delivery intervals are generally less optimal for catcher vessels in the "A" season than in the "B" season (i.e., they have the ability to make more deliveries faster than the plant can accept them, so they end up making less deliveries in a given season than they would otherwise be capable of making -- put another way, they have more down time than they would desire when they could be out catching fish that are readily available). Some catcher vessels have taken this as an opportunity to maintain an onshore delivery contract while delivering supplemental loads of pollock to catcher processors during the "A" season. This is less likely to be possible during the "B" season.

Offshore processors differ, at least to some extent, from the onshore sector in regard to this dynamic. Motherships especially seem to take deliver primarily from independent catcher vessels. One motherships owns two of the five (40 percent) vessels in its delivery fleet. The remainder of the mothership delivery fleet (15 of 17, or 88 percent) is independent, as far as we could tell. There has been a large degree of stability in terms of which vessels deliver to motherships, however, which may indicate that "mutual dependence" rather than "independence" may be an appropriate description. While these catcher vessels could seek other markets, they generally assess the market they have as the best possible for their operation, and for the Ocean Phoenix the share-holder catcher vessels have a vested interest in delivering to that mothership. Similarly, motherships could seek other catcher vessels to deliver, but would risk disrupting present operations to do so.

Catcher processors display a pattern of owning a limited number of catcher vessels and hiring others as required. In contrast to mothership catcher vessels, independent catcher vessels delivering to catcher processors stressed that they had to actively develop a market every year. In part, this has been due to the instability of the catcher processor sector. One catcher vessel operator said that although he has essentially fished for the same catcher processors over the years that he has done so for several different companies, and had to negotiate for his services each time. The need of catcher processors for catcher vessel assistance is also much more variable than is that of motherships, since catcher processors harvest most (in some cases all) of the fish that they process. On the other hand, this also allows catcher processors to potentially pay more for the fish that they do buy, making it potentially the most lucrative market for a catcher vessel, and one that is worth pursuing from season to season. This balance of market uncertainty and potential gain makes intuitive sense, although the ability of a catcher vessel to negotiate price is still far from clear in this case.

2.4.5 Crew

Crew compensation is generally on a share basis, based on experience and qualifications, typically with the engineer position getting a somewhat larger share than other deck crew. Crew sizes vary somewhat by vessel, and also vary on an individual vessel based on what is being fished. A typical pollock trawler over 125 feet may carry a crew of five consisting of a captain, one engineer, and two deckhands, plus a cook that is hired by the crew (plus a federal observer on board full-time). Six would also not be unusual, consisting of a skipper, two mates, an engineer, and two crewmen who rotate the cooking tasks. Crews on smaller vessels (to 90 feet) sometimes consisted of as few as four members, but five were more typical. If the vessel fishes crab in addition to pollock, crew may or may not remain the same. A common pattern is to add one or two positions for crabbing, and rotate one or two other positions, although some vessels make no changes. Among those vessels that do change, a common reason given for doing so is that crabbing is more work, and some of the pollock crew are not interested in crabbing. One skipper reported that crew who crab always want to fish for pollock, but not vice versa. The extra man or two hired during crabbing may eventually obtain a full-time crew position on the boat when openings occur, and in this way the seasonal crab position serves as a kind of apprenticeship where the crew can evaluate potential new members.

Interview data suggest that crew composition may be more stable than in the past, but that crew size is also smaller than in the recent past. While crews as a whole were commonly rotated in the past, when fisheries were more lucrative and seasons were longer, there are now only one or two "extra" members of a crew that rotate in and out for different trips. In other words, the number of positions per vessel at any one time may not be down, but there are less crew overall. Whereas in years past a vessel would have two complete crews, none of the vessels contacted during interviews did so today, nor did they report that they had done so for several years. At least some of those interviewed felt that the basic nature of catcher vessel crew dynamics had changed over the years, as people have been in the fishery longer, gotten older, and crew turnover has declined, particularly with the rise in pollock fishing as opposed to crab fishing (and the shortening of the pollock seasons).

Crew is typically from the Pacific Northwest, most frequently from the Seattle area. According to one skipper, crew hires are done from Seattle, where the vessel is "from" rather than in Unalaska/Dutch Harbor where the vessel is (at least nominally) home ported and normally operates because "it works out better that way. Those people that you would find in Dutch Harbor [who are not already committed to a vessel and still available for] hire at the start of the season are 'marginal.'" Working so far from home has both its rewards and drawbacks, according to crew interviews done for the 1994 SIA. The rewards are associated primarily with income and lifestyle, with the drawbacks associated primarily with being away from family and other friends. The perception of these pluses and minuses have changed somewhat with the shortening of the individual seasons, which may mean less lucrative fishing in a greater number of different fisheries instead of more time off.

3.0 ALASKA BERING SEA POLLOCK COMMUNITY LINKS

Essentially, for the purposes of social impact assessment, there are three main categories of communities that have links to inshore and offshore sectors of the Bering Sea pollock fishery. These may be characterized as follows:

- **Communities with well developed socioeconomic ties to both onshore and offshore sectors.** This category is comprised of one community: Unalaska/Dutch Harbor. This community is the number one fishing port in the United States in both in terms of dollar value of catch landed and volume of catch landed, and pollock is a central part of the community's fishery based economy. The community has also seen the development of a significant support service sector in recent years, and this support service sector provides services for a number of sectors engaged in the Bering Sea pollock fishery, including shoreplants, floating processors, catcher vessels, and catcher processors. It is also the shipping hub of the Bering Sea. Because of the central nature of the community to the pollock fishery, the existence of multiple sectors within the community, and a degree of dependence on the fishery not seen in other communities, the community of Unalaska is discussed in a much more comprehensive manner than any of the other Alaskan communities in this document. Indeed, in line with National Standard 8 under the Magnuson-Stevens Act Provisions; National Standard Guidelines, Unalaska is both highly 'dependent' upon and 'engaged' in the fishery. This is particularly true when a sense of scale is applied, and one looks at the importance of the fishery in relation to the overall size of the community, both in economic and social terms.

- **Communities with large shoreplants that are also CDQ communities.** This category is comprised of one community: Akutan. Akutan is quite different from Unalaska in that it is the host community to a single rather than multiple shoreplants, and the 'geo-social' relationship between the plant and the community is of quite a different nature than those found in Unalaska.

- **Communities that are not CDQ communities, have shoreplants that process Bering Sea pollock, but that have no ties to the offshore sector.** These are the communities of King Cove and Sand Point. These communities as a pair also differ from Unalaska and Akutan in that they have historically had a resident fishing fleet that provides product to the local plant.

- **Communities that are CDQ communities and thus have a tie to Bering Sea pollock, but that do not have a physical presence of either the onshore or offshore sector within their community.** There are a number of western Alaska communities that fall under this category. These communities are not discussed in this section, because the inshore/offshore impact issues for those communities are being addressed in another study underway at this time, but CDQ social impact assessment related CDQ issues are raised in a separate discussion within this document.

- **Other Alaska communities with ties to either onshore or offshore sectors.** As discussed in the opening section of this document, there are a number of other Alaska communities that have some tie to the Bering Sea pollock fishery, but that are peripheral to the fishery in relation to the communities mentioned above. These would include Kodiak, were a very small volume of Bering Sea pollock has been processed, and a scattering of other communities that may have ownership or homeport ties to vessels in various sectors. These communities are not treated in this section because shifts in allocation among inshore/offshore sectors are not likely to have significant social impacts in these communities, due to the scale of participation in the fishery (i.e., relative lack of 'dependency' on the fishery).

3.1 UNALASKA/DUTCH HARBOR

Unalaska is in a unique position with respect to the Bering Sea pollock fishery. It is the site of both the most intense onshore and offshore activity. While these two activities differ by nature in the community, and the nature of that difference is the focus of considerable debate, Unalaska is a community whose economy is strongly tied to Bering Sea commercial fisheries in general, and the pollock fishery in particular.

3.1.1 The Community

Unalaska has been variously described as a growing, developing, and maturing community. Whatever descriptor is chosen, during the span of years since the inception of inshore/offshore, Unalaska has seen an impressive amount of community development. The changes that have accompanied this development are both obvious and subtle.

Population

It has always been difficult to ascertain total population figures for Unalaska or, to state it more accurately, it is difficult to interpret and compare the figures given for the population of Unalaska over the years. The contemporary community of Unalaska (and the legal entity of the City of Unalaska) includes a part of Unalaska Island and the entirety of Amaknak Island, a portion of which is commonly known as Dutch Harbor. In this profile we are using the name Unalaska to refer to both Unalaska and Dutch Harbor.[8] Over the years, Unalaska has been a 'less than permanent' home

[8] As noted in the 1991 SIA produced for the NPFMC, "Dutch Harbor" has its own named post office and postal service zip code, the airport serving the community of Unalaska is known as the Dutch Harbor airport (on the site of WWII era Naval Air Station [NAS] Dutch Harbor), and the harbor facility operated by the City of Unalaska is marketed as the "International Port of Dutch Harbor." Because of these and other associations, the portion of the community on Amaknak Island is often referred to as 'Dutch Harbor.' Nevertheless, there is today no separate "community" of Dutch

to many individuals whose length of stay in the community has varied. Some individuals may stay in Unalaska only a fishing season or two; others may stay for many years before moving on. These individuals have been counted in different ways, or not counted at all, in a number of censuses. Caution must therefore be used in interpreting the following table (Table AK-1) which includes total population figures from various sources for the years 1970 through 1997.

Even though the total population of Unalaska has grown, the contemporary community maintains a relatively high transient population. This transient population includes workers at shore processing plants, although this particular population segment is notably less transient as the nature of the business of the shore plants has changed from one characterized by rapid turnover during the King crab processing boom in the late 1970s, though more-or-less year-round processing during the early years of full-scale pollock processing, to the current pattern of marked peaks and valleys coinciding with the pollock seasons, but maintenance of a 'core crew' of year round individuals. (This topic is more fully addressed in the shore plant sector description in this document; the reader is cautioned to keep in mind that the generalizations regarding shore plant employment in this profile apply to 'pollock plants' only unless otherwise noted.)

In addition to the shore-resident (some of whom are short-term residents) population, there are also a number of individuals who may be thought of as a "floating population" associated with the community. These individuals are from fishing fleets, floating processors, catcher/ processors, and freighters that stop at the port of Unalaska for resupply. There are no current estimates of the "floating population," though such a figure was assembled for the year 1990 and is presented in a table (Table AK-2) below. Although not true residents of the community of Unalaska, this "floating population" does have an impact on the community of Unalaska. They are associated with business and revenue generated in and for the city, and with services required of the City. Unalaska is, at least seasonally, where they live and work.

Harbor, as it is fully encompassed by the City of Unalaska. Even the body of water known as Dutch Harbor, from whence the original 'settlement' derived its name, lies completely within the city limits of Unalaska. The existence of the two names Unalaska and Dutch Harbor has proven to be a source of considerable confusion for record keeping and archival research over the years, and this tradition continues to the present: the name Dutch Harbor or simply the nickname "Dutch," is more commonly known and used outside of the community than the official name of Unalaska. The application of the name of Dutch Harbor to the portion of the community on Amaknak Island is a holdover from an early commercial settlement there that was at the time distinct from the contemporaneous residential community of Unalaska. That the present community of Unalaska is physically split between two islands, that these segments were historically socially distinct and, indeed, that they were only relatively recently joined by a bridge, has had many consequences for the community which are discussed elsewhere (Impact Assessment 1983a; Downs 1985). These include residential/industrial utilization patterns and ethnic group interactions, among others. Most of the permanent residents of the community prefer the name Unalaska to be used broadly to include both the Amaknak Island and Unalaska Island portions of the settlement. For the sake of accuracy and clarity, therefore, we include residential and industrial areas on both islands when referring to the community of Unalaska. The differential use of the two names remains an emotional issue for a significant number of residents in the community. Such emotional investment in terminological dichotomies are not unknown elsewhere in Alaska, e.g., the differential use of 'Denali' and 'Mt. McKinley' for the state's (and North America's) highest peak. In the case of the community of Unalaska, the term Unalaska, like Denali, is the term of continuity from the Native Alaskan past; Dutch Harbor, like McKinley, is the term made famous by (primarily non-Native) people from outside the area.

Table AK-1
Unalaska Population
1970-1997

Year	Population	Data Source
1970	342[a]	U.S. Bureau of the Census
1970	475	Jones & Jones, per Surla, 1970
1972	548	Unalaska City Council Census
1973	510	Unalaska City Council Census
1975	417	U.S. Bureau of the Census
1976	510	U.S. Bureau of the Census
1977	725	Alaska Consultants, Inc, 1981
1977	1,971	Tryck, Nyman, and Hayes, 1977
1980	1,322	U.S. Bureau of the Census
1980	1,380[b]	Alaska Department of Labor
1980	1,310	Department of Community and Regional Affairs
1981	1,944[b]	Alaska Department of Labor
1982	1,922[b]	Alaska Department of Labor
1983	1,677[b]	Alaska Department of Labor
1984	1,447[b]	Alaska Department of Labor
1985	1,331	Alaska Department of Labor
1986	1,922	Department of Community and Regional Affairs
1987	1,331	Department of Community and Regional Affairs
1987	1,680	City of Unalaska (a 1997 City source puts the 1987 figure at 1,354)
1988	1,908	City of Unalaska/DCRA
1989	2,265[c]	City of Unalaska/DCRA
1990	3,089	U.S. Bureau of the Census
1991	3,450	City of Unalaska
1992	3,825	City of Unalaska
1993	4,317	City of Unalaska
1994	4,317	City of Unalaska
1995	4,083	City of Unalaska
1996	4,087	City of Unalaska
1997	4,251	City of Unalaska

[a]An example of the difficulty with Unalaska population figures may be seen in this figure. According to a local resident well-versed on the topic, the 1970 census "was done by the census taker from memory, sitting at home, and it was not accurate to any degree" (Impact Assessment 1987:64).
[b]ADOL estimates derived using US Census methodology. Where these figures are the same as those cited by DCRA, ADOL accepted local censuses or estimates (Kevin Waring Associates, 1988:656-7)
[c]The federal revenue sharing population figure was 2,899.

Table AK-2 Estimates of Floating Population Community of Unalaska, 1990			
Vessel Type	Estimated Vessels	Average Crew Size	Floating Population
Trawlers			
Catcher Vessels	110	5	550
Catcher/Processors	60	75	4,500
Floating Processors Only	2	160	
Longline			
Catcher Vessels	100	6	600
Catcher/Processors	20	25	500
Floating Processors Only	16	25	400
Crab			
Catcher Vessels	225	5.5	1,238
Catcher/Processors	25	22	550
Floating Processors Only	13	70	910
Cargo Vessels	350	25	8,750
Total Floating Population			**18,318**

Source: American Trawlers Assoc.; Alaska Crab Coalition; State of Alaska Dept. of Fish and Game; Resource Inventory and Analysis, Volume II, Aleutians West Coastal Resource Service Area, March 1990; The Inshore/Offshore Dispute: Impact of Factory Trawlers on Fisheries in the North Pacific and Proposals to Regulate the Fleet, The North Pacific Seafood Coalition, March 1990; and subsequent consultation with on-site resource Sinclair Wilt, Supervisor, Alyeska Seafoods, Unalaska. (Cited from Professional Growth Systems, Inc. 1990:12).

It should not be assumed that the characterization of Unalaska's "non-transient" population is not without its own difficulties as the nature of the community has changed over the years. Discussion and analytical categorization of the less transient portions of the Unalaska population differ in various publications on the community. In this document, there are some distinctions made between "permanent" residents and"semi-permanent" or "long-term transient" residents of the community. These distinctions are drawn only where they reflect significant differences in viewpoints in, or levels of engagement with, the community.

For the purposes of discussion, "permanent" residents of the community are those individuals for whom Unalaska is their community of orientation, independent of their employment status. "Semi-permanent" or "long-term transient" residents are those individuals for whom Unalaska is now their community of residence, but for whom residency decisions are based virtually exclusively on employment criteria. In other words, a "permanent resident," as that term is used in this document, is an individual who considers Unalaska "home" and is highly unlikely to move from the community due to termination of a particular job. These individuals tend to remain in the community and seek other employment if a specific job ends, and they also typically remain in the community after their retirement from the labor force. A "semi-permanent" or "long-term transient" resident, on the other hand, is an individual who typically has moved to Unalaska for a particular employment opportunity, and is highly likely to leave the community if that specific employment opportunity is terminated for any reason. These individuals may indeed remain in the community for a number of years, but their residency decision making process is predicated on Unalaska being first and foremost a work site. Obviously, the categories "permanent" and "semi-permanent" or "long-term transient" resident are not precise terms, nor do they necessarily correspond to administrative/regulatory decisions about 'official' residency (e.g., whether or not one is classified as an "Alaska resident" employment statistical reporting or taxation purposes) but they are analytically useful where they conform to specific orientations toward the community that serve to shape community politics, development objectives, community perception, and so on.

Ethnicity

Unalaska may be described as a plural or complex community in terms of the ethnic composition of its population. Although Unalaska was traditionally an Aleut community, the ethnic composition has changed with people moving into the community on both a short-term and long-term basis. Not surprisingly, in the latter half of this century, population fluctuations have coincided with periods of resource exploitation and scarcity.[9] For example, the economic and demographic expansion associated with the king crab boom in the late 1970s and early 1980s brought many non-Aleuts to Unalaska, including Euro-North Americans, Filipinos, Vietnamese, Koreans, and Hispanics. The ethnic composition of Unalaska's population for the census years 1970, 1980, and 1990 appears in Table AK-3.

Table AK-3
Ethnic Composition of Population
Unalaska, 1970, 1980 & 1990

Ethnic Group	1970		1980		1990	
	N	%	N	%	N	%
Caucasian	56	31.0%	848	64.1%	1,917	62.1%
African American	0	0.0%	19	1.5%	63	2.0%
Native Alaskan	113	63.4%	200	15.1%	-	-
Aleut	107	60.1%	-	-	223	7.2%
Eskimo	5	2.8%	-	-	5	0.2%
American Indian	1	0.5%	-	-	31	1.0%
Asian/Pacific Islands	-	-	-	-	593	19.2%
Other	9	5.6%	255	19.3%	257	8.3%
Total	178	100%	1,322	100%	3,089	100%

Source: 1970 data, University of Alaska, 1973; 1980 and 1990 data, U.S. Bureau of Census.

[9] The most dramatic population shift of this century, however, was brought about by World War II. The story of the War, and the implications for the Aleut population of Unalaska and the other Aleut communities of Unalaska Island, is too complex and profound for treatment in this limited community profile. It may be fairly stated, however, that the events associated with World War II, including the Aleut evacuation and the consolidation of the outlying villages, forever changed the community and Aleut sociocultural structure.

With the growth of the non-Aleut population, Aleut representation in the political and other public social arenas declined significantly. For example, in the early 1970s, Aleut individuals were in the majority on the city council; by the early 1980s only one city council person was Aleut (IAI 1987:65). If one looks at Aleuts (or Alaska Natives) as a percentage of the total population, the change over the period of 1970 - 1990 is striking. In 1970, Aleut individuals made up slightly over 60% of the total community population (and Alaska Natives accounted for a total of 63% of the population). In 1980, Alaska Natives, including Aleuts, accounted for 15% of the population; by 1990, Aleuts comprised only 7% of the total community population (with Alaska Natives as a whole accounting for 8% of the population). This population shift is largely attributable to fisheries and fisheries related economic development and associated immigration. The fact that there is a "core" Aleut population of the community with a historical continuity to the past also has implications for contemporary fishery management issues. These include the activities of the Unalaska Native Fisherman Association and active local involvement of in the regional CDQ program. While neither of these undertakings exclude non-Aleuts, Aleut individuals are disproportionately actively involved (relative to their overall representation in the community population).

Age and Sex

In the recent past, and particularly with the population growth seen in association with the development of the commercial fishing industry, Unalaska's population has had more men than women. Historically, this has been attributed to the importance of the fishing industry in bringing in transient laborers, most of whom were young males. Table AK-4 portrays the changes in proportion of males and females in the population for the years 1970, 1980, and 1990.

Table AK-4
Population Composition: Age and Sex
Unalaska, 1970, 1980, and 1990

	1970		1980		1990	
	N	%	N	%	N	%
Male	98	55%	858	65%	2,194	71%
Female	80	45%	464	35%	895	29%
Total	178	100%	1,322	100%	3,089	100%
Median Age	26.3 years		26.8 years		30.3 years	

As can be seen in the table, the median age has risen over the years as well. This is commonly attributed to the relative size of the workforce in comparison to resident families. That is, there is quite a large proportion of adult residents included in the census counts who are not raising children in the community, thereby raising the median age. On the other hand, what the median age information does not portray is that older age bracket residents (i.e., those individuals typically past their 'working years') tend to be under represented in Unalaska compared to the general population, as few non-lifetime residents of the community chose to stay in Unalaska in their retirement years.

Another way to look at age information for Unalaska is to look at school enrollments as a ratio of total population. Comparative information for Unalaska and other selected Alaska communities for the FY95 year is presented in the following table (Table AK-5). As can be seen, the ratio for Unalaska shows a very high population to student ratio, compared to the other Alaskan communities listed. For the most recent year data are available for Unalaska (1997), the population to enrollment ratio was 11.17:1. Note that these data are useful for comparative or relative purposes only, as population data and enrollment data are not typically collected at the same time, nor are methodologies necessarily consistent across communities. These data do, however, allow a general look at the population structure in a way that is not often readily apparent with other types of population data.

Table AK-5
Unalaska and Comparative Community School Enrollments: FY 95

City/Borough	Population	Enrollment	Ratio
Anchorage	255,202	45,896	5.56:1
Kodiak	15,481	2,711	5.71:1
Valdez	4,290	903	4.75:1
Unalaska	3,967	356	11.14:1

Source: Unalaska City School District, abstracted from Summary of Alaska's Public School District's Report Cards for the Public School Year 1994-1995.

School district enrollment figures are presented in Table AK-6. This is another indicator of the changing nature of Unalaska's population over the time period portrayed. One can see in the enrollment figures, for example, the enrollment decline that followed the economic decline of the fishing industry in the early 1980s, following the crash of locally important King crab stocks. Enrollments have increased from the late 1980s onward, reflecting two trends, according to school staff. One is the overall growth of the community, and the other is the increase in the number of people who are making Unalaska home for their families.

Table AK-6 Unalaska City School District Enrollment FY 78 - FY 98	
Fiscal Year	School Enrollment
FY 78	133
FY 79	140
FY 80	200
FY 81	186
FY 82	191
FY 83	151
FY 84	140
FY 85	140
FY 86	137
FY 87	159
FY 88	159
FY 89	159
FY 90	225
FY 91	256
FY 92	290
FY 93	330
FY 94	359
FY 95	356
FY 96	353
FY 97	373
FY 98	380 (preliminary figure)
Source: Unalaska City School, 1998	

Housing Types and Population Segments

Household type in Unalaska varies by population segment, although this has changed in recent years. In the early 1990s, it was a truism that virtually all permanent residents lived in single-family dwellings, whereas short-term workers lived in group housing at work sites. This pattern has changed somewhat over the years with the construction of a number of multi-unit complexes not associated with particular employers. It is still the case, however, that processing workers for the seafood plants tend to live in housing at the worksite, and longer-term workers at the shoreplants tend to live in company housing adjacent to worksites. One seafood processor, however, owns multi-family dwellings in what is otherwise primarily a single family residential area, so its workforce tends to be differently distributed geographically than other workforces. Some residents of the community have drawn the distinction, with respect to processing firms, that one is not 'fully' a resident of the community unless one has a private residence in the community (i.e., that the 'test' of 'real' residency is tied to whether or not one lives in company provided housing).. This distinction breaks down, however, when one examines the issue on a detailed level, as a number of companies (and not just seafood firms) provide or subsidize housing for employees in Unalaska both adjacent to and separate from their worksite locations; also, the persons living in such residences may, in fact, stay in the community for considerable lengths of time (outstaying many in 'private' residences) and become centrally involved in community life.

3.1.2 Links to the Pollock Fishery

In the late 1970s and early 1980s the community prospered significantly from the king crab fishery. The crab boom resulted in a dramatic increase in both fishing boats and processors in town. In the mid-seventies there were from 90 to 100 commercial vessels regularly fishing the Bering Sea. By 1979 the number had jumped to between 250 and 280, an increase so dramatic that it was difficult for skippers to find crew members. The king crab fishery subsequently declined precipitously and fishermen and processors alike have had to diversify their businesses in order to survive. One of the avenues of diversification was the pollock fishery, and this fishery has provided an economic mainstay for the community in subsequent years.

The following table (Table AK-7) shows the volume and value of fish landed at Unalaska over the period 1977-1996. This span encompasses the high year of the King crab fishery, and show the decline of the fishery thereafter, and the growth of the pollock fishery. Average value per pound is an artificial figure in that it combines a number of different variables, but it is useful for an overall look at how volume and value have varied over the years (particularly as pollock, a relatively high volume, low value per unit species grew in importance as a component of the community processing base).

The following discussion of the fishing industry is divided into the harvesting and processing sectors, as each has significance for the Unalaska economy and community. A third section provides information on fishing industry support services.

Table AK-7 Volume and Value of Fish Landed at Unalaska, 1977-1996					
Year	Volume		Value		Average Value ($/lb)
	(millions of pounds)	US Ranking	(millions of dollars)	US Ranking	
1977	100.5	-	61.4	-	0.61
1978	125.8	-	99.7	-	0.79
1979	136.8	-	92.7	-	0.68
1980	136.5	3	91.3	10	0.67
1981	73.0	5	57.6	11	0.79
1982	47.0	6	47.8	14	1.02
1983	48.9	9	36.4	15	0.74
1984	46.9	20	20.3	13	0.43
1985	106.3	18	21.3	8	0.20
1986	88.3	9	37.2	10	0.42
1987	128.2	4	62.7	8	0.49
1988	337.3	3	100.9	1	0.30
1989	504.3	2	107.4	1	0.21
1990	509.9	2	126.2	1	0.25
1991	731.7	2	130.6	1	0.18
1992	736.0	1	194.0	1	0.26
1993	793.9	1	161.2	1	0.20
1994	699.6	1	224.1	1	0.32
1995	684.6	1	146.2	1	0.21
1996	579.0	1	118.7	1	0.20

Source: 1980-1996 data from National Marine Fisheries Service data cited in City of Unalaska FY 97 Annual Report (December, 1997). 1977-1979 data from NMFS data as cited in IAI 1991. Average value derived from volume and value data.

Harvesting

The catcher vessel sector description of this report details patterns of geographic distribution of vessels and vessel operations. As noted in that section, one of the trends in recent years has been the dramatic increase in ownership and/or control of harvest vessels by the shoreplants in Unalaska. Prior to this pattern of acquisition, it was accurate to say that no permanent residents of Unalaska were involved in the pollock fishery as vessel owners, nor were any vessels 'home ported' out of Unalaska in the sense of being the community of residence for the skipper and crew. With the changes in ownership patterns have come complexities for the description of the relationship of the harvest fleet to the community. While it is still true to say that no independent fishermen who are permanent residents of the community own pollock harvesting vessels, some pollock harvesting vessels are now owned (partially or wholly) by economic entities based in the community. This change in ownership pattern, while it may have shifted where vessels are homeported or, perhaps more importantly from an economic perspective, spend more of the year, it is still the case that very few, if any, permanent residents of the community work on pollock harvesting vessels.

There is an Unalaska Native Fisherman Association in the community, and that organization has not taken a position on inshore/offshore issues. According to interview data, there are 24 boats in the association, ranging in size from 18' skiffs up to a 68' commercial vessel. None of these vessels participates in the Bering Sea pollock fishery. This association is open to Natives and non-Natives alike, but there is a requirement that members must live in the community eight months per year. Unalaska did not qualify as a CDQ community, but it is an ex-officio member of the Aleutian Pribilof Island Community Development Association (APICDA). This CDQ group is partners with both an onshore and offshore entity, and offers training programs in Unalaska. Though Unalaska is not formally a CDQ community, according to interview data it is in fact where more of APICDA training and other programs are run because of the size of the population it services in the community.

Processing

The shoreplant operations themselves are described in the sector profile for shoreplants. In terms of links to the community, for the purposes of the task at hand, it is important to note that shoreplants have long been a part of the community. That is not to say that relationships between the plants and the community itself have not been without strain at times over the years, but Unalaska is perhaps unique with respect to the communities included in this analysis for the degree of articulation of the plants to the local community. A number of the longer-term residents working at the plants are actively involved in the community, and serve in various elected, appointed, and volunteer capacities with the City of Unalaska and numerous community organizations.

Paradoxically, it has been the case in Unalaska that length of local residency of the workforce employed in seafood processing is inversely related to the vitality of the local industry in general. When the workforce was largest, there were virtually no local hires, particularly of long-term residents. For example, in 1982, at the height of processing capacity for king crab, there were no individuals identified as local residents working in the processing plants. There were a number of reasons cited for that fact at the time, including working conditions, pay rate, and work hours at the seafood plants that were attractive only to temporary transient workers. At that time, workers were hired out of the Pacific Northwest, typically Seattle, and were flown to Unalaska to work on a six-month contract basis. With the downturn in the crab fisheries, companies are no longer able to afford the expenses of a six-month contract system. Some have done away with such contracts and hire workers for an indefinite period of time with incentives for longevity; others hire more out of the Alaska labor pool than in the past. Several other factors influencing local hires in periods of fluctuation should be noted. First, under "boom" conditions there is a range of available employment options for local residents outside of the less appealing processing jobs. Second, when there is a downturn in hires at the local processing plants, virtually all of the workforce at the individual plants consists of returning workers, obviating the need for new hires. Even when six-month contracts were most common, there was always a core of returning workers. Third, setting the lack of long-term resident hires aside, Unalaska is seldom the "point of hire" for processing workers for individuals who are newly arrived to the community. That is to say, people do not come to Unalaska for processing work unless they have already secured a position. It is far too expensive to fly out to the community on the off chance they might gain employment, particularly at relatively low-paying jobs, especially given the fact that there is seldom housing available in the community and that which does come available is relatively expensive. Fourth, it should be noted that a lack of local hire does not apply to all positions with the seafood companies. Management positions at nearly all of the seafood companies (as well as with the major fisheries support sector companies) are occupied by individuals who, if not originally from the community, are at least long-time residents of the community or the region. In a number of ways, the processing industry is a "small circle" in terms of managers, and individuals who have worked for more than one company and have gained ten to twenty years experience in the community and the region are not uncommon. Individual owners and, in the case of "permanently" moored floating processors, even the plants themselves may come and go, but individuals in upper level management positions tend to remain in the business and in the area.

Very few, if any, lifetime residents of the community work at the shoreplants at any one time. There are a number of reasons commonly cited for this, but the most common dynamic involves the high cost of living in the community. Costs are such that it is nearly impossible for a local resident to take an entry level job at one of the plants, and better paying jobs at the plant are typically filled by individuals who have 'worked their way up' within the company. Further, according to interview data, local residents who have tried working at the plants have found that entry level position work schedules are not typically compatible with an active involvement in community and family life outside of the plant.

Fiscal Ties to the Pollock Fishery

Table AK-8 presents general government tax revenues for the City of Unalaska for the fiscal years 1991, 1994, and 1996. Fiscal Year 1997, the most recent year for which complete data are available, is also included. This table gives an idea of the relative proportion of tax revenues attributable to various taxes, including the raw fish tax. This table does not show the peak raw fish tax year of FY 1992, with $3,737,372 received. FYs 1993 and 1995 also exceeded the $3 million mark for raw fish tax.

Table AK-9 shows a detailed breakout of General Fund Revenues closely related to, or derived from, fisheries activities for the past three years. This period includes the Fisheries Resource Landing Tax, which was first received by the City in FY 97. The monies received in FY 97 were for two fiscal years, so caution is urged when considering relative magnitudes within that particular year.

Table AK-8 City of Unalaska, Alaska General Government Tax Revenues by Source (includes general and special revenue funds) FY 1991, 1994, 1996 & 1997							
FY	Personal Property Taxes	Real Property Taxes	Payment in lieu of Taxes	Raw Fish Tax	Sales Tax	Bed Tax	Total
1991	609,903	1,117,299	134,798	2,866,008	7,069,263	--	11,797,271
1994	1,710,248	2,179,836	236,006	2,641,943	4,849,913	87,181	11,705,127
1996	1,447,729	2,449,561	484,085	2,216,766	5,488,254	119,353	12,205,748
1997	1,302,149	2,581,524	484,085	2,651,680	5,126,839	103,088	12,249,365
Source: City of Unalaska, Comprehensive Annual Financial Report, Year Ended June, 1997							

Table AK-9 City of Unalaska: General Fund Revenues			
Revenue Type	FY 95	FY 96	FY 97
Taxes			
Raw Fish Sales Tax	3,340,512	2,212,833	2,641,645
General Sales Tax 2%	3,983,576	3,644,727	3,409,643
Other Taxes	4,575,820	4,406,469	4,390,167
Subtotal, Taxes	11,899,908	10,264,029	10,441,455
Intergovernmental			
Fisheries Business Tax	2,364,847	2,828,570	2,071,914
Fisheries Resource Landing Tax	0	0	5,653,512*
Other Intergovernmental	857,579	942,679	872,743
Subtotal, Intergovernmental	3,222,426	3,771,249	8,598,169
Other			
Charges, Permits & Lic, Misc	2,244,034	1,847,309	2,305,395
Total General Fund Revenues	17,366,368	15,882,587	21,345,019
* Note: this figure represents two years worth of tax, but was received during one year. Source: City of Unalaska.			

One significant new source of general fund revenue for the City is the Fisheries Resource Landing Tax, which originates with offshore sector transfers in the community. As can be seen from the table, the amount of taxes from this source are considerable for the community. One of the events that has colored local perception of the role of those funds in the overall community fiscal picture is the fact that the payment of those taxes was the subject of prolonged litigation. The offshore sector was seen by many as not willing to pay 'their fair share' of taxes that would come back to the City of Unalaska. Though the litigation which delayed receipt of these funds by Unalaska has been dropped, there local residents who still have hard feelings regarding the situation.

Support Services

Unalaska is unique among Alaska coastal communities in the degree to which is provides support services for the Bering Sea pollock fishery. As described in detail in the 1991 SIA community profile, Unalaska serves as an important port for several different aspects of pollock fishery. Support services include a wide range of companies, including such diverse services as accounting and bookkeeping, banking, construction and engineering, diesel sales and service, electrical and electronics services, freight forwarding, hydraulic services, logistical support, marine pilots/tugs, maritime agencies, ship repair, stevedoring, and vehicle rentals, among others. There is no other community in the area with this type of development and capacity to support the various fishery sectors in the Bering Sea.

There is a significant amount of support business in the community that is directly related to the offshore fleet. Catcher processors use warehousing services, and refuel and resupply when they are in the community to do a full or partial offload of product. (Depending on the pace of the fishing, length of the season, capacity of the vessel, and a number of other variables, catcher processors may make a partial offload during the season [to free up capacity for finishing the season], and then do a full offload in Unalaska at the end of the season, or they may make a full offload during the season.) Additionally, catcher processors typically need a range of expediting, freight management, and logistical support services through Unalaska to keep operating in the Bering Sea.

Shipping seafood products is also a major business sector in the community. In addition to the two main shipping lines that serve the community, another type of support service provided in the community for both the inshore and offshore fleet is stevedoring services. While some shoreplants typically do not use stevedores in loading operations across their docks, or the demand is lower for stevedoring because of containerized product, hatch gangs are used for loading product 'over the side' to trampers for shipment from Unalaska. These are relatively high paying jobs, and much valued in the community, though the work is not steady for the bulk of persons engaged in it. What does make this labor opportunity particularly valued is the fact that long-term locals, including lifetime residents, may qualify for, and provide a viable labor pool for, these positions without having to go through minimum-wage type of entry positions first. This is not to say that there are not union and non-union laborers alike who do not come to the community during the busy seasons to take advantage of the opportunities available in the community.

There are also support service providers in Unalaska who support distant inshore operations. For example, a firm that owns one of the floating processors in Beaver Inlet has an office in Unalaska that, among other functions, supports that operation. Similarly, the company that owns and operates the large shoreplant in Akutan has a support office in Unalaska because of the logistical support needs of that plant that cannot be managed directly from Akutan.

3.1.3 Inshore/Offshore as an Issue in Unalaska

Inshore/Offshore allocation issues are the focus of much debate in Unalaska. There is not so much debate regarding which sector is more important to the community but, rather, whether it is in the best interests of the community to take sides in the debate, given the nature of ties to both the inshore and offshore sectors.

One of the several problems that is debated in the community is the relative contribution of each sector to the local economy. As an indication of how complex the issue is, the City of Unalaska tried to do a survey of local businesses to determine how much business derived from either sector. This was soon found to be a hopelessly complex task, given that the nature of the fisheries business does not divide cleanly between inshore and offshore categories. The manager of one local support service business expressed it in the following way – if he does business with a vessel during the crab season, while the vessel is crabbing, but at another time of year the vessel makes deliveries to an onshore operation, should that business be counted as 'attributable' to the inshore sector? Further, there are a number of businesses in the community for whom both the inshore and offshore sectors are vital, and a number these businesses are not willing to disclose information regarding how much volume of their business is associated with one sector or the other, for fear of alienating customers from one or the other by appearing to have 'taken sides.' Interview information would suggest that these fears are justified, at least to a degree, in that there have been cases where individuals and companies changed their patterns of doing business based on the inshore/offshore stance of an individual associated with a business. The Unalaska City Council has also seen heated debate on the issue of whether or not the local government should take a stance on the issue.

In many respects, according to interview data, Unalaska is still a 'small community.' One sentiment expressed by a number of residents is that they were anxious to see the inshore/offshore decision made, so that the community could get on with life. A number of individuals who work for either offshore or inshore related entities noted in interviews that, on the local level, people tend to get along – and in the long run have to – but that there is pressure from the outside that is divisive to a small community. That is, in the community of Unalaska, there are people whose employment may be associated with one sector or another, but they have friends in other sectors with whom they have to get along. A common sentiment, expressed in a number of different ways, was that local residents wished that people would 'leave the politics in Seattle' referring to the fact that the large companies involved in the inshore/offshore process are headquartered in that community, though they may have a large presence in Unalaska. In the words of one person, "people in Unalaska do not want to fight over inshore/offshore. It is like the people in Manassas during the Civil War. They did not choose to be the battle ground. They just woke up one morning, and there it was." Another person expressed the opinion that he was "disappointed that Unalaska has been dragged into this, and local people are saying things that their companies are making them say." While inshore/offshore opinions are even divided on how divisive an issue it is in the community (some say it is very divisive; others say the magnitude of divisiveness is more apparent than real, and attribute opinions that are interpreted as favorable to offshore as being held by 'a vocal few' rather than a substantial minority), it is indisputable that the inshore/offshore debate has itself had a negative social impact in the community, both as a dividing issue (though the degree of divisiveness may be debated) and as a relatively non-productive use of effort and resources. Of course, if either 'side' prevails with a significant shift in quota allocation, clearly the expenditure of time and effort will be deemed to have been worthwhile by those supporting that sector.

3.2 ALEUTIANS EAST BOROUGH

The Aleutians East Borough is both directly and indirectly involved in the Bering Sea pollock fishery. For the borough as a whole, the Bering Sea pollock fishery provides a substantial portion of the local tax base, and there are a number of indirect benefits as well, including participation by some communities in the Bering Sea pollock CDQ program (and the structure and benefits of the CDQ program are discussed in another document prepared for the NPFMC). The borough also has three communities that participate directly in the open access Bering Sea pollock fishery: Akutan, Sand Point, and King Cove. In this section, an overview discussion of the borough is provided, followed by a community level discussion of Akutan and a combined community discussion of Sand Point and King Cove.

3.2.1 Overview

The Aleutians East Borough was incorporated in 1987 and spans over 15,000 square miles of land and water on the lower Alaska Peninsula and eastern Aleutian Islands. There are six communities in the Borough, most established nearly 100 years ago as commercial fishing centers (see Table below). Fishing and seafood processing compose over 70 percent of the employment in the Borough. Fishing occurs in the area almost year round. Large commercial vessels harvest cod, pollock, and crab in the Bering Sea. Local fishermen use smaller vessels and fish local waters for herring, halibut, and the various salmon species in the summer, and Pacific cod and pollock in the winter. They deliver their catches to processing plants in King Cove, Sand Point, Point Moller, various floaters operating in the Borough, and, at times, to Akutan.

Table AK-10 Communities of the Aleutians East Borough		
Community	Population	Form of Government
Akutan	420	2nd Class City
Cold Bay	120	2nd Class City
False Pass	64	2nd Class City
King Cove	773	1st Class City
Nelson Lagoon	90	Unincorporated
Sand Point	870	1st Class City
Other	18	--
TOTAL	2355	--
Source: Aleutians East Borough		

The Borough relies almost exclusively upon fish taxes, deriving about 90 percent of its budget from this source (see table below). The Borough levies a 2 percent fish tax, based on ex-vessel value, on all seafood sold or delivered for processing within Borough boundaries. The Borough also receives half of the fish tax which the state collects. Other sources of funds are payments in-lieu-of-taxes from the federal government, and State revenue sharing and municipal assistance funds. The Borough's operating budget for the last several years has been in the range of $1.3 to $1.6 million, so they have an annual surplus. Any surplus is transferred to one of several funds -- Capital Fund, Permanent Fund, Debt Service Fund, Maintenance Reserve, or the School Fund.

Table AK-11 Aleutians East Borough, Fish Tax Receipts			
Year	Borough tax	Borough Share of State tax	Total
1993	$3,083,981.00	$1,792,032.00	$4,876,013.00
1994	$2,557,486.00	$2,424,754.00	$4,982,240.00
1995	$2,340,656.00	$1,834,574.00	$4,175,230.00
1996	$2,319,479.00	$1,279,272.00	$3,598,751.00
1997	$2,181,984.00	$1,367,815.00	$3,549,799.00
1998 (budget)	$2,200,000.00	$1,163,295.00	$3,363,295.00
Source: Aleutians East Borough			

There are three communities in the Borough that are directly engaged in, or dependent upon, the Bering Sea pollock fishery (excluding, for the purposes of this discussion, the CDQ program which is covered in another analysis). This communities are Akutan, Sand Point, and King Cove. The following sections describe the articulation of these communities with the fishery.

3.2.2 Akutan

The community of Akutan was previously profiled in the 1991 SIA in the Unalaska Social Impact Assessment Addendum (IAI 1991), and the details of that profile will not be recapitulated here. Akutan is the site of one of the larger shoreplant facilities that process Bering Sea pollock, and that operation is grouped with (and described with) the Unalaska/Dutch Harbor shoreplants in the inshore profile in this document, and so will not be revisited here. The purpose of this brief section is to underscore the unique aspects of Akutan with respect to potential social impact assessment issues that could arise out of different inshore/offshore allocative alternatives being considered for Bering Sea pollock.

Politically, Akutan is part of the Aleutians East Borough (AEB). Other communities in the AEB that include shore processing plants are King Cove and Sand Point, which are discussed in a subsequent section. (Unalaska is not a part of an organized borough.)

Akutan is a unique community in terms of its relationship to the Bering Sea pollock fishery. It is the site of one of the largest of the shoreplants in the region, but it is also the site of a village that is geographically and socially distinct from the shoreplant. This 'duality' of structure has had marked consequences for the relationship of Akutan to the Bering Sea pollock fishery.

One example of this may be found in Akutan's status as a CDQ community. Initially (in 1992), Akutan was (along with Unalaska) deemed not eligible for participation in the CDQ program based upon the fact that the community was home to "previously developed harvesting or processing capability sufficient to support substantial groundfish participation in the BSAI . . ." though they met all other qualifying criteria. The Akutan Traditional Council initiated action to show that the community of Akutan, per se, was separate and distinct from the seafood processing plant some distance away from the residential concentration of the community site, that interactions between the community and the plant were of a limited nature, and that the plant was not incorporated in the fabric of the community such that little opportunity existed for Akutan residents to participate meaningfully in the Bering Sea pollock fishery (i.e., it was argued that the plant was essentially an industrial enclave or worksite separate and distinct from the traditional community of Akutan and that few, if any, Akutan residents worked at the plant). With the support of the Aleutian Pribilof Island Community Development Association (APICDA) and others, Akutan was successful in a subsequent attempt to become a CDQ community, and obtained that status in 1996.

This action highlights the fundamentally different nature of Akutan and Unalaska. Akutan, while deriving economic benefits from the presence of a large shoreplant near the community proper, has not articulated large scale commercial fishing activity with the daily life of the community. While

US Census figures show the Akutan with a population of 589, the Traditional Council considers the "local" resident population of the community to be around 80 persons, with the balance being considered "non-resident employees" of the seafood plant. This definition, obviously, differs from census, state, and electoral definitions of residency, but is reflective of the social reality of Akutan. The residents of the village of Akutan, proper, are almost all Aleut.

Akutan also differs from Unalaska in terms of opportunity to provide a support base for the commercial fishery. There is no boat harbor in the community, nor is there an airport. While there is a 'local' commercial fishery, this is pursued out of open skiff type of vessels, and participation in this type of enterprise has reportedly declined in recent years. (Through the CDQ program, however, at least one group of individuals is pursuing obtaining a commercial fishing vessel, though it would have to be operated out of Unalaska due to the lack of port facilities in Akutan.) The Akutan village corporation does derive economic benefits from the local shoreplant through land leasing arrangements and through sales of goods and services to local seafood plant employees, including check cashing services.

With respect to inshore/offshore allocation related potential social impacts to Akutan, the village is in a unique position. As a CDQ community, Akutan enjoys access to Bering Sea pollock independent of direct participation in the fishery. As home community to a shoreplant, Akutan derives considerable fiscal benefits from inshore operations. As CDQ partners with both inshore and offshore entities, they derive economic benefits from both sectors. According to interviews with local leaders of the city government, the local ANCSA corporation, and the local CDQ organization, there are not likely to be any significant social impacts to Akutan as a result of inshore/offshore allocative alternative decisions, unless the shift were of a magnitude to destabilize the fishery. That is not to say the community leaders, as individuals, have been neutral on the inshore/offshore issue. The community enjoys a good working relationship with the local onshore plant, and those relations have reportedly improved markedly over the last several years. According to interviews at both the plant and in the community, the plant and the community have cooperated to advance each other's position on important issues, and have continue to do so on a non-interference basis. For example, there are a sufficient number of registered voters at the local seafood processor to have an impact on local community politics, but they have not done so, but they have assisted the community in obtaining a stronger voice within the Aleutians East Borough. Similarly, Akutan officials have provided public input on fisheries management issues of interest to the local processor.

In sum, the potential social impact to Akutan as a result of inshore/offshore allocative decisions depends upon how one defines the community of Akutan. If the traditional village of Akutan is the unit of analysis, inshore/offshore alternatives would appear to have little direct impact on the day-to-day lives of individuals in the community, as long as the structure of the sectors stayed roughly the same. On the other hand, if the census/legal definition of Akutan is used, the Akutan is a community more than five times larger than its 'traditional/Aleut' population and, that large margin of difference in population is associated exclusively with the onshore processing operation.

3.2.3 Sand Point and King Cove

Sand Point and King Cove, like Akutan, are a part of the Aleutians East Borough. Whereas Akutan, however, is incorporated as a Second Class City, both Sand Point and King Cove are incorporated as First Class Cities. Like Akutan, both Sand Point and King Cove are home to one shoreplant each that processes Bering Sea pollock. Unlike Akutan, however, neither Sand Point nor King Cove are CDQ communities. Two further differences are key: (a) both Sand Point and King Cove are historically commercial fishing communities that have had processing facilities as part of the community for decades; and (b) both Sand Point and King Cove have resident commercial fishing fleets that deliver to the local seafood processors. With respect to the latter point, Sand Point and King Cove are different from Unalaska. Whereas Unalaska does have vessels owned and operated by 'true' local residents, none of these vessels that would fall into this category deliver pollock to local plants. Sand Point and King Cove resident fleets are involved with pollock, though typically the Bering Sea pollock processed at those plants comes from deliveries from larger boats homeported outside of the community.

The two communities have similar histories with respect to fishing. Sand Point was founded as a trading point and cod fishing station by a San Francisco fishing company in 1898. King Cove was established in 1911 by cannery operators and commercial fishermen, many of whom were Scandinavian immigrants who married local Aleut women. King Cove is located on the south (i.e., Pacific Ocean) side of the Alaska Peninsula, while Sand Point is located on Popof Island in the Shumagin Islands group on the Pacific Ocean side of the Alaska Peninsula. Both communities then share a Gulf of Alaska orientation or GOA/BSAI orientation that the other Bering Sea pollock communities do not.

The following table presents population information for Sand Point and King Cove for the years 1980, 1990, and 1995. These data show that the communities are of a similar scale and, although Sand Point continues to be larger than King Cove, the population difference was less in 1995 than for previous years.

Table AK-12
Sand Point and King Cove Population
1980, 1990, and 1995

Year	Sand Point Residents	King Cove Residents
1980	625	467
1990	878	677
1995	1,022	916
Source: US Census		

Historically, both of these communities saw a large influx of non-resident fish tenders, seafood processing workers, fishers, and crewmembers each summer. For the last several decades, both communities were primarily involved in the commercial salmon fisheries of the area, but with the decline of the salmon fishery, plants in both communities have diversified into other species. This has changed the peak employment times at the seafood plants.

Detailed production figures cannot be disclosed for the plants because of confidentiality restrictions. Aggregated data that includes these plants are presented in the inshore processing sector profile, and relative size of the plants is discussed in qualitative terms in that section. The two plants vary in their pollock product mix, with one plant producing only fillets and the other producing both fillets and surimi

One of the plants obtains Bering Sea pollock in coordination with operations owned by the same company and located in one of the Bering Sea communities. This operation is unique among inshore operators for the degree of coordination across regions and for the way Bering Sea pollock processing is managed between regions. For the other plant, GOA pollock is obtained from the local small boat fleet as well as from a small number of outside boats, but BSAI pollock is obtained exclusively from larger capacity non-resident boats. Neither plant shows up in the 1991 BSAI pollock harvest data, but both appear in the 1994 data, and increased in volume from 1994 to 1996.

Another fisheries link between the two communities is that larger transient vessels operating out of King Cove that cannot find adequate moorage will use Sand Point as an alternative harbor (although it is a 156 mile run between the harbors). Sand Point harbor has a much larger moorage capacity than does King Cove, as shown in the following table.

Both Sand Point and King Cove have moorage waiting lists for vessels over 80 feet in length. Sand Point has 21 vessels on its list, and King Cove has 25 vessels on its list (USACE 1998, 1997).

Table AK-13
Permanent Moorage Slips: Sand Point and King Cove

Sand Point		King Cove	
Vessel Size (ft)	Number of Slips	Vessel Size (ft)	Number of Slips
22 - 30	24	28 - 38	42
31 - 40	54	40 - 53	28
41 -50	28	58 - 65	16
51 - 65	38	--	--
Total	144	Total	86

Source: USACE 1998, 1997

In terms of employment, 87% of Sand Point's workforce is employed full time in the commercial fishery; for King Cove this figure is more than 80% (USACE 1998, 1997). In both cases, fishing employment is followed by local government (borough and local) and then by private businesses. Seafood processing ranks after each of these other employers, meaning that the vast majority of the workforce at the shoreplants are not counted as community residents.

In terms of articulation with the community at large, the plants in Sand Point and King Cove are quite different from those in Unalaska/Dutch Harbor or Akutan. As noted, compared to Sand Point and King Cove, the development of commercial seafood processing in Unalaska/Dutch Harbor and Akutan is a relatively recent development (at least in terms of continuity of operations at specific facilities). Both Sand Point and King Cove processors have longstanding relationships with the local catcher fleet which, in turn, is the source of most employment in the community (among permanent residents). This is a sharp contrast to Unalaska. Unalaska is the site of multiple shoreplants, and has a much more 'industrial' fishery than does either Sand Point or King Cove, but this is changing, particularly with respect to Bering Sea pollock, which is not fished with by the local small boat fleet. The boats delivering to these plants are 'Bering Sea' boats, of the same type delivering to the inshore sector elsewhere.

Another major difference between the fishing industry in Unalaska/Dutch Harbor and Sand Point and King Cove is that role of the support sector in the communities. Unalaska has a well developed support service sector, unlike either Sand Point or King Cove. In both Sand Point and King Cove the lone processing plant provides a variety of fleet support services that the plants in Unalaska no longer have to provide with the development of a support sector. (It should be noted, however, that things are changing somewhat in Unalaska, at least for some of the plants, in the way that service is performed because of the changes in CV ownership patterns. At least some of the plants are taking a more proactive role in boat maintenance and work, as the plants are taking a more direct interest in the boats -- this is somewhat of a reversal of the trend away from Unalaska shoreplants away from doing this type of work. As the local support service sector developed, Unalaska shoreplants were more than willing to get out of the fleet support business for independent delivering boats, to the extent feasible while still maintaining optimum delivery schedules.)

In terms of potential social impacts due to inshore/offshore Bering Sea pollock allocation alternatives, Sand Point and King Cove are in a much less ambiguous position than either Unalaska/Dutch Harbor or Akutan. Unlike Unalaska/Dutch Harbor, neither Sand Point nor King Cove have enterprises related to or derive direct revenues from the offshore sector. Unlike Akutan, Sand Point and King Cove are unable to 'hedge their bets' through participation in CDQ fisheries with the offshore sector.

Unlike Unalaska/Dutch Harbor or Akutan, Bering Sea pollock processing volumes have grown since the inception of this undertaking at the Sand Point and King Cove plants (at least for the years for which data are available). This markedly different trend line potentially foreshadows consequences in terms of a differential distribution of impacts in relation to the other communities. In terms of sensitivity, however, the Sand Point and King Cove plants appear to be expanding their Bering Sea pollock volume while other plants are declining, so there is a different dynamic at work for these plants than for those in other communities. This dynamic would appear to be more significant than would a relatively small shift in allocation (either way).

4.0 BERING SEA POLLOCK COMMUNITY LINKS: SEATTLE

"Seattle" as used in this section refers to the greater Seattle area, and is not confined to the port or municipality of Seattle, except where specifically noted. As is clear from a consideration of the individual sector profiles, Seattle, in one way or another, is engaged in all aspects of the Bering Sea pollock fishery. While Seattle itself is quite distant in geographic terms from the harvest area of the fishery, it is the organizational center of the industrial activity which comprises the human components of this fishery. More accurately, specific industry sectors based in and/or linked to Seattle (or, in some cases, specific geographic subareas within Seattle), are "substantially engaged in" or "substantially dependent upon" the Bering Sea pollock fishery.

4.1 OVERVIEW: SEATTLE AND SOCIAL IMPACT ASSESSMENT ISSUES

What makes Seattle an analytic challenge, in terms of a socioeconomic description and a social impact assessment directly related to the Bering Sea pollock fishery, is its scale and diversity. Seattle's relationship to the Bering Sea pollock fishery is a paradox. When examined from a number of different perspectives, Seattle is arguably more involved in the Bering Sea pollock fishery than any other community. One example is the large absolute number of "Seattle" jobs within the Bering Sea pollock fishery compared to all other communities, whether counted in terms of current residence, community of origin, or community of original hire -- setting aside, for the moment, where the jobs are actually located. On the other hand, when examined from a comparative and relativistic perspective, it could be argued that the fishery is less important or vital for Seattle than for the other communities considered. Using the same example, the total number of Bering Sea pollock fishery related jobs in greater Seattle compared to the overall number of jobs in Seattle is quite small, in contrast with the same type of comparison for the much smaller Alaska coastal communities. The sheer size of Seattle dilutes the overall impact of the Bering Sea pollock fishery jobs, whereas in Alaskan communities such jobs are a much greater proportion of the total employment in the community – setting aside, for the moment, the consideration of whether those jobs are filled by 'residents.'

As is also clear from the sector descriptions, while all sectors are tied to Seattle in one way or another, the magnitude and nature of these ties varies considerably between sectors. It is through these ties, and how they are manifested in Seattle, that we will examine the role of the community in the Bering Sea pollock fishery. That is to say, the overall size and complexity of Seattle precludes its comprehensive description and analysis in terms of potential social impact effects of the allocative alternatives for inshore/offshore-3. While it was possible, and desirable for analytic purposes, to include some brief community level description for the Alaska coastal communities in this document so show the relative 'engagement' or 'dependence' on the fishery, for Seattle this type of comparison tends to understate the importance of the Bering Sea pollock fishery for particular sectors or subareas. To avoid losing the importance of the fishery in the 'noise' of the greater Seattle area, the potential reallocation effects will instead be evaluated in terms of Bering Sea pollock fishery industry sectors and their linkages to Seattle.

The precise nature of the relationship between a given sector and the Seattle area varies from sector to sector, and a primary function of this section will be to examine sector specific information in such a way that, in combination with some additional information on the area itself, the potential effects of the allocative alternatives upon Seattle can be estimated. Attention will focus on three main areas for each sector -- employment patterns, expenditure patterns, and concentration or localization in the Seattle area. These discussions will, to a large degree, be qualitative in nature and will vary in terms of detail, as systematic quantitative information was not available at the time of this study. Where quantitative information was provided by individual entities, this information will be incorporated to the extent that confidentiality considerations allow. We will also be able to supplement the discussion of the geographic 'footprint' of the fishery in Seattle through the use of information supplied by the Port of Seattle, as well as information from some earlier planning studies by the City of Seattle relevant to the concentration of fishery related industry within the metropolitan area.

That is, there are (at least) two ways to approach a discussion of the localization of fishing activity in general, and Bering Sea pollock fishery activity in particular, within the Seattle area -- through a focus on port activity and organization, and through a more general historical/geographical (neighborhood or community) focus centered around fishermen, fishing activities, and marine support businesses. The first has the advantage of being well-defined, but is totally industry focused, and fishing-related activities comprise only a small portion of total activity and are not an easily 'isolatable' component using existing information. The second, generally corresponding to the common identification of Ballard and its environs with Seattle's fishing community, would incorporate much more of the overall social organization of fishing activity, but is very difficult to define and characterize within an overall economic and social context as large as Seattle's.

We have compromised in this document by briefly discussing the Port of Seattle in regard to the Bering Sea pollock fishery and a cursory history and characterization of Ballard within the context of greater Seattle. This is followed by a sector-by-sector discussion of linkages to Seattle. This section concludes with a discussion of the issue of providing a perspective from the 'community side' of the links which first overviews the fishery from the community context, and then focuses on fishery related industrial areas.

4.2 THE SEATTLE 'GEOGRAPHY' OF THE BERING SEA POLLOCK FISHERY

In this section, we discuss locational issues with respect to the Seattle area and the Bering Sea pollock fishery. Here we divide the discussion into two components: the Port of Seattle and the community of Ballard. Each provides a different and useful perspective on the Seattle social/socioeconomic ties to the fishery.

4.2.1 The Seattle Geography of the Bering Sea Pollock Fishery: The Port of Seattle

Our use of "Seattle" in a regional way notwithstanding, one of the most obvious possible ways to talk about the localization of the fishing economy in Seattle, and the concentration of potential social impacts of allocative alternatives in the Bering Sera pollock fishery upon Seattle, is in terms of the Port of Seattle. Another would be to attempt to discuss these same topics in terms of the fishing identity of the neighborhood of Ballard. Neither is a straightforward task, but the first is much more possible than the second, given the practical limitations on the availability of data attributable to the Bering Sea pollock fishery specifically. Further, the port is well defined as an institutional entity, whereas Ballard as a community is not. However, it will be possible, because of recent City of Seattle planning efforts for an area called the Ballard Interbay Northend Manufacturing Industrial Center (BINMIC) which essentially combines fisheries-related geographical components of the Port of Seattle and the Ballard neighborhood, to discuss Ballard to some degree.

The Port of Seattle is separate from the Municipality of Seattle, and is an economically self-supporting entity. Besides its direct revenues, it receives 1 percent of the property tax collected in King County, but with a cap on funding not to exceed $33 million a year. In turn, all port revenues are charged a 12.4 percent tax, which is split between the city of Seattle and the state of Washington (in lieu of property tax). The Port's charge is the development of infrastructure that will support local and regional economic activities, especially in cases where the rate of return on investment in that infrastructure may be too low (although still positive) for the private investor. Such development contributes to the overall economy of the region through synergistic and multiplier effects.

The Port of Seattle includes not only marine facilities but the airport as well. The Port publishes various reports on their activities, but most are either too general for our purposes or far too specific. The Marine Division of the port tracks economic activity by general service area -- container terminal, cargo piers and industrial properties, central waterfront piers and property, warehouse and distribution operations, Shishole Bay Marina (recreational moorage), and Fishermen's Terminal Pier and property. None of this information is organized so that expenses and revenues attributable to fishing activity (let alone specific fisheries such as the Bering Sea pollock fishery) can be aggregated and assessed -- although projects now underway will, in the future, provide such information to a greater degree than at present. Given this lack of breakout documentation, most of our information on the nature and magnitude of the importance of the Bering Sea pollock fishery for Port of Seattle came from talks with the Director of Marine Operations for the port.

The port's marine facilities occupy an extensive area, but can generally be characterized as the Ship Canal-Elliott Bay areas. The Director of Marine Operations estimated that Bering Sea related fishing activity generates port revenues of $1,000,000 to $2,000,000 a year. Facilities, and the degree to which they are connected with fishery activities, were identified as follows:

- Fishermen's Terminal (Ship Canal) -- an estimated 10 percent of its revenues (roughly $2,000,000 for all fisheries per year) were judged to result from catcher processor operations, and an additional 10 percent from catcher vessel activity associated with Bering Sea fisheries (not just pollock);

- Pier and Terminal 91 (North Elliott Bay) -- used extensively by catcher processor fleet, and long-term moorage for American Seafoods catcher processor fleet, and provides the bulk of the port's revenue derived from the Bering Sea pollock fishery, through moorage and other fees. This facility also caters to ferries, a tug and barge company, an auto importer, apple exports, and cold storage facilities;

- Central waterfront (mid-Elliott Bay) piers are not so fishery related, although they are sometimes used by larger vessels (Pier 48, Pier 66, Pier 69);

- Pier 25 (East Duwamish Waterway, south Elliott Bay) -- permanent moorage for the Ocean Phoenix mothership, but also used for catcher processor offloading, has cold storage facilities to hold product for transhipping, and a small surimi plant is located there;

- South end in general (Duwamish manufacturing and industrial center) -- has some fisheries related activities (such as cold storage facilities) but is more oriented to cargo operations and other industrial activities.

The summary conclusion is that fishing-related activities take place throughout the port, but are concentrated in the Fishermen's Terminal and Pier 90/91 areas. Of primary importance for fishing activity, and especially for larger vessels, is the availability of suitable moorage. Much of this moorage is supplied by the port (discussed below), in an aggressive response to the demand from the fishing fleet. The initial development of Fishermen's Terminal thirteen years ago was because of the perceived need for more moorage for larger vessels involved in the distant water fisheries. Two years ago an additional $25,000,000 was spent on Fishermen's Terminal work. A substantial portion of Pier 91 has also been rebuilt, with the remainder scheduled to be rebuilt at a cost of an additional $60,000,000.

4.2.2 The Seattle Geography of the Bering Sea Pollock Fishery: The 'Community' of Ballard

Today the term 'Ballard' represents a loosely defined geographical neighborhood of northwest Seattle. There is no geographically standard area for which various sorts of comparable information exists. Nonetheless, the area does have a geographical identity in peoples' minds and, together with Magnolia and Queen Anne, has its own yellow pages telephone directory (published by the Ballard and Magnolia Chambers of Commerce). The following brief section is based predominately on information from the Ballard Chamber of Commerce (1998), Reinartz (1988a, 1988b, 1988c, 1988d), Hennig and Tripp (1988), and McRae (1988).

Fishermen's Terminal on Salmon Bay is recognized as the home of the Pacific fishing fleet, and has been characterized as the West Coast's 'premier homeport.' Fishermen's Terminal (Salmon Bay Terminal) in turn has often been identified with Ballard -- formerly a separate city (incorporated 1890) annexed by Seattle in 1907. Until the construction of the Chittenden Locks and the Lake Washington Ship Canal, opened in 1917, Salmon Bay Terminal was confined to relatively small vessels, but was the focus of a developing fishing fleet. Once the area was platted and incorporated it quickly attracted settlers and industries desiring or dependent upon access to Puget Sound. The timber industry was the first to develop, due to the need to clear land as well as the value of the timber that was available. By the end of the 1890s Ballard was a well established community with the world's largest shingle manufacturing industry, as well as developing boat building and fishing industries. By 1900 Ballard was the largest area of concentrated employment north of San Francisco.

Ballard effectively blocked the expansion of Seattle to the north, and court decisions had given Seattle control over Ballard's fresh water supply, with the result that Ballard became part of Seattle in 1907. At that time the community had 17 shingle mills, 3 banks, 3 saw mills, 3 iron foundries, 3 shipyards, and approximately 300 wholesale and retail establishments. The Scandinavian identity of Ballard developed at or somewhat before this time. In 1910, first and second generation Scandinavian-Americans accounted for 34 percent of Ballard's population, and almost half of Ballard's population was foreign-born. Currently, less than 12 percent of the population is of Scandinavian descent, but the cultural association remains pervasive.

Ballard's economy continued to develop and diversify, but remained fundamentally dependent on natural resources, and especially timber and fishing. In 1930 the *Seattle Weekly News* reported that 200 of the 300 schooners of the North Pacific halibut fleet were homeported in Ballard, demonstrating not only the centrality of Ballard but the long-term importance of distant water fisheries to Seattle fishermen. In 1936 the Port of Seattle built the need for a new wharf at the Salmon Bay terminal, and in 1937 a large net and gear warehouse was scheduled for construction there. The evolution of North Pacific fisheries, and the role of Seattle vessels in that history, will not be traced here as it should be reasonably familiar to readers of this document.

What is important to recognize with respect to the present analysis is that in some ways Ballard is considered a 'fishing community within' Seattle. While this has historically been the case, when examined with specific respect to the Bering Sea pollock fishery, the area cannot cleanly be considered a 'village within a city.' While there is a concentration of multigeneration fishing families within the area, the 'industrialization' of the Bering Sea pollock fishery, this has tended to disperse the ties of the fishery throughout the area. While support service businesses remain localized to a degree (as discussed in another section below), there would not appear to be a continuity of residential location that is applicable to the Bering Sea pollock fishery that is consistent with, for example, the historic halibut fishery. It is also important to keep in mind that the Bering Sea pollock fishery is a relatively 'new' fishery (when one thinks in terms of fishing generations) and this has a marked influence on the specific Bering Sea pollock fishery ties to the historic centers of fishing within Seattle. This 'community within the community' issue is not straightforward due to the complex nature of historical ties, continuity of fishing support sector location through time, changes in the technology and methods of fishing, and the industrialization of the fishery, but clearly Seattle represents a different pattern of co-location of residence and industry with respect to the Bering Sea pollock fishery than that seen in the relevant Alaska communities.

4.3 SEATTLE AND THE LINKS TO SPECIFIC BERING SEA POLLOCK FISHING SECTORS

In this section we provide a perspective on the links between Seattle as a community and the relevant individual sectors of the Bering Sea pollock fishery as described in other sections of this report. This type of information is specifically intended to portray the dynamic relationship of Seattle to all of the relevant sectors, and discuss the nature and degree of variation between sectors.

4.3.1 Seattle and the Inshore Processing Sector

Included in this discussion are floating processors and shoreplants. We have only limited information for the former, and because of their limited numbers face confidentiality constraints in any event. Thus, floating processors are discussed only briefly as a separate class, while shoreplants are discussed at greater length.

Floating Processors

All floating processors with a significant participation in the Bering Sea pollock fishery for 1991, 1994, or 1996 were managed and operated out of Seattle. Their relative share of the total amount of Bering Sea pollock processed in those years increased from 2 percent to 6 percent, while the number of operations varied little in terms of absolute number of participants (and the larger operations appear in all three years data). While moveable in theory, Bering Sea pollock floating processors tend to operate in relatively fixed locations in Alaskan state waters, outside of incorporated city and organized Borough boundaries. They thus have minimal interaction with local Alaskan communities and can be characterized as true industrial enclaves. As noted in the inshore sector profile, they employ relatively few Alaska residents, another potential measure of local community or at least state labor force interaction. This, along with the fact that these operations are supported out of the Seattle area (with some logistical support in Unalaska/Dutch Harbor, and marked reliance on air transportation links to the community), would appear to reinforce the overall ties of this subsector to Seattle as opposed to the Alaska communities closer to their areas of operation.

Shore Plants

All shore plants which process Bering Sea pollock are located in Alaska, but all have multi-level ties to Seattle. All are administered from corporate headquarters in Seattle, which is the center for corporate and financial services. Thus, Seattle is the community where business decisions are made, or at least deliberated, for the Alaska shore plants (setting aside, as for other sectors, the complicating issue of degrees foreign ownership that vary by entity). This distinction should not be carried too far, however, as plant managers resident in the communities clearly have a role in corporate decision making, and executives based in Seattle also spend time in the Alaska communities where their plants are located. Nonetheless, the role of 'Seattle' in the decision making process, and the profound influence that process has in the Alaska shoreplant communities, is well recognized in the communities themselves. With the maturing of the fishing industry, the growth of local infrastructure and support services, and the overall changes in Unalaska/Dutch Harbor it is no longer common to hear people express their recognition of the strong industry ties between Unalaska/Dutch Harbor and Seattle by saying that in some respects Unalaska is a 'suburb of Seattle' as was not uncommon in the mid-1980s. The center-periphery relationship is perhaps more complex than ever for this sector. Seattle is the center of corporate operations; Unalaska/Dutch Harbor is the center of processing operations and the interdependencies are many and complex.

In addition to being a decision making and important administrative support community for the shoreplants, Seattle also is the location of some direct employment associated with the shore plant companies. While administrative shore plant sector employment in Seattle consists of relatively few jobs compared with positions at the plants themselves, the Seattle component has a greater proportion of upper compensation range jobs.

Physical plants for secondary processing are located in the Pacific Northwest, other parts of the country, and overseas. Some have direct business operation connections with primary processors (both onshore and offshore). This part of the industry has very wide geographical distribution, however, and was not the object of any research effort.

The day-to-day management of the labor force of shore plants in Unalaska/Dutch Harbor tends to consist of year round community residents (though these individuals were initially recruited from elsewhere). Managers of other shore plants tend to maintain homes outside of Alaska (many in the Seattle area), even though most spend most of their time in Alaska and may well qualify as Alaskan residents.

The bulk of the labor force for shore plants consists of the maintenance/support and the processing crews (although the two may well overlap). The former tends to be employed on a more year-round basis, and thus tends to be more of an Alaska resident labor force. The latter tends to have a higher turnover and, with a significant percentage of the workforce still coming from the PNW and the greater Seattle area in particular, employment ties to Seattle are still important for Bering Sea community based operations. As discussed in the sector profile, for the sector as a whole in 1996, non-Alaskan employees accounted for approximately 80% of the total workforce, but this figure varies widely by plant, with the range encompassing less than 10% to almost 40% of the workforce being Alaska residents of any one operation. While it is important to recall that there are significant differences between 'residence' and the location of jobs, as discussed in the inshore sector and Alaska communities section, there are impacts derived from the physical location of jobs more or less independent of the formal residency status of the workforce. The following two tables (Tables SEA-1 and SEA-2) provide information on the relative contribution of the shoreplants to the Alaska and non-Alaska employment pools. While specific break-outs are not available, it may be safely assumed that the bulk of the non-Alaska jobs come from the PNW region, and a disproportional number of those from Washington state and the greater Seattle area.

Interviews with processing personnel conducted for the 1994 SIA would indicate that a not insignificant portion of the wages paid to workers in Alaska plants were used to help support extended families outside of the region. While quantitative data do not exist regarding this type of wage flow, it is one more indication (particularly given a general knowledge of the industry) of the ties between the shoreplants and Seattle (and the greater West Coast area).

In terms of support services for the shore plants, Seattle would appear to play a similar role for the shoreplant sector as it does for several of the other sectors, in nature if not in relative magnitude. Shoreplants do purchase goods and services in their 'host communities' but this is highly variable by plant and community. Unalaska/Dutch Harbor has the highest degree of development of local support services, but it is still the case for this community that materials and supplies needed for the operation of the plants are not manufactured locally, and a great deal of these are shipped out of the Seattle area, given that Seattle is both the headquarters of the individual companies and the nearest major port in the Lower-48.

Table SEA-1
Alaska Residents as Percentage of Total Workforce
Bering Sea Shoreplants: 1991, 1994, and 1996
by Individual Entity and Sector Total

Entity	1991		1994		1996	
	Alaska Resident	Non-AK Resident	Alaska Resident	Non-AK Resident	Alaska Resident	Non-AK Resident
A	19%	81%	8%	92%	8%	92%
B	24%	76%	22%	78%	24%	76%
C	22%	78%	18%	72%	17%	83%
D	21%	79%	23%	77%	26%	74%
E	31%	69%	36%	64%	39%	61%
Total Sector	20%	80%	19%	81%	20%	80%

Source: Data derived from NPFMC provided figures for quarterly employment. Quarterly employment figures per year were summed and then percentages derived from summed figures.

Table SEA-2 Employment Summary, One Bering Sea Pollock Shoreplant Percentage of Alaska Resident Employees and Percent of Total Wages Paid to Alaska Residents, 1990-1998		
Year	% Alaskan Employees	% of Total Wages AK Residents
1990	29.08%	45.73%
1991	24.07%	44.68%
1992	19.40%	42.43%
1993	20.27%	43.07%
1994	22.74%	43.90%
1995	31.40%	45.88%
1996	22.69%	48.27%
1997	16.37%	33.19%
1998*	19.96%*	29.58%*

*1998 Figures are for 01/01/98 through 02/21/98 only.

Source: Constructed from confidential employment figures, specific [unnamed] Unalaska/Dutch Harbor-Akutan shoreplant.

In terms of expenditure patterns for the shore plant sector in relation to the Seattle area, there are several main areas to consider. First, the shore plants buy fish from the catcher vessel fleet and, as detailed in the sector profile for the CV fleet, the fleet is primarily based in Seattle and the PNW. While there has been a considerable shift in ownership patterns with respect to shore plants as a sector, with processing entities coming to own and/or control a considerable percentage of their delivering fleets, interview data would suggest that there has not been a dramatic shift in employment patterns for crew members. That is, while the locus of ownership may have changed, the patterns of employment have not appeared to do so, with most of the crew members and skippers coming out of the Seattle and PNW area. (How 'home port' has changed is a more complex issue, and is addressed in the CV sector profile.) This being the case, crew compensation as a function of shore plant expenditures for Bering Sea pollock disproportionately accrue to Seattle and the PNW as a region. Second, expenditures for support services would appear to be primarily directed toward the Seattle/Pacific Northwest area. Third, corporate finances would appear to flow through Seattle, so the community would derive economic benefits from these transactions. In short, shoreplant expenditures could not be seen as having no significant impact on Seattle when examined on a sector basis. The localization of such expenditures within Seattle is less clear.

In terms of fiscal impacts to Seattle, clearly the differences of scale between Seattle and the Alaska shoreplant communities make a great difference in relative significance of the sector. Beyond this, there are different types of fiscal inputs/taxation relationships between the companies and communities based on were the actual 'work' or 'industry' of processing takes place. In the shore plant communities themselves, the plants, as described in the Alaska communities discussion, provide a basic fiscal underpinning for local government in the form various business, property, sales, and fish taxes. Seattle, not being the 'industrial' center of the processing has a different relationship to the industry.

4.3.2 Seattle and the Mothership Sector

Motherships, as a sector, have strong ties to the Seattle area. As noted in the mothership sector description itself, all three Bering Sea pollock mothership operations are headquartered in Seattle, and the motherships themselves are managed and supported principally out of Seattle. Hiring is done from Seattle and, while we have no statistical breakdown of the mothership labor force, most come from the lower-48 and most are reportedly from the Pacific Northwest.

Given that the operations are headquartered in Seattle, the community acts as a corporate center for this industry sector, in terms of corporate and financial services support. There are a few administrative/office positions for each company in Seattle, but these account for less than 10% of the workforce in every case, even at the low end of operational range staffing aboard the vessels.

In terms of fiscal impacts to communities, like catcher processors, motherships are subject to the resource landing tax in Alaska, so they have come to have a different fiscal relationship to Alaska communities in recent years in contrast to earlier years. Individual operations vary in the location and number of offloads, so there is variability between operations in this regard, but motherships in general appear to offload fewer times in Alaskan communities than do catcher processors. At least one is reported to sometimes take product directly to Japan, and all report taking their 'last load' to a non-Alaskan port.

The catcher vessel fleet for motherships tends to have Seattle owners and to be maintained in the Seattle/Pacific northwest region. Some vessels have California or Alaska owners, or may have some connections with Oregon. Regardless of ownership or "homeport" designation, many of these catcher vessels normally remain in Alaskan waters between the pollock "B" and pollock "A" seasons unless there is a compelling reason for them to go to Seattle. Those mothership catcher vessels with Pacific whiting permits have an incentive to go south after the pollock "A" season, and those from that region are those most likely to have such permits, and they will normally schedule maintenance calls in Seattle during this period. Mothership catcher vessels do participate in more fisheries than does the mothership itself, but Bering Sea pollock is their most important fishery.

Many of the mothership catcher vessels, and those now specializing in delivery to catcher processors, participated in the JV fisheries and are generally thought to be less suitable for onshore Bering Sea pollock delivery than most other catcher vessels. Even so, most of these vessels have been modified so that it is at least feasible that they could develop onshore markets should that prove necessary. The stability of the mothership sector, including the catcher vessel fleet, partly reflects the profitability of the arrangement for the catcher vessels, but also reflects in part the lack of competitive alternatives for those vessels.

Mothership labor forces are predominately Seattle-based. Offices are maintained in Seattle, one in conjunction with its pollock CDQ partner and its parent onshore processing company. The actual mothership work forces range from 80 to 140 on the two smaller operations and 190 to 220 on the larger operation. An increasing number of these employees are reported to be from Western Alaska, especially on the CDQ partner vessel, but at present this would appear to represent no more than 20 positions per vessel. The larger operation employs a crew of 40 to 60 people to maintain the vessel and thus work 6 to 7 months a year. Office staff works year round, and the rest of the crew works only while the vessel is actively fishing or in transit (estimated at 90 days or so).

All mothership operations report using Seattle as their primary logistical base. That is, they will leave Seattle with as many of the supplies that they will need for the fishing season as possible. All contrasted this with the pattern of their catcher vessel fleet, which obtains most of its logistical support from Alaskan ports. The mothership reportedly does not carry supplies for its catcher vessel fleet (citing lack of storage capacity aboard their vessels). Motherships have a limited number of opportunities to take on additional supplies in Alaskan ports, since they normally do not have many offloads in Alaskan ports. Linkages to Alaskan communities are thus mostly through the resource landing tax paid on offloaded product and the activities of their catcher vessel fleet. Most mothership community linkages are with Seattle.

4.3.3 Seattle and the Catcher Processor Sector

The catcher-processor sector is the "most" Seattle of Bering Sea pollock fishery sectors, both in terms of ownership as well as localization of corporate and support operations. Employment is predominately from Washington state, as discussed in some detail in the catcher processor sector description, and summarized in the Tables SEA-3 and SEA-4 below. This information will be briefly reviewed here as well, from the Seattle/Washington perspective.

The pattern of catcher processor employment for both years is quite consistent, although because of increased Alaskan hire the percentage of Alaskan employees increased more in relative terms between 1996 and 1997 than did that of Washington state or other state employees. For both years, Washington state residents filled 65 to 67 percent of all job opportunities, accounted for 67 to 70 percent of all FTE years of employment, and received 71 to 73 percent of total compensation paid by the sector. Washington state residents thus seem to occupy the better paying positions, as their percentage of total compensation is greater than the percentage of positions which they actually occupy. For residents of other states, the percentages of all these categories are much closer to each other, ranging from 25 to 27 percent of the total. Further, this would imply that other state residents are distributed fairly evenly in the work force (long-term/short-term, all compensation levels). Alaskan resident employees display a much different pattern. For 1996 they occupied 6 percent of all job opportunities, 4 percent of total FTE years, and received 3 percent of total sector compensation paid. For 1997 these numbers increased to 9 percent, 6 percent, and 4 percent respectively. This clearly indicates that Alaskans, for what ever reasons, tend to work for shorter periods of time and receive less in compensation than other members of the work force.

Table SEA-3
Catcher Processor Sector Contribution to Employment, Washington and Other States
1996

State of Residence	Employment Opportunities	Gross Pay & Benefits	FTE Years of Employment	Pay per FTE Year
Alaska	177	$2,140,853	77.5	$27,623.91
Washington	1958	$52,652,553	1296	$40,626.97
other	789	$17,798,419	467.7	$38,055.20
TOTAL	2924	$72,591,825	1841.2	$39,426.37
per vessel (15)	195	$4,839,455	123	
AS PERCENTAGES				
Alaska	6%	3%	4%	
Washington	67%	73%	70%	
other	27%	25%	25%	

Source: APA provided information

Corporate management and operations of the catcher-processor fleet is concentrated in the Seattle and Puget Sound area, as is ownership (Tables Int-6a and Int-6b). For 1996, all twenty surimi catcher processors and the great majority (15 of 19) of fillet catcher processors report Washington state ownership. Alaskan owners are credited with 3 of the latter type of vessel, and Maine with 1, although even these entities have a Seattle office to manage operations. These vessels are typically not present in Alaska when not working, although there have been a very limited number of recent exceptions for ship work in Alaskan ports, and a very limited number of vessels (3 FCPs and 3 SCPs) were reported to have Alaskan homeports in 1996. Even these vessels for the most part use Seattle or Pacific Northwest facilities for regular maintenance and support. This pattern has been somewhat modified by the investment of two CDQ groups in the offshore sector, one through purchase of partial ownership in a catcher processor and the other through purchase of a 50 percent interest in a parent company which owns two catcher processors and other assets. A third CDQ group formerly had an interest in a catcher processor, but divested as the result of a failed partnership. These ownership shifts have affected some aspects of the operations of these vessels, but not the centralization of management and support services for them in Seattle.

Table SEA-4 Catcher Processor Sector Contribution to Employment, Washington and Other States 1997				
State of Residence	Employment Opportunities	Gross Pay & Benefits	FTE Years of Employment	Pay per FTE Year
Alaska	366	$4,720,743	196	$24,085.42
Washington	2663	$76,254,686	2180	$34,979.21
other	1085	$27,038,173	877	$30,830.30
TOTAL	4114	$108,013,602	3253	$33,204.30
per vessel (23)	274	$7,200,907	217	
AS PERCENTAGES				
Alaska	9%	4%	6%	
Washington	65%	71%	67%	
other	26%	25%	27%	
Source: APA provided information				

Catcher processors harvest and process Bering Sea pollock in Alaskan waters and, although Seattle based, have fiscal ties to Alaska through the payment of resource landing tax on the product they offload in taxable jurisdiction areas. For example, as noted in the discussion of Alaska communities, resource landing tax is a significant source of income to the community of Unalaska/Dutch Harbor. Surimi catcher processors will typically land their last load in Seattle, since they must make the trip anyway (but this varies somewhat by operation, and depends on a number of variables such as ultimate market, shipping costs, timing with respect to participation in other fisheries, and so on). Fillet catcher processors may also do so, but most have other possible Alaskan fisheries that they can participate in after pollock, so that they tend to land more of their total pollock production in Alaska.

Catcher processor vessels are moored and maintained in the Seattle/Pacific Northwest area. The Port of Seattle has made a sizeable investment in renovating part of Pier 91, and is in the process of renovating the rest, partly in response to the need of the largest catcher processor company for moorage and other work space for its operations. The ability and desire of this company to sign a long-term lease enabled the Port of Seattle to finance these renovations, so there is a direct link seen between the Bering Sea pollock fishery and port development. The Puget Sound area, and the Port of Seattle within the Puget Sound area, provides the majority of moorage available for the Bering Sea pollock fishery fleet (and especially so for catcher processors).

There were 39 catcher processors in the Bering Sea pollock fishery in 1996, and earlier data suggest that each has 100 to 150 employees and a crew income of $3 to $5 million (Miller et al. 1994). The labor force for catcher processors is predominately from Washington state. Systematic (but partial sector) information from 1993/94 and indicates that 68 percent of all catcher processor employees are residents of Washington state, with 19 percent Alaskan residents, 12 percent from other western states, and 1 percent "other." More recent, but also partial sector, information for 1996 and 1997 shows much the same pattern. For 1996, the percentage of Washington state employees was 67 to 73 percent (depending on whether one looks at job opportunities, FTEs, or gross pay and benefits). The percentages for Alaskan employees ranged from 6 percent of employment opportunities to 3 percent of total gross pay and benefits paid. For 1997 the range for Washington employees was 65 to 71 percent, and for Alaskans 9 percent (job opportunities) to 4 percent (gross pay and benefits). (This is the reverse of the pattern seen in the limited data available for shore processors, and likely results from the differential time depth of Alaska hiring and individual position longevity, among other factors.) Oregon residents were at a level of 3 to 4 percent, Idaho at 1 to 2 percent, California at 6 to 8 percent, and "other" at 12 to 13 percent. This is quite a wide geographical spread, and although there is some indication that Seattle residence may be reasonably common, there are also indications that the labor force can also be highly mobile.

Turnover varies from year-to-year and is highly dependent on level of compensation. Some people make careers of working on catcher processors, while others treat it as a seasonal activity or a "stage of life" activity. The one group of employees that was readily identifiable were those Alaskans hired from western Alaskan villages, primarily by fishing operations with CDQ partnerships. The program has not been in operation long enough to establish definite patterns, and the analysis of the CDQ program is being covered under a separate study effort, but indications are that many are using such employment as a way to earn seasonal wages to support life in the village. At least a limited number of individuals have relocated to Seattle, based on catcher processor employment, although interview data would indicate that they maintain contacts with relatives and return to the village at frequent intervals. Management and the vessel maintenance labor force, to the degree that such work does not require work in a shipyard, is clearly concentrated in Seattle.

Our interview information, derived from contact with five companies with 27 vessels, supported this general picture. Most employees are from Washington or other western states, with Seattle being the major (or only) point of hire. For those operations with CDQ partners, this was generally modified by an effort to incorporate CDQ group residents into the fishing (and other) operations through entry level positions and intern training programs. The companies contacted for the study reported that Alaskans comprised about 14 to 19 percent of their labor forces, and some of the firms had Anchorage or even more regional Alaskan hiring offices. An entry-level employee who works all trips on a fillet-capable vessel could earn $55,000. CDQ partnerships help stabilize and retain the access to fish resources, but do not really increase the access of the operation to capital or management resources, where Seattle has remained the primary source.

Available information on expenditure patterns of the catcher processor fleet is fairly sketchy. The catcher processor sector fleet, on average, purchases 10 percent of its open-access pollock from the catcher vessel sector fleet, which is itself predominately Seattle-based. From our interview information, individual companies varied from buying almost no pollock from catcher vessels up to 33 percent of their total open access pollock. Data from a relatively recent study put other operational expenditures as typically between $10 and $15 million a year (Miller et al. 1994) and are spent primarily in Seattle or the Seattle area. Some drydock work has recently been done in Alaskan ports, specifically in Ketchikan, and in-season work also takes place in Alaska. Seattle is the only locale with a concentration of facilities that can provide these services for a large number of vessels, with the possibility for competitive bidding. Our interviews with most firms resulted largely in more general level information, as individual operations were hesitant to provide this detail, perhaps because of the time required to provide it in a systematic and complete form, not to mention the confidentiality of actual expenditure amounts and patterns. The general pattern, however, was clear: catcher processor operators consistently indicated that most expenditures were made in or through Seattle or the Puget Sound area -- with in-season support from Alaskan sources as required. They were quick to point out that they needed to purchase large amounts of fuel in Unalaska/Dutch Harbor, paid a great amount of dock fees and resource landing taxes there, and in general provided a good deal of support for that community, both through fees and taxes and direct expenditures. At the same time, like all other businesses, their operations are managed to minimize expenses, and in most cases this entails supplying the vessel as much as possible from Seattle.

One indication of the range of services that an individual vessel requires, and the magnitude of the cost involved, comes from the list of "unsecured" creditors of one of the catcher processors which most recently went bankrupt. The total unsecured debt was $3,589,099, owed to 48 creditors. Of the 48 creditors, 35 (73 percent) had Washington addresses, most in Seattle and all in the greater Seattle area. These represented about 62 percent of the total unsecured debt. Of the other 13 creditors, 10 were domestic (3 Alaska [2 of which were in Unalaska/Dutch Harbor], 3 Maryland, 2 Texas, and 1 each in New York and Ohio) and 3 were foreign (1 each in Japan, Canada, and England). Of the 3 largest single debts, one was to the New York creditor and one was to the Japanese creditor. The goods and services represented by the debts span a wide range of operations -- equipment suppliers, repair and maintenance providers, fuel and other operational good providers, transportation and shipping companies, insurance and other business service providers, cold storage and other operations service providers, local retailers of various sorts -- which serve as one measure of how the economic effects of any capital intensive enterprise ripple throughout an area where it is concentrated. The inclusion of the New York and Japanese creditors serve to remind us of the worldwide nature of the organization of this industry (especially in terms of finance and sales), but the bulk of the operational debts also indicate the degree to which goods and services are obtained in the Seattle area.

The community economic/fiscal links of the catcher processor sector can be summarized by the overall dichotomy or comparison of (Seattle) financial, most maintenance, and initial supply costs as opposed to (Alaskan and especially Unalaska) in-season operational costs. The majority of the labor force is in some way linked to Washington state or the Pacific Northwest. Thus, in terms of absolute value, the sector expends a great deal more, to a much wider economic network, in Seattle than it does in Alaska and Unalaska. The relative scales of the economies in Seattle and Alaska (especially Unalaska) make this comparison in absolute terms questionable, however -- at least in terms of whether the catcher processor sector is 'more important' for Seattle or Unalaska. That is, although the 'value' of the offshore sector to the community of Unalaska/Dutch Harbor, particularly in relation to the onshore sector, is the subject of considerable community debate, it would appear that in relative terms, the offshore sector is a larger percentage of the Unalaska/Dutch Harbor economy than it is of the Seattle economy, despite the fact that the absolute level of expenditures in Seattle is much, much higher than in Unalaska/Dutch Harbor.

4.3.4 Seattle and the Catcher Vessel Sector

Our principal purpose here is to discuss the relationship of the catcher vessel sector to Seattle, so we will not discuss differences within this category at great length (e.g., onshore versus offshore delivery patterns). For such discussions please see the catcher vessel sector description. There are also some catcher vessel sector dynamics that we noted during the course of field research but did not have the time to examine in detail, such as the increase in the absolute number of catcher vessels in 1996 compared to 1994, or the increase in catcher vessels from Oregon in 1996 compared to 1994. These dynamics may be related to processors stepping up the pace of the race for fish within each sector, and the increasing need for boats participating in Pacific coast fisheries to find alternative or supplemental opportunities to offset declining harvests. We did not examine either of these dynamics, however, so these are only possibilities that will not be examined in this document.

In terms of numbers, the majority of catcher vessels are owned and managed by residents of Washington (about 56 percent) and Oregon (about 19 percent -- Tables CV-3, CV-5b, and CV-5c). However, Washington boats account for about 73 to 77 percent of the reported onshore delivery of Bering Sea pollock, whereas Oregon boats account for only about 9 percent (Tables CV-5e, CV-5f). This is partly a function of size -- larger boats tend to be from Seattle/Washington -- and of Oregon boats not concentrating on Bering Sea pollock to the extent that Washington boats tend to. There has also been a tendency for shore plants to acquire ownership interest in catcher vessels, which in most cases will then tend to be primarily pollock vessels based in, or at least managed from, Seattle.

Catcher vessels, of course, harvest Bering Sea pollock in Alaskan waters, and because of inherent limitations in size must obtain extensive operational support in Alaskan ports. Most catcher vessels will have overhauls and other major work done in Seattle (or an alternate port in Washington, or Portland, Readsport, or Newport in Oregon), but may make the trip only every two years if they do not usually participate in PNW coast fisheries on a regular basis. This is also a tendency which seems to accompany shore plant acquisition of more pollock-specialized catcher vessels. The increasing need to economize and the decreasing fishing opportunities in Pacific coast fisheries are also factors in this trend. Depending on the degree of shelter provided by moorage at the different plant locations, catcher vessels may tend to tie up at Alaskan shore plants after the pollock "B" season. Limited moorage for catcher vessels participating in the Bering Sea pollock fishery exists in other Alaskan ports (Kodiak, Sand Point), but only to a very limited extent. Catcher vessels delivering offshore tend to go to Seattle every year if they participate in the Pacific coast hake fishery. Otherwise, they also tend to stay in Alaskan waters when they do not need major shipyard work, and will look for Alaskan fisheries to 'fill in' their annual harvest cycle. This trend has the effect of increasing the use of air flights to connect crew with vessels, so that an indirect effect is to increase the availability of and support for transportation links for various Alaskan fishery communities (a trend also seen to a much larger degree with the 'transient' components of the shore plant workforces).

The typical catcher vessel crew size seems to be about 5, with an additional person or two to fill in and allow crew members to rotate out for rests in turn. As noted in the sector profile, overall employment per vessel decreased with the shortening of the seasons (as there are no more 'crew rotations' as in earlier years). No systematic information on overall sector employment is available, but our interview information indicates that most crew is from the Washington/Oregon area, with a concentration in Seattle. This was true even though many catcher vessels apparently spent most of their time in Alaskan waters, and may tie up in Alaskan ports more than in Washington or Oregon. This may reflect an historical situation, before Alaskan moorage was available and boats did return to Seattle every year, combined with continued Washington/Oregon ownership. Much of our interviewing was conducted in Seattle, but a significant portion was also done in Unalaska (and some in Anchorage).

Catcher vessel expenditure patterns are difficult to generalize. In-season operational expenditures are made in Alaskan ports. Catcher vessels tend to tie up in Alaskan waters when possible, but maintenance requiring shipyard work and overhauls tend to take place in or near the owner's physical residence, which in most cases in the Pacific Northwest. Crew tends to reflect the boat's "community of origin" as well, so that the overall revenue flow for most catcher vessels is oriented to the Washington/Oregon area, and for the Bering Sea pollock fishery, more specifically to Washington. These economic effects are distributed more widely, and to a wider range of communities, than for the processing sectors considered above.

4.4 THE GENERAL SEATTLE COMMUNITY CONTEXT OF THE BERING SEA POLLOCK FISHERY

This section looks that the community end of the sector/fishery-Seattle community links from the community context perspective. This is done in two ways, from the general community context and from the localization of industry perspective.

4.4.1 General Bering Sea Fishery Seattle Community Context

The contribution of the seafood industry, and the Bering Sea pollock fishery in particular, is significant in absolute and relative terms in the context of the community of Seattle. As already noted, the offshore sectors of the Bering Sea pollock fishery are the most closely linked to the community in terms of uniformity of ties across different aspects of the business structure in general (i.e., a 'larger part' of their total operations are focused in Seattle than is the case of other sectors). This should not be taken to underestimate the overall important of the other sectors, however. According to a 1997 NRC report, in 1996 the Washington inshore seafood industry generated 32,837 FTEs (21,308 in Washington and 11,529 in Alaska) and $791 million of earnings impacts ($532 million in Washington and $259 million in Alaska). In terms of economic output, it contributed $1.9 billion to the Washington state economy and $1.2 billion to the state of Alaska economy. This underscores the interrelatedness of the economies of the two states. Companies based in Washington depend on Alaska fisheries for the great bulk of the raw materials processed in Washington.

Alaskan, as well as Washington, fishermen harvest this resource. The corporate offices and sales outlets of the processing companies are located in Washington, as are most of the suppliers and support services for the industry.

The focus of our analysis is this section is the contribution of the Bering Sea pollock fishery to Seattle and the preceding sections looked at sector specific ties. This section will examine the issue from the 'other side of the equation' -- from the community 'side' of the sector-community links. Unfortunately, most of the information available does not enable us to focus on this issue with a fine resolution. Different sources address different partial aspects of this comprehensive question. Some discuss different scales of detail -- local versus distant fisheries, groundfish versus other fisheries (crab, salmon, and so on), or fishing as a whole versus other maritime activity (shipping, for example). Some discuss different components of commercial fishing activity -- harvest versus production, or one particular type of operation versus all others. Some concentrated on more confined, or more broadly regional, geographical areas. By collecting some of this material together and piecing it together, however, some sort of understanding of the overall contribution of commercial fishing to Seattle should be possible.

We begin this portion of the discussion by summarizing some comprehensive, yet dated information on the structure of the relationship between Seattle and the Alaska distant water fishery. According to recent discussions (NRC 1998: personal communication), these data still represent the overall nature of the ties between Alaska fisheries and the Seattle area. Further, the several studies summarized here are presented in chronological order, so the evolution of ties can, to the extent that data from intermittent points allow, be seen.

Natural Resource Consultants 1986 is a dated, but quite comprehensive, account of commercial fishing activity by the Seattle and Washington state fleet. They provide a brief historical narrative on the development of the various fisheries, and then a more detailed summary of the harvest for 1985. The estimated ex vessel value of the grand total of all seafood taken from local waters by Washington's local fleet was about $93 million, by 5,747 vessels with an estimated crew employment of 11,072 (NRC 1986:18,19). Distant water fisheries, primarily in the Gulf of Alaska and the Bering Sea, yielded an estimated grand total of $290 million for 1,371 vessels with an aggregate crew of 6,088 (NRC 1986:28,33). The joint venture fleet accounted for about $80 million (ex vessel) of this, with about 81 vessels and 405 crew, with an additional 11 catcher processors accounting for another $25 million (ex vessel) and about 330 jobs. In their summary section these points are reemphasized. In terms of weight or volume, 92 percent of the seafood harvested by Washington fishermen came from Alaskan waters, and only 7 percent from local waters. In terms of ex vessel value, Alaskan harvest was worth $283 million and local harvest $110 million (and other harvest $8 million). Most of the Alaskan catch was processed to some extent in Alaska by a processor based in Seattle. NCR states that there were about 130 seafood processing/wholesaling and 33 wholesale/cold storage companies in Washington in 1985, operating 250 primary processing and wholesale plants in Washington and 120 shore-based or at-sea in Alaska. Washington processing employment was 4,000 seasonally, and in Alaska was 8,000, with half coming from Washington (NCR 1986:35-39).

Lastly, table SEA-5 reproduces NRC's conclusions as to the total contribution of the Washington state fishing industry to the total economy. Alaskan water activities account for fully half of it, and these activities were centered in Seattle (although that was not a central part of their discussion).

This study was updated in 1988, and again Washington fishermen harvested about 80 percent (ex vessel value) of their catch in distant waters, with 98 percent of that coming from Alaskan waters. About 72 Washington state vessels participated in the joint venture trawl fishery, directly employing about 360 people. There were also 43 catcher processors employing about 2,200 people, and 26 shore-based trawlers, employing about 130 people. Pollock was an unspecified percentage of the harvest of these operations (see Table SEA-6).

Table SEA-5
Total Economic Contribution of the Washington State Fishing Industry
1985 (Millions of $)

		Direct	Direct & Indirect
Locally Landed	Landed Value	109.7	170.0
	Value added by processing	94.5	123.8
Subtotal		204.2	293.8
Landed in	AK, CA, OR, HA	242.3	382.7
	Value added by processing	133.3	174.6
Subtotal		375.6	557.3
From Non-State landings: Washington share of value added		195.7	256.4
TOTAL		775.5	1107.5

Source: NRC 1986:41

Table SEA-7 reproduces NRC's summary of the contribution of commercial fishing to Washington state's economy in 1988. The grand total, including indirect effects, was estimated at $3.1 billion, an increase from the 1985 estimate of $1.876 billion. Local water harvest and processing accounted for about 19 percent of this, distant water fisheries and processing about 57 percent, and other processing activities by Washington companies for about 24 percent. Of the estimated 36,608 FTEs associated with this economic activity, 39 percent were attributed to the distant water fishing fleet and 40 percent to out-of-Washington-state processing. The $1.794 billion of direct and indirect benefits associated with the activities of the distant water fleet was also estimated to generate an additional $795 of induced benefits.

Table SEA-6
Estimated Volume and Value of Washington Distant Water Commercial Fish Harvest, 1985 and 1988

Fishery	Harvest Volume (000 mt)		Harvest Value (million $)		Wholesale Value (million $)	
	1985	1988	1985	1988	1985	1988
Salmon	80.3	66.8	106.1	240.0	238.0	525.6
King and Tanner Crab	26.4	51.7	42.2	129.4	54.9	191.5
Longline Halibut and Blackcod	12.1	19.8	20.9	40.7	34.8	63.1
JV Trawl	720.8	802.8	78.3	120.4	78.3	120.4
Catcher Processor	111.6	546.0	24.6	103.7	61.6	334.1
Roe Herring	12.6	5.9	8.5	5.9	18.7	10.8
TOTAL	963.8	1493.0	280.6	640.1	486.3	1245.5

Note: Shore-based trawl landings are not included. Dungeness crab landings have been excluded. Volume and value estimates for salmon landings may be as much as 5 percent too high, but are retained for consistency with earlier work.
Source: NRC 1988:10

Table SEA-7
Total Economic Contribution to the Washington State Commercial Fishing Industry in 1988
(Millions of $ to Washington Economy)

locally landed	Landed Value	137	269
	Value added by processing	171	320
Subtotal		308	589
Distant Water	Landed Value	639	1257
	Value added by processing	288	537
Subtotal		927	1794
Non-State Landings: Washington State share of value added		405	756
TOTAL		1640	3139

Source: NRC 1988:16

Turning to more recent data, Chase and Pascall (1996) focus on the importance of Alaska as a market for Seattle region (Puget Sound) produced goods and services. They do so by identifying particular industrial sectors that generate the bulk of these economic impacts, but they do not locate these industrial sectors in terms of particular geographic locations within the region. Table SEA-8 essentially reproduces their summary of the direct and indirect impacts (jobs and labor earnings) on the Puget Sound economy from regional goods exported to Alaska, and from industries that harvest and/or process Alaska resources. The indirect impacts they include are of two types -- one from industries that do not export to Alaska, but provide services to those who do, and from the spending of income earned by employees is such exporting or export-serving industries (the ripple effect).

Table SEA-8
Total Alaska Job, Value of Exports, and Labor Earnings Impacts on Puget Sound Region, 1994

Sector	Exports ($Million)	Jobs	Earnings ($Millions)
Export-Related Impacts			
Goods & Services, Total	NA	44890	$1,250.5
Manufacturing	$816.8	6696	$235.9
Trade	$296.2	13697	$298.6
Services	$312.1	19199	$503.3
Finance, Ins, & Real Estate	$59.7	3562	$137.3
Agriculture, Forestry, & Mining	$9.8	425	$14.5
Construction	NA	366	$11.0
Utilities & Communication	NA	944	$49.9
Transportation	$894.3	8547	$339.1
Resource Related Impacts			
Fisheries, Total	NA	29788	$1,082.6
Fishing Fleet, Total	$1,864.0	22094	$756.8
Fishing Fleet, direct	$863.0	8726	$386.6
Fishing Fleet, indirect	$1,001.0	13368	$370.2
Seafood Processing, direct	NA	5600	$189.0
Seafood Processing, indirect	NA	1094	$136.8
Petroleum Refining, Total	NA	6873	$251.0
TOTAL (of left justified labeled cells)	$2,388.9	90098	$2,923.2

Source: Chase and Pascall 1996, Tables 3 and 7.

In their discussion of the fisheries sector, Chase and Pascall indicate that only a fraction of the regional economy is based on fishing and seafood processing industries, but that these industry sectors are concentrated in several communities and rely heavily on North Pacific (Alaskan) resources. The communities that they single out are Bellingham, Anacortes, and the Ballard neighborhood of Seattle. They say that Seattle is the major base for vessels for various fisheries -- groundfish (catcher vessels, catcher processors, motherships), halibut, crab, salmon, and others. There are numerous secondary processing plants in the region, and about 60 percent of the seafood harvested and shipped south for processing moves through the Port of Tacoma (Chase and Pascall 1996:23).

The relative value of Alaskan groundfish (cod, pollock, sablefish, flounder, and other bottom fish aggregated together) for the Seattle fleet varies from year to year, but in 1994 was about 17 percent of the ex vessel value of the Alaska/North Pacific Commercial Fishing Harvest (Chase and Pascall 1996:26), which represented about 75 percent by harvest value, and 92 percent by weight, of all fish harvested by the Puget Sound fishing fleet (Chase and Pascall 1996:23 -- citing ADF&G, NPFMC, NMFS).

Direct jobs generated by fishing in the Seattle area are 8,726, with an additional 5,600 direct jobs from processing. Indirect jobs generated from the purchase of goods and services by the fishing fleet, and their workers spending money in the area, were calculated at 13,368 (1,094 for processing -- see Table SEA-8).

Other relatively recent work (Martin O'Connell Associates 1994) indicates the wide range of activities that the Port of Seattle supports, and the web of support services which commercial fishing helps support, but provides no measure of the contribution of the Bering Sea pollock fishery to this support. Fishing activities are included in this study only to the extent that they are reflected in activities at Fishermen's Terminal. This may reflect some Bering Sea catcher vessel activity, but would greatly underestimate catcher processor, mothership, and secondary processing activities. By their estimation, fishing activity at Fishermen's Terminal in 1993 generated 4007 direct jobs (the majority of them crew positions), earning an average of $48,690 per direct job (total $195 million). In addition, an additional 2,765 induced and indirect jobs were created. Fishing businesses also expended $145 million on local purchases of goods and services (Martin O'Connell Associates 1994:45-49). Again, this does not indicate the contribution of the Bering Sea pollock fishery so much as it establishes that the local fishing/processing economy is densely developed. Also, if the estimates or models of vessel expenditures developed for operations using Fishermen's Terminal can be extrapolated to other vessels based in Seattle, an estimate of the contribution of the Bering Sea pollock fishery may be possible. The estimate for annual expenditures in Seattle for a factory trawler using Fishermen's Terminal was about $2,000,000 in 1993. Miller et al. 1994 indicate that for a model surimi vessel, 1993 operating expenditures other than for crew had been in the range of $10 million annually. These would have been distributed among all the places where the vessel fished, as well as its Seattle (or Tacoma) home port, but still indicates that there is a large contribution to the regional economy from the presence of these vessels. Each vessel also represents more than 100 direct jobs and a payroll of $3 to $5 million (Mill et al. 1994:1,23).

A summary profile of the Puget Sound maritime industry, which includes commercial fishing, is included in Economic Development Council of Seattle and King County 1995 (Appendix A:39-49). Pertinent information will be abstracted here. The list of included businesses is quite long and is a good indicator of how far indirect benefits can spread:

> . . . cargo shipping, tugs and barges, commercial fishing and supply; sip and boat building; cruise ships; vessel design and repair; fueling; moorage; the fabrication and sale of marine gear such as electronics; refrigeration, hydraulics, and propulsion equipment; the operation of marinas, dry docks and boat yards; services provided by customs and insurance brokers and shipping agents; and maritime professional services including admittedly law, marine surveying and naval architecture (Appendix A:39).

It was estimated that in 1992 there were 30,000 jobs in the maritime sector within the four-county region, including 10,000 in commercial fishing; 7,000 in fish processing; 5,000 in marine recreation; and 3,900 in boat building and repair. Average wages were estimated at $24,000 for fish processors; $32,000 for ship and boat building and repair; and $50,000 to $80,000 for commercial fishing. The sector is one noted for providing entry level positions for those with limited education and job skills, so that they can learn a high-wage job. Each job in this sector creates or supports 1 to 2 other jobs in the regional economy, and each dollar of sector output generates about one additional dollar in output from the rest of the economy.

Seattle offers the maritime sector, and the distant water fleet in particular, a "critical mass" of businesses that allows vessel owners and other buyers a competitive choice of goods and services. The same is true to a lesser extent of other regional ports, such as Tacoma. Efficient land transportation systems are also critical, and Seattle has good rail and truck linkages (and the Port of Seattle is working to improve them).

Although the maritime sector is an important one for the region, some of its components are currently experiencing some difficult times. Other regional communities (Anacortes, Bellingham, Port Townsend) as well as non-regions locations in Alaska (closer to the distant fishing waters) are working to develop port facilities to lure vessels so that they may gain the economic benefits of the associated support and supply business. Common sorts of projects are the improvement of shoreside access, building additional moorage, or work and storage capacity. The Port of Seattle is in the process of an aggressive refurbishing of much of its moorage, originally built during World War II. Pier 91, now home to a central part of the catcher processor fleet through a long-term lease from the Port of Seattle, is being extensively rebuilt (Mark Knudsen, personal communication).

Regional shipyards have been in a slump, more-or-less reflective of the economic health (or lack of it) of the fishing industry. Low prices and regulatory uncertainty are cited as major weak points. There also seems to be a reasonable supply of used boats (Economic Development Council of Seattle and King County 1995, Appendix A:46)

Natural Resource Consultants repackaged some of their earlier work, and added additional analysis focused specifically on the contributions of inshore Washington state (but also Alaska) processing plants to the Washington state economy (NRC nd, 1997). The Washington inshore seafood processing industry purchased $859.5 million of raw material in 1991, $720.1 million form Alaska and $139.4 million from Washington waters. Salmon accounted for 46 percent of the total value of these purchases, while groundfish accounted for 19 percent. The total finished product from all this raw material was worth $2.134 billion ($1.8 billion from the Alaskan raw material). Salmon accounted for $780 million of the final product's value, while groundfish accounted for $482 million. "... inshore processors operating in Alaska and Washington account for more than 50% of the value of U.S. seafood exports" (NRC nd:4).

Expenditure patterns for Washington (and Washington-owned Alaskan) inshore plants were modeled in these NRC documents. Inshore plants expenditures average 46 percent for their raw materials (fish and shellfish), 16 percent for wages and benefits, 9 percent for processing materials, and 7 percent for tendering and other transportation costs. About 55 percent of these expenditures were made in Washington, 43 percent in Alaska, and 2 percent form other states. This is stated to include fish and shellfish purchased in Alaska from fishermen who homeport in Washington (NRC nd:9), and economic benefits were produced from these expenditures in direct proportion to their magnitude.

The estimated total economic output from primary and secondary processing activities for all seafood to the Washington state economy in 1991 was calculated to be $1.865 billion. This was the result of three main factors:

- A substantial portion of expenditures for raw material (fish) in Alaska are made to fishermen whose home ports are in Washington.
- The majority of administrative and sales functions of processing companies are carried out in Washington.
- A major portion of support industries (equipment and packaging manufacturing) are located in Washington.

That is also the order of their significance in terms of contributions to economic benefits.

In addition, a substantial amount of secondary processing takes place in Washington. This produces additional benefits to that of primary processing of about 3,635 FTEs, earnings of $81 million, and indirect benefits of $287 million. The report also points out that the Washington inshore processing sector is the second highest value food product contributor to the Washington state economy, being topped only by the apple.

NRC updated this report in 1997 and reached essentially the same conclusions. In 1996 the Washington inshore seafood industry generated 32,837 FTEs (21,308 in Washington and 11,529 in Alaska) and $791 million of earnings impacts ($532 million in Washington and $259 million in

Alaska). In terms of economic output, it contributed $1.9 billion to the Washington state economy and $1.2 billion to the state of Alaska economy (NRC 1997).

As noted earlier, these data underscore the interrelatedness of the economies of Alaska and Washington and, as has been seen through the sector profiles and the ties to particular communities, the ties between Seattle and specific Alaska communities. Companies based in Washington depend on Alaska fisheries for the great bulk of the raw materials processed in Washington, and residents of both states harvest Bering Sea resources. Also as noted earlier, the corporate offices and sales outlets of the processing companies are located in Washington, as are most of the suppliers and support services for the industry. The following section looks at the localization of the fishing industry within the waterfront area of Seattle.

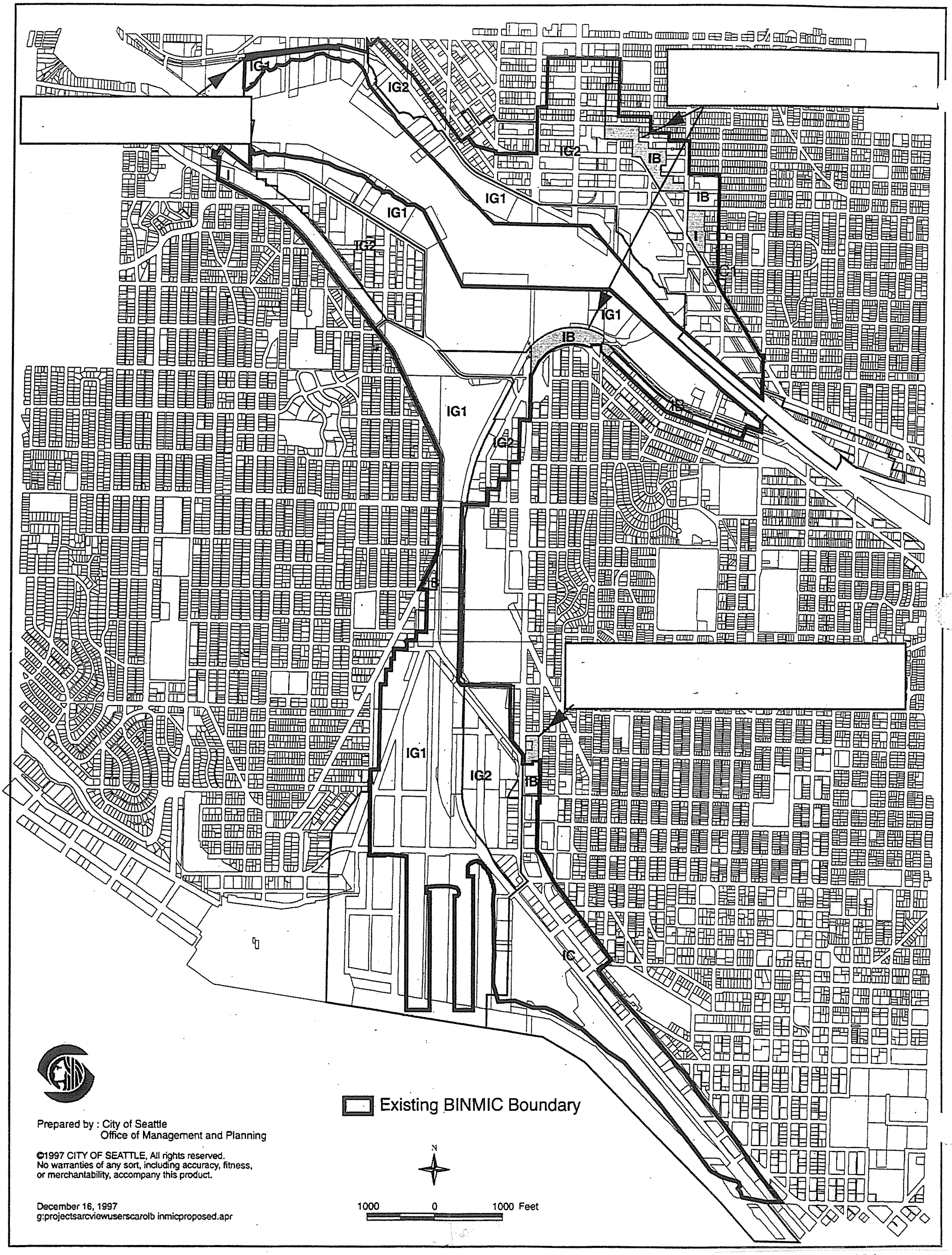
4.4.2 Seattle Community Context and the Localization of Industry: The Ballard Interbay Northend Manufacturing Industrial Center

With previous discussion as a as regional context, we can now examine an attempt to more closely associate a specific area of Seattle with commercial fishing (and other associated) activities. One of the fundamental purposes for the establishment of the Ballard/ Interbay/ Northend Manufacturing and Industrial Center (BINMIC) Planning Committee was the recognition that this area provided a configuration of goods and services that supported the historical industrial and maritime character. At the same time, developmental regional dynamics are promoting changes within the BINMIC area which may threaten the continued vitality of its maritime orientation. Among other objectives, the BINMIC final plan states:

> The fishing and maritime industry depends upon the BINMIC as its primary Seattle home port. To maintain and preserve this vital sector of our economy, scarce waterfront industrial land shale be preserved for water-dependent industrial uses and adequate uplands parcels shall be provided to sufficiently accommodate marine-related services and industries (BINMIC Planning Committee 1998:6).

Ballard, in northwest Seattle, is commonly identified as the center of Seattle's fishing community. This may be true in an historical residential sense, but commercial fishing-related suppliers and offices are spread along both sides of Salmon Bay-Lake Washington Ship Canal, around Lake Union, along 15th Avenue West through Queen Anne, and then spread along the shores of Elliot Bay on both sides of Pier 91. Not surprisingly, this is also the rough outlines of the formal BINMIC boundaries, which is bordered by the Ballard, Fremont, Queen Anne, Magnolia, and Interbay neighborhoods (see map, next page). It is defined so as to exclude most residential areas, but to include manufacturing, wholesale trade, and transportation-related businesses. It includes rail transportation, ocean and fresh water freight facilities, fishing and tug terminals, moorage for commercial and recreational boats, warehouses, manufacturing and retail uses, and various Port facilities (Terminal 86, Piers 90 and 91).

BINMIC Boundary



The BINMIC "Economic Analysis" document (Economic Consulting Services 1997) uses much of the same information as was reviewed above, in combination with an economic characterization of the BINMIC area, to establish that certain economic activities are especially important for that area. One of these activities is commercial fishing -- although again the connection to the Bering Sea pollock fishery in particular is somewhat difficult to establish concretely.

The BINMIC area is a relatively small one, but contributes disproportionately to the city and regional economy (Table SEA-9). Again, those characteristics are part of what determined its borders. The BINMIC resident population is only 1120 (1990 census), but there are 1,048 businesses in the area and 16,093 employees. The great majority of business firms are small -- 85 percent had fewer than 26 employees, but accounted for only 30 percent of total BINMIC employment. Self-employed individuals (i.e. fishermen) are probably not included in these numbers. Employment by industry -sector is displayed in Table SEA-10.

Table SEA-9
Relationship of Estimated BINMIC Population and Employment
to Local, Regional, and State Population and Employment
(% of total reflects BINMIC's share of each area's total pop. & emp.)

Area	1990 Population	BINMIC as % of Total	1994 Employment	BINMIC as % of Total
BINMIC	1120	100	16093	100.0
City of Seattle	516259	.22	490632	3.3
King County	1507319	.07	912038	1.8
Puget Sound	2748895	.04	1363226	1.2
Washington State	4866692	.02	2212594	0.7

Source: Economic Consulting Services 1997:14

Table SEA-10 BINMIC Employment by Industry Sector			
Industry Sector	Units	Employees	Percent of Total
Agriculture, Forestry, & Fishing	129	750	5
Mining & Construction	83	1169	7
Manufacturing	216	5322	33
Transportation & Utilities	35	1608	10
Wholesale Trade	178	2239	14
Retail Trade	121	1606	10
Finance, Insurance, & Real Estate	43	306	2
Services	233	2604	16
Government	10	489	3
TOTAL	1048	16093	100
Source: Economic Consulting Services 1997:29			

An important indicator of the importance of commercial fishing and other maritime activities is the availability of commercial moorage. As of 1994 more than 50 percent of all commercial moorage available in Puget Sound was located in Seattle, and of that, more than 50 percent was in the BINMIC area (representing 30 percent of all commercial moorage in the Puget Sound area). Thus the BINMIC area is clearly important in terms of being an area where vessels (especially larger commercial vessels) are concentrated. The Port of Seattle has concluded that only the Ports of Olympia and Tacoma at present provide a significant source of moorage in Puget Sound outside of Seattle. Port Angeles may build additional capacity at some point in the future. Olympia's facility was rebuilt in 1988, and Tacoma is serving as the home port for the Tyson fleet of catcher processors. Some older moorage constructed prior to 1950 of timber piling is nearing the end of its useful life, and will need to be replaced. The Port of Seattle is currently in the process of refurbishing Pier 91 in thus way, which has enabled it to sign American Seafoods to a long-term lease for its catcher processor fleet. On the other hand, it is expected that much of the private old timber moorage will not be replaced, so that overall moorage capacity will decline. In the Seattle area, there has also been a dynamic whereby commercial moorage had been converted to recreational moorage. Within the BINMIC area, recreational moorage within the UI Shoreline is prohibited altogether, because of the importance of commercial activity and the danger of interference from recreational moorage. The Port has concluded that it is unlikely that any new private commercial moorage will be developed (because of cost and regulatory regime) and is examining the options open to the Port (Port of Seattle 1994). As previously mentioned, the Port is pursuing a program of repairing its facilities where economically feasible (when it can be fairly well assured of a steady tenant).

The BINMIC area is fairly well "built out." The BINMIC area contains 971 acres, divided into 806 parcels with an average size of 1.043 acres, but a median size of ,207 acres. Thus there are many small parcels. Public entities of one sort or another own 574.8 acres (59 percent). The Port of Seattle is the largest landowner with 166 acres, while the city has 109 acres. Private land holders own 396 acres, of which only 19.45 acres were classified as vacant -- 19.27 acres in 81 parcels as vacant industrial land and .18 acres in 2 parcels as vacant commercial land. An additional 200.76 acres were classified as "underutilized," meaning that it had few buildings or other improvements on it. This classification does not mean that the land may not be in use in a fruitful way (for instance, storage of gear or other use that is not capital intensive).

Economic Consulting Services 1996 lists 85 companies that have a processing presence in Washington State (Appendix C). Of these, over half (47) are located in Seattle, with many in the surrounding communities (Bellevue, Kirkland, Redmond). Of these 47, at least 18 are located within the BINMIC. Another 30 are located very near the boundaries of the BINMIC. Some examples of fairly large fishing entities that are located within BINMIC (as well as elsewhere) are Tyson Seafoods, Trident Seafoods, Icicle Seafoods, Ocean Beauty Seafoods, Peter Pan, Alaska Fresh Seafood, and NorQuest Seafoods. All demonstrate some degree of integration of various fishing industry enterprises. Trident operates shore plants in a number of locations, owns a fleet of catcher vessels, cooperates in a catcher processor operation, and participates in a CDQ group partnership. Tyson operates shore plants, catcher processors, catcher vessels, and a floating processor, as well as operating a broadly based food company.

The BINMIC area of Seattle displays the following characteristics which indicate its important economic roles:

- it is a significant component of, and plays a vital role in, the greater Seattle economy;
- it is integrated into local, regional, national, and multinational markets;
- it is a key port for trade with Alaskan and the West Coast, Pacific, and Alaska fishing industries -- and the Alaskan fishery is especially significant;
- Salmon Bay, Ship Canal, and Ballard function as a small port of its own, but also support fishing and a wide range of other maritime activities -- including recreation and tourist vessels and activities;
- The BINMIC area is and has been an area of concentration of businesses, corporations, organizations, institutions, and agencies that participate in, regulate, supply, service, administer, and finance the fishing industry.

4.5 SUMMARY: SEATTLE AND SIA ISSUES

As noted in the introduction to this section, what Seattle an analytic challenge, in terms of a socioeconomic description and a social impact assessment directly related to the Bering Sea pollock fishery, is its scale and diversity. Seattle is arguably more involved in the Bering Sea pollock fishery than any other community, but from a comparative perspective, Seattle is arguably among the least involved of the communities considered. The sheer size of Seattle dilutes the overall impact of the Bering Sea pollock fishery jobs and general economic contributions when viewed on a community scale, in contrast to Alaskan communities where such jobs and revenues are a much greater proportion of the total economic base of the community. This section has attempted to portray the complexities of the ties of the Bering Sea pollock fishery to Seattle in terms of sectors, specific portions of the economy, and on a geographically localized basis.

All of the Bering Sea pollock fishery sectors are tied to Seattle in one way or another, although the magnitude and nature of these ties varies considerably between sectors. It is clear that Seattle, as a community is, from a number of different perspectives encompassing specific sector structures and geographically attributable industrial areas, engaged in and dependent upon the Bering Sea pollock fishery. To avoid losing the importance of the fishery in the 'noise' of the greater Seattle area, the potential reallocation effects discussed in the SIA summary section of this document will do so in terms of Bering Sea pollock fishery industry sectors and their linkages to Seattle, as described in this section, rather than attempting an overall contextualization of the fishery within the metropolitan area.

5.0 CDQ PROGRAM AND SOCIAL IMPACT ASSESSMENT

The role of the CDQ program, and the analysis of potential consequences of implementation of various inshore/offshore allocative alternatives, is being covered by another study. That study was not available at the time of the production of this document. As it was known that the CDQ study was in process at the time this work was being prepared, redundant information was not developed for this study.

We would, however, note that when the analysis of the CDQ communities and this more general socioeconomic description and social impact analysis are compared or contrasted, there are several main points, from a social impact perspective, that the reader should bear in mind. These include:

- Variability among CDQ communities
- Differences in the articulation of the fishery in CDQ and other participating communities
- The role of CDQ groups vis-a-vis their communities
- The frequent confusion/confoundment of CDQ program goals with those of I/O
- Some CDQ groups have used CDQ resources to invest in Bering Sea fisheries through investment in their CDQ partners. These CDQ groups may be potentially affected by inshore/offshore pollock allocation changes through effects upon their CDQ partners in ways that groups without such investments would not be. This would also potentially have community effects as well, but these would depend upon the relations between the CDQ group and the residents of its member communities.

These points are summarized below.

5.1 VARIABILITY AMONG CDQ COMMUNITIES

It is important to note that CDQ communities span a wide geographic range. With this range comes internal differentiation, on several levels. The local economic base varies from community to community, as do sociocultural factors/structure. This variability of baseline conditions will serve to shape the consequences of changes to existing relationships through changes in inshore/offshore allocations. In other words, consequences are likely to play out differently in different communities based, to a degree, on the variations between existing community conditions.

5.2 ARTICULATION OF COMMUNITIES AND THE FISHERY

CDQ involvement is different, in social terms, from the relationships residents of other communities have with the Bering Sea. This is the case on several levels. In terms of direct employment, communities historically associated with the Bering Sea pollock fishery have varied economic bases, but one issue has been the degree to which fishery activity was supported by "local resident" employment as opposed to an "imported nonresident" labor force. CDQ communities were generally uninvolved with the pollock fishery prior to the initiation of the CDQ program, but clearly their participation reflects that of long-term local residents. The revenue base for communities historically involved in the Bering Sea pollock fishery is also of a different nature than that of CDQ communities, and this is related to their previous non-involvement with the pollock fishery. This is particularly striking when one contrasts CDQ communities with communities that have shoreplants that process pollock. Not only is the economic base of such communities different in type, it is of a different magnitude, and entails a different set of relationships. For example, shoreplants comprise the major part of the tax base for those communities where they exist (property tax, fish taxes), employ large labor forces (which may be largely imported), buy fish from a CV delivery fleet which may include local boats or not, greatly affect the way community infrastructure may be developed in conjunction with the industrial needs of shoreplants, and so on. The fact that an industry is physically present in the community, and interacts with the community, has dynamic consequences for the social structure of that community.

5.3 ROLE OF CDQ GROUPS AND COMMUNITIES

It is also important to note the role that CDQ groups play in 'mediating' the link between the pollock fishery and individual communities. While individual communities are often discussed as 'CDQ communities,' the community as a whole (or the local government) is not the entity that is directly involved with the fishery -- it is a regional corporate entity formed specifically for administration and management of CDQ issues and programs. These groups have varying relations to their 'constituent' communities. It is a fundamentally important point that regional CDQ entities are not the same as individual communities. Clearly, there is a great deal of variability between CDQ groups in their strategies in managing their CDQ based resources. For example, some groups focus more on direct employment opportunities than do other groups.

5.4 CDQ AND INSHORE/OFFSHORE 'INTERACTION'

An additional consideration in looking at the relationship of the CDQ analysis and the Inshore/Offshore analysis is the confounding of the two issues, in a number of areas. Pollock CDQ allocations were originally implemented simultaneously with Inshore/Offshore allocations, but CDQ allocations themselves were 'inshore/offshore neutral.' That is, the CDQ allocations were not linked in any way to either inshore or offshore sector allocations. As the CDQ program has evolved, and partnerships developed, the CDQ program, as it exists today, is more heavily associated with the offshore than the onshore sector, for a variety of reasons. The NPFMC has formally 'decoupled' CDQ programs from Inshore/Offshore, but in many people's minds, the CDQ program has become to be very strongly associated with the offshore sector. This has, in turn, led to a number of complexities for analysis. For example, Alaska hires under the CDQ program are often 'counted' as Alaska hires for Inshore/Offshore analysis purposes, when they are not technically a part of the open access fishery, or at least the inshore/offshore allocative split, per se (although "CDQ hires" often work in both CDQ and open access fisheries). That is not to say there would not be disproportionate impacts to CDQ groups were their existing partners to be disproportionately impacted by any changes in allocation – the point is simply that CDQ considerations are not a part of the inshore/offshore action itself. The issue has been raised by some groups that confounding CDQ program related employment with open access fisheries related employment is a case of 'mixing apples and oranges.' While analytically separable, the CDQ-Offshore partnering pattern has become part of the baseline condition and, if adjustments are made, impacts to the CDQ organizations would not be neutral.

While we were not charged with the analysis of impacts of the proposed actions on the CDQ program, CDQ groups, or CDQ communities, we did conduct some limited discussions with CDQ group representatives in regard to the pattern of employment of their members in Bering Sea fisheries (both CDQ and non-CDQ). This was to contextualize the information we were obtaining form other contacts, and not to develop systematic information about this topic, since we did not contact all CDQ groups. One concrete result of one of these conversations was an enumeration by year of the people that one CDQ group placed in various fishing operations, with their aggregated wages. It is interesting that only some of these placements were with their own CDQ partner. Others placements were with fishing operations working with other CDQ groups, or even non-CDQ partner fishing/processing entities. This information is presented in Table CDQ-1.

5.5 SCALE OF THE CDQ PROGRAM

Table CDQ-2 presents aggregated total wage and employment information from the CDQ program for the years 1992-1997. The data in this table are taken directly from the McDowell report for the State of Alaska: Analysis of Inshore/Offshore Impacts on the CDQ Pollock Program, prepared for the Alaska Department of Fish and Game and the Alaska Department of Community and Regional Affairs, dated April 1998, and included as Appendix III in the Draft I/O-3 documentation prepared by the NPFMC for the April 1998 Council meetings. These data are presented here to provide the reviewer with a sense of scale of the CDQ program over the past several years. More information on the context of these numbers, and the methodology by which they are derived, are contained in the McDowell group report included in the larger document of which this is a part. The reader should bear in mind that the numbers represented in the table are a summation of the years 1992-1997. Again, these data are merely presented here to give the reader a sense of scale of the CDQ program.

Table CDQ-1: CDQ Pollock Employment Data, Members of One Specific CDQ Group

SECTOR/Information Category	YEAR												TOTAL	
	1992		1993		1994		1995		1996		1997			
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
MOTHERSHIPS														
Employees by Season	0	12	21	13	16	6	14	9	20	12	19	10	90	
Total Different People Employed	11		32		14		18		22		22			
Total Wages Earned	10421		169427		173573		333033		417363		455291		1559108	
CATCHER PROCESSORS														
Employees by Season	2	5	1	7	9	1	30	2	5	8	22	34	69	
Total Different People Employed	5		7		9		31		13		53			
Total Wages Earned			41416		37248		171980		164104		223119		637867	
ONSHORE PLANTS														
Employees by Season	0	0	0	0	0	0	0	2	7	0	5	0	NA	
Total Different People Employed	0		0		0		2		7		5			
Total Wages Earned	0		0		0		4000		5000		5000		14000	
CATCHER BOATS														
Employees by Season	0	0	0	0	0	0	0	0	0	0	2	3	NA	
Total Different People Employed	0		0		0		0		0		4			
Total Wages Earned	0		0		0		0		0		44780		44780	

Source: CDQ Group Job Placement Individual

Table CDQ-2 CDQ-Village Workers and the Wages They Received Through the CDQ Program from 1992-1997							
All Groups	APICDA	BBEDC	CBSFA	CVFC/CVRF	NSEDC	YDFDA	Totals
Partner Wages							
Pollock Wages	545,562	1,567,361	870,187	1,420,911	2,394,262	1,537,293	8335576
Pollock Individuals	77	413	140	382	199	119	1330
Wages per Individual	7,085	3,795	6,216	3,720	12,031	12,918	6,267
Other Fisheries	314,708	300,063	9,148	685,600	428,005	21,813	1759337
Individuals	108	171	77	500	0	15	871
Wages per Individual	2,914	1,755	3,885	1,371		1,454	2,353
Other Work	768,247	57,733	-	57,422	-	27,329	910731
Individuals	187	17	0	2	0	17	223
Wages per Individual	4,108	3,396	-	28,711	-	1,608	4,084
Total Partner Wages	1,628,517	1,925,157	1,169,335	2,163,933	2,822,267	1,586,435	11295644
Total Individuals/Year	372	371	145	884	199	119	2090
Wages per Individual	4,378	5,189	8,064	2,448	14,182	13,331	5,405
Group Wages							
Group Wages	671,648	1,103,606	828,100	32,552	2,299,127	1,156,772	6091805
Individuals	51	143	75	35	66	0	370
Wages per Individual	13,170	7,718	11,041	26,644	34,835	-	18,897
Other wages to residents through group efforts	-	475,080	928,300		1,761,405	696,647	3861432
Individuals		104	81		627	131	943
Wages per Individual	-	4,568	11,460		2,809	5,318	4,095
Fish Tickets paid to Residents	1,783,343				5,529,691		7313034
Source: McDowell Group Report, based on CDQ Groups and Harvesting Partners, NPFMC 1998: 18. Notes: "other fisheries" and "group wages" total column vary from those of the McDowell Group report for reasons not yet clear.							

Table CDQ-3 summarizes the total annual jobs and the total annual wages reported for all CDQ groups in the annual and quarterly reports for all CDQ employment. This information is taken directly from the April, 1998 "Revised Draft Report: Economic Impacts of the Pollock Community Development Quota Program" prepared by the State of Alaska. Table CDQ-3 appears as Table VI-1 on page 58 of that document, and comes with the following caveat regarding interpretation of the numbers:

> The reporting format for CDQ employment information changed in 1996. This caused some incongruities in the reported information. Appendix V [of the State report] describes the basic assumption made when each group described their employment information before 1996. Since 1996, the CDQ groups provided a cumulative count of the number of jobs and people that were employed through their programs. The information attempts to measure the number of actual people employed on an annual basis. Pollock employment for 1996 and 1997 measures the number of people employed in "A" season. There are likely some individuals that worked in the "B" season that are not accounted for. (Pg 58).

This table is presented in this section for informational purposes only, and to contrast with annual data with the cumulative data presented in Table CDQ-2. No attempt was made to reconcile the data between tables, nor compare methodologies employed in deriving employment and compensation information between the two separate CDQ studies and the main body of this SIA document. The purpose in presenting this table, like the other information in this section, is to give the reviewer a sense of scale of the CDQ program relative to the overall open access pollock fishery that is the subject of the I/O-3 allocation consideration.

Again, without delving into methodological and comparability issues, several main point can be drawn from Table CDQ-3 in relation to the pollock fishery. The number of CDQ pollock related jobs appears to be decreasing relative to other fisheries over time – this makes intuitive sense, given the timing of the implementation of the pollock versus the other species CDQ programs. In absolute numbers, other fisheries provided 629 positions while pollock provided 227 positions. In terms of total wages, pollock total wages are surpassed by other fisheries in 1996 and 1997, and again this makes intuitive sense, given the growth of other species CDQ programs and the number of workers in the other fisheries. In terms of average wage, however, the importance of pollock compared to the other species becomes clear with the average wage for a CDQ pollock related position being $11,222 in 1997 compared to an "other fisheries" position for that same year being worth $4,383. Pollock related average wage also well outdistances "other employment wages" (at $6,826 per year), though it falls far below "management" wages (at $28,631 in 1997).

Table CDQ-3 CDQ Employment and Wages: All CDQ Groups, by Year, 1993-1997					
	1993	1994	1995	1996	1997
Number Working					
Management	26	48	58	63	63
CDQ Pollock Related	170	268	300	161	227
Other Fisheries	64	276	393	691	629
Other Employment	95	531	157	138	130
Total	355	1123	908	1053	1049
Total Wages					
Management	586,537	1,012,125	1,218,892	1,636,860	1,803,766
CDQ Pollock Related	1,047,107	1,358,302	2,075,819	1,742,967	2,547,276
Other Fisheries	609,058	1,000,103	1,132,824	2,280,554	2,756,688
Other Employment	0	1,791,479	1,350,766	723,724	887,338
Total	$2,242,702	$5,162,009	$5,778,301	$6,384,105	$7,995,068
Average Wage					
Management	$22,559	$21,086	$21,015	$25,982	$28,631
CDQ Pollock Related	6,159	5,068	6,919	10,826	11,222
Other Fisheries	0	3,624	2,883	3,300	4,383
Other Employment	6,411	3,374	8,604	5,244	6,826
Source: State of Alaska, "Revised Draft Report: Economic Impacts of the Pollock Community Development Quota Program" April, 1998, page 58					

6.0 SUMMARY SIA DISCUSSION POINTS BY RANGE OF ALTERNATIVES

This section provides a "bullet" format explication of the likely social impacts arranged by major alternative. From the simplifying assumptions, the alternatives considered are the no action alternative, the roll-over alternative, a significant shift inshore alternative, and a significant shift offshore alternative. Based on discussions with Council staff, for this analysis we have taken "significant shift" to mean a shift in quota on the order of magnitude of 10% of the TAC. Realizing that the purpose of this social impact assessment to allow the Council to fulfill its obligations under National Standard 8 as well as for the larger purposes of understanding the magnitude and direction of likely social impacts by major alternatives, this relatively general degree of specificity is appropriate for the purposes at hand.

6.1 SOCIAL IMPACTS OF A NO ACTION ALTERNATIVE

From a social impact assessment perspective, the no action alternative would not meet the purpose and need of the allocative management process.

- The No-Action Alternative would result in expiration of Inshore/Offshore
- To the extent that the basic conditions that triggered I/O-1 remain (or functionally equivalent conditions have remained/evolved) the initial preemption issue still exists.
    - Given pre-I/O history, sustained participation of fishing communities at risk would be at risk under this alternative.
    - Alaskan communities would be primarily negatively affected (i.e., the communities, or more accurately, the inshore sectors associated with them would be a risk of preemption). Only one Alaska community (Unalaska) would experience any degree of offset by gains in the offshore sector, but these would not be of a magnitude to offset losses seen by inshore preemption.
    - Seattle would experience both positive and negative impacts, due to the fact that the community is host to all sectors involved, and losses by one sector would potentially be made up by gains in others.

6.2 SOCIAL IMPACTS OF STATUS QUO/ROLL-OVER OF I/O: EXISTING SECTOR TRENDS OF CHANGE

The current Bering Sea pollock fishery is not in equilibrium, in a number of different senses, when examined on either a sector or geographic community basis. This being the case, potential impacts of allocative shifts should be examined with regard to the direction and magnitude of trends or trajectories of change already taking place within the sectors and subsectors. That is to say, would proposed shifts accentuate or reverse existing trends (or change the ambient conditions in some other fashion)? This section lays out some of the existing trends that have been seen (and are likely to continue under roll over) and compares these to the magnitude and direction of social impacts likely to result from specified shifts.

- Roll-over alternative (status quo) will not provide a static or stable fishery as characterized by the 1996 (baseline) year information or as it most recently operated in 1997/98. The roll over alternative will provide stability in the sense of the gross allocation between inshore and offshore processors, and maintaining the same general set of conditions for business decision-making that have been in existence since I/O-1. In general, this alternative has the potential to be the alternative that would minimize adverse impacts on the 'engaged' and 'dependent' fishing communities. It should be clearly recognized, however, that all industry sectors are still overcapitalized, and "internal" sector dynamics will continue to change the structure and operations of these sectors. Of course "external" factors such as market price and demand also will continue to affect the industry structure and operations. Importantly for the purposes at hand, several trends were noted in the body of this document that illustrate the 'non-equilibrium' nature of the Bering Sea pollock fishery. Some of these are listed below.

    - Increasing CV ownership and/or management control by shore plants or cooperating/related entities
    - Increasing specialization of pollock CVs, which has resulted in decreased market adaptability or changeability
    - Increasing processing of Bering Sea pollock by GOA shore plants
    - Increasing processing of Bering Sea pollock by floating (inshore) processors
    - Increased consolidation of operations within the catcher processor sector
    - Changing number of participating entities

- Several existing trends of change within sectors have been identified which are relevant to social impact assessment. These can be examined as change relative to 'absolute' 1991 production levels, change as a function of percentage of yearly TAC, or change as a function of number of entities and ownership/homeport. Each of this is bulleted out below:

Change relative to absolute 1991 production levels is one useful way to look at internal fishery dynamics.

- Onshore percentage of 1991 production has relatively constant (6% decline in 1996 from the total seen in 1991) for the sector as a whole, *but*:
    - Shore plants proper have *declined* in overall production approximately 16% in the period 1991-1996.
    - Floating processors 1996 production has *increased* -- the 1996 total is 206% of 1991 production.

- Offshore percentage of 1991 production has seen a 31% decline in the period from 1991 (pre-I/O) to 1996
    - Motherships have declined 14% in production from 1991-1996
    - CPs *as a sector declined* 34% from 1991 production levels, but this was not evenly distributed throughout the sector:
        - Surimi CPs *declined* 42% 1991-1996
        - Fillet CPs *increased* 17% 1991-1996

Change as a function of percentage of yearly TAC (yearly total production) is another useful way of looking at inter- and intra-sector dynamics.

- Onshore percentage of TAC *increased* from 29% to 36% of TAC, 1991-1996
    - Shore plants increased from 27% to 30% from 1991-1996
    - Floating processors increase from 2% to 6% from 1991-1996 (i.e, though they are still relatively small as a subsector compared to the inshore sector as a whole, they have tripled their 'internal market share' – and increased more, on an absolute basis (4% of TAC versus 3% of TAC) than did the shore plant 'subsector.'

- Offshore percentage of TAC processed decreased from 71% to 64% between 1991-1996 (i.e., pre-I/O to post I/O), but this has been differentially distributed:
    - Motherships, as a subsector, have been fairly *stable* in terms of TAC amount accounted for (9% to 10%)
    - CPs as a sector *declined* from 62% to 54% of TAC, but again, this was differentially distributed by type of operation:
        - Surimi CPs percentage of TAC *declined* 53% to 40% 1991-1996
        - Fillet CPs percentage of TAC *increased* from 9% to 14% between 1991-1996

Change as a function of number of entities and ownership/homeport is yet another useful way to look at sector dynamics.

- Onshore
  - The number of shoreplants is the same for the three sample years, but the same entities were not involved in 1991 and 1994 -- however, the same shore plants occur in the 1994 and 1996 sample years. For all of these latter plants, ownership is located in Washington, with the processing operations themselves located in Alaska.
  - Floating processors have fluctuated in number of participants, but the 'core' operators are stable in number. As with the shore plants, ownership is Washington and location is Alaska.

- Offshore
  - Motherships have been constant in numbers for the sample years. For each of the entities both ownership and homeport is Washington, according to interview data (but one is listed with an Alaska homeport in the database)
  - Catcher Processors have varied widely over the sample years:
    - Surimi CPs were *reduced* from 24 to 20 entities. Ownership and homeport for vessels is nearly exclusively Washington -- although there has been some Alaska CDQ group investment. Production *declines* about 42% from 1991 levels for essentially the same number of Washington-based entities.
    - Fillet CPs were *reduced* from 30 to 19 entities. Washington based entities *declined* from 24 to 15 for 1991-1994, but remained *stable* at 15 from 1994 to 1996. Production *decreased* 41% 1991-1994 (i.e., when the number of vessels dropped), but production *increased* 61% for period 1994-1996 (i.e., during the time the number of vessels stabilized).

- ***Catcher Vessels***, as noted, though not an 'inshore' or 'offshore' sector, would potentially feel the impacts of an inshore/offshore allocative shift.

  - Overall as a sector, number of entities participating in the Bering Sea pollock fishery *increased* from 83 to 117 (i.e., by 40%), between 1991 and 1996. When examined by vessel length, delivery patterns, and length in combination with delivery patterns, it is apparent that there are differential trends of change operating within the CV sector. These are each bulleted out below:

When examined by length the following trends appear:

- Vessels less than 125 feet increased from 63 to 64 1991-94, then to 89 entities in 1996, accounting for the *largest increase* in the CV sector.
- Vessels 125 to 155 feet increased from 15 to 17 to 20 in the years 1991, 1994, 1996 respectively.
- Vessels over 155 feet increased from 5 to 11 for 1991-1994, and decreased to 8 in 1996.

When examined by delivery patterns the following changes (recalling, as noted in the main body of the text that the 'both' category is somewhat of an analytic construct that does *not* allow the analyst to compare 'primary' delivery modes among vessels that deliver to both onshore and offshore processors) are apparent:

- Vessels delivering onshore ONLY *decreased* from 64 to 58 1991-1994, then *increased* to 76 in 1996.
- Vessels delivering offshore ONLY remained at 16 for both 1991 and 1994, and *increased* to 24 for 1996.
- Vessels delivering to BOTH onshore and offshore *increased* from 3 to 18 for 1991-1994, and decreased only slightly to 17 for 1996.
- BOTH category is an analytical construct and may structure the above data, as the classification does not take into account relative delivery volumes onshore and offshore. 1994 was the first year of the three for which onshore and offshore seasons were of different lengths and times, so the source of 1991-1994 "changes" are unclear. 1994-1996 changes are more definitive and were collaborated through information obtained through interviews.

When examined by delivery patterns and vessel length additional useful information is gained on the relationship between vessel size and inshore/offshore sectors:

- With the exception of two medium-sized vessels in 1996, *no medium or large-sized* catcher vessels delivered *only* to offshore processor operations.
- In 1994, only 5 medium and 3 large vessels delivered both onshore and offshore. In 1996 these numbers were 4 medium vessels and 1 large vessel.
- Small vessels *increased in all delivery mode categories* between 1991 and 1996 -- 44 to 55 for onshore only deliveries, 16 to 22 for offshore only deliveries, and 3 to 12 for deliveries to both sectors.

6.3 SOCIAL IMPACTS AND SECTOR/COMMUNITY LINKS: ROLLOVER AND SIGNIFICANT ALLOCATIVE SHIFTS INSHORE AND OFFSHORE

In the following discussions, per the simplifying assumptions guiding this work, "allocative shift" refers to a change in allocative quota of the magnitude of 10% of the TAC. It was understood that the discussion of social impacts would be qualitative and directed toward the magnitude and direction of social impacts likely to be associated with a limited range of alternatives.

Alaska Bering Sea Pollock Communities

Essentially for the purposes of social impact assessment there are five main categories of communities that have links to inshore and offshore sectors of the Bering Sea pollock fishery. These are:

- Communities with well developed socioeconomic ties to both onshore and offshore sectors. This category is comprised of one community: Unalaska/Dutch Harbor.

- Communities with large shoreplants that are also CDQ communities. This category is comprised of one community: Akutan.

- Communities that are not CDQ communities, have shoreplants that process Bering Sea pollock, but that have no ties to the offshore sector. These are the communities of King Cove and Sand Point.

- Communities that are CDQ communities and thus have a tie to Bering Sea pollock, but that do not have a physical presence of either the onshore or offshore sector within their community. There are a number of western Alaska communities that fall under this category, but the potential effects of I/O-3 on these communities was and is the focus of a separate project.

- Other Alaska communities with ties to either onshore or offshore sectors. There are a number of other Alaska communities that have some tie to the Bering Sea pollock fishery, but that are peripheral to the fishery in relation to the communities mentioned above. These would include Kodiak, were a very small volume of Bering Sea pollock has been processed, and a scattering of other communities that may have ownership or homeport ties to vessels in various sectors. Given the low level of participation in the Bering Sea pollock fishery, these communities are not directly impacted by ongoing sector dynamics, although individual entities within these communities are likely to be affected.

Each of the primarily involved communities is bulleted out below:

Unalaska/Dutch Harbor

- The community has a fishery-based economy
  - Relatively small community by U.S. standards
  - Large economy for size of community
  - Large fishery economy for any community in U.S. (#1 fishing port)
  - In relative terms, fishery-related activities in general and pollock in particular are centrally important.
- It is a growing community
- It has strong links to both onshore and offshore sectors
- Growth in support service sectors in the community is attributable to both offshore and onshore sectors
  - Shipping and transhipment -- results in local employment and revenues
  - Diverse support services -- there are more companies than there used to be, and more different kinds of companies and services offered than ever before

Inshore Links: Unalaska/Dutch Harbor

- There has been an historic presence of shore plants in the community.
- Pollock processing has taken place in Unalaska since 1986.
- Historically, Unalaska has *not* been the homeport for the delivering fleet -- but more vessels staying in community during "off seasons" with changing ownership/management patterns.
- The community is the site of logistical support for floating processors.
- The community is the site of three large shore plants that incorporate pollock processing -- the existing trend is for decreasing volumes of pollock relative to other processing communities and inshore sector participants, but the number of entities has remained constant.
- Employment in Unalaska (and at the plants themselves) has been relatively stable in relation to processing volume change (though earnings would be down with shorter seasons).
- Historically important fiscal ties to community (raw fish tax, business tax, property tax, sales tax) -- community has been ranked first of US ports in volume and value of fish landed since 1992 but volume decreased each year 1993-1996 and value declined from $194 million in 1992 to $119 million in 1996 (but, importantly, tax revenue has not decreased proportionally, due at least in part to growth of the community, diversification of the local economy, and growth of support services specifically that support all sectors of the fishery.
- *Rollover implications* -- if current internal inshore sector trends continue, Unalaska shore plants will likely continue losing share of TAC to floating processors and other Alaskan communities. I/O

rollover will continue to protect Unalaska shore plants (and the community) from preemption by the offshore sector, but will not address these internal inshore sector dynamics.

Offshore Links: Unalaska/Dutch Harbor

- Relatively recent development in the community compared to the historic presence of shore processing facilities.
- Unalaska is *the* primary Alaskan support base for offshore sector in Bering Sea (and has historically acted as a support base for the marine related activities on the Bering Sea and for shipping to Western Alaska in general) -- while there has been some reduction in entity numbers and consolidation of ownership, and reduction in overall volume, the general organization and magnitude of support sector activity in the community directed toward offshore has not been greatly affected.
- Offshore links are fiscally important to the community through relatively recent resource landing tax as well as taxes on sales in community (especially fuel).
- Relatively few community residents are directly employed by the offshore sector, but since its development the Unalaska indirect or support services economic sector, which supports both offshore and onshore sectors, has grown significantly (with some facilities used more-or-less exclusively by offshore related entities during pollock seasons).
- *Rollover implications* -- there should not be significant detrimental effects upon Unalaska associated with its offshore links, although there may be further perturbations in the offshore sector itself (particularly if recent history is a guide). Demands for support services will continue, and offshore product will continue to be landed.

- *Allocation shift inshore implications*: Unalaska/Dutch Harbor

    - Net positive social impact, but Unalaska would not see the 'full benefit' of an inshore increase due to internal inshore sector dynamics (i.e., community shoreplants' share of sector overall is decreasing in relation to floating processors and shoreplants in other Alaskan communities -- individual plant throughput was widely variable has declined in the range of 10-40% between 1991 and 1996; average decline is 25%, with the 1996 total being 75% of the 1991 total -- therefore an increase to inshore would not all accrue to Unalaska, nor necessarily would the full increase stay proportionally in the community).

- Unalaska shoreplants in 1996 processed approximately 50% of the Bering Sea pollock processed inshore.
- Looked at in a I/O historical perspective, assuming a 10% shift inshore, and assuming the inshore sector distribution pattern remains consistent with that seen in 1996, Unalaska plants would process 28% more pollock than they did in 1996, or approximately 97% of their 1991 aggregate total (a 5% shift would bring the aggregate back to 86% of the 1991 total). In other words, a 10% inshore shift would get Unalaska/Dutch Harbor nearly 'back to where it was' in 1991 before the overall reduction in TAC and the internal inshore sector shift of pollock away from Unalaska to floating processors and other Alaskan communities.
- There would likely net increase in local tax revenues, but gains resulting from the increase inshore would be at least partially offset by declines in offshore related revenues and taxes.
- Likely increase in local employment duration and compensation levels, particularly at the shoreplants themselves, and associated support services. For jobs more closely associated with offshore, such as stevedoring, local job duration (and therefore compensation levels) would decline.

- *Allocation shift offshore implications*: Unalaska/Dutch Harbor

  - Net negative social impact, with loss of employment compensation and fiscal revenues from onshore related activities likely to be only marginally offset by potential increases in offshore support activity. It is not likely that the increases would be of a similar magnitude to the losses seen inshore.
  - Assuming a 10% shift offshore, Unalaska shoreplants would process approximately 28% less pollock than they did in 1996, or approximately 53% of their 1991 total (a 5% shift would result in processing 64% of the 1991 total). In other words, such a large shift offshore would result in the plants processing approximately one-half of what they did in 1991.
  - Shorter seasons for the shoreplants would result in less total local employment in terms of duration and compensation seasonal peaks.

Akutan

- The City of Akutan encompasses both a large shoreplant and a "small village" – it presents a sharp contrast with Unalaska/Dutch Harbor where the seafood industry and support sectors are integrated with the socioeconomic fabric of the community itself.
- Akutan's recently achieved CDQ status highlights distinction between shore plant and the balance of the community.
- CDQ participation has meant community involvement (or, more precisely, community involvement with the CDQ group that is itself involved) with both inshore and offshore sectors through partnering relationships.
- *Rollover implications* -- No foreseeable detrimental effects on Akutan
- *Allocation shift inshore implications* -- Shift would benefit local inshore plant that provides substantial local tax base (community and Borough). More precise effects cannot be discussed due to confidentiality constraints on disclosing information about an individual operation. This plant is operated by a company that is a CDQ partner of the CDQ group to which the community belongs. This CDQ group also partners with an offshore operation so if this operation were adversely affected, the CDQ group may be as well. For the City of Akutan, there would be a net positive social impact, but to the extent that the 'village' is separable from the shore plant (though part of the same legal/political entity, there are clear social, sociocultural, and socioeconomic distinctions between the plant and the 'Aleut village' of Akutan) results of a shift would not be completely unambiguous (unlike Sand Point and King Cove, for example).
- *Allocation shift offshore implications* -- Shift would almost certainly reduce local plant production, with resultant decline in community and Borough tax revenues. Catcher fleet size and employment force is likely to remain at the same levels, but be employed for shorter periods of time. There would be a net negative impact to the City of Akutan, but for the 'village' of Akutan (to the extent that it is legitimately separable from the plant) the results would be less unidirectional.

Sand Point and King Cove

- Sand Point and King Cove are not geographically "Bering Sea communities" but currently are engaged in the Bering Sea pollock fishery.
- Both are historic fishing communities with resident fishing fleets and onshore processing capacity.
- Bering Sea pollock is a relatively new fishery with no processing reported in these communities in 1991.
- Both communities have one shore plant each that produces pollock. For both plants production increased significantly between 1994 and 1996.
- Deliveries of Bering Sea pollock to both plants are made by vessels primarily homeported elsewhere (i.e., not by the resident fleet, which may deliver GOA pollock in addition to a number of other species).
- Neither community has direct links to the offshore sector, nor does either community act as a support base for the offshore sector.
- *Rollover* will likely continue these trends – increasing involvement in the Bering Sea pollock fishery through coordination of production with other facilities outside the community(ies) or increase in diversity of product or capacity.
- *Allocation shift inshore implications* -- Such a shift may well accelerate the internal inshore sector dynamic of increased Bering Sea pollock processing in Sand Point and King Cove relative to shoreplants in Unalaska/Dutch Harbor communities. Local community and Borough tax receipts could be expected to increase, and disproportionately so if additional growth is differential vis-a-vis Unalaska/Dutch Harbor. The catcher fleet size and employment force would not be expected to increase unless further pollock product diversification takes place at these plants. Employment periods and seasons may expand for catcher vessels and workers at these plants. There are no foreseeable negative social impacts in these communities resulting from such a shift, given that there are no ties to the offshore sector, nor benefits otherwise derived therefrom (e.g., neither Sand Point nor King Cove are CDQ communities).
- *Allocation shift offshore implications* -- All other things being equal, this shift would be expected to have no positive social impacts in these communities, as the most likely scenario is that less Bering Sea pollock would be processed in local plants. However, because of internal differentiation within the shore plant sector, and the coordination between one of these plants and a large Bering Sea shore plant, it is not clear what the magnitude of negative impacts would be. It is likely that local tax base would be reduced, along with plant operational time and employee and catcher vessel income. Threshold level may be reached where it makes less sense to process Bering Sea pollock in these GOA communities than it does now, but this is not clear.

Bering Sea Pollock Fishery Community Links Outside of Alaska

Non-Seattle Communities

- Several communities outside of Seattle are listed as homeports for vessels involved in the Bering Sea pollock fishery. These are communities are involved predominately in the catcher vessel sector and, while the Bering Sea pollock fishery is clearly important to individual entities, potential allocative impacts *upon the communities themselves* would not be of the nature or magnitude of potential changes likely to occur to Alaskan communities already discussed or to those likely to be felt in the greater Seattle area.

Seattle

- Seattle is the only community outside of Alaska with well developed socioeconomic ties to both onshore and offshore sectors.
    - It is a large metropolitan area with a diversified economy.
    - It is geographically distant from the Bering Sea pollock fishery.
    - It has strong links to both onshore and offshore sectors:
        - Seattle is the logistical/organizational nexus for all Bering Sea pollock fishery sectors.
        - Ownership is concentrated in Seattle/Washington for both harvesting and processing capabilities.
        - Employment for all sectors predominately from Seattle/ Washington (as best can be shown within the limits of the data).
    - Support service sectors in the community is involved with both offshore and onshore sectors.
    - The absolute size of Bering Sea pollock fishery involvement is larger than any other community (when counted a number of different ways, such as place of origin for employees, income to entities administered from the community, etc.)
    - In terms of relative size, the Bering Sea pollock engagement or dependence compared to the total local/metropolitan economy is small (but the sectors are large compared to other sectors in the fishery).

Inshore links: Seattle

- Seattle is the corporate/ownership location for all entities (shore plant and floating processor physical facilities located in Alaska).
- It is the center of corporate decision making and administrative employment.
- 80% of inshore labor force is non-Alaskan, with a disproportionate amount of these from the Seattle/Washington area

- Inshore processors buy fish from catcher vessel fleet, which is itself based predominately in the Seattle area
  - Crew of CVs mainly from Seattle
  - CVs primarily maintained and supported in Seattle
- Localization within Seattle
  - Inshore has some "waterfront" activities -- mainly catcher fleet related, but entities are dispersed throughout the area.
  - Shipping and secondary processing is somewhat localized (Port of Seattle)

- *Rollover implications* -- onshore links appear to have been stable in this period, and rollover should have little or no adverse effects on the Seattle area. Individual onshore entities may be better or worse off than currently, but overall community effects should be negligible.

Offshore links: Seattle

- All mothership operations are owned and managed out of Seattle according to interview data.
- Mothership labor force predominately Seattle based (Alaska employment linked to CDQ programs may be increasing).
- Catcher Processors are predominately owned/managed from Seattle/ Washington state
  - The number of entities operating in this sector has been reduced.
  - A marked degree of ownership consolidation has taken place.
  - Employment force predominately for the offshore sector is primarily from Washington state (65% to 70% of employment opportunities/FTEs and 71% to 73% of gross pay and benefits -- 1996-97
  - There is a significant degree of localization of moorage and maintenance in the Puget Sound area, especially Port of Seattle and Seattle private moorage/shipyards, such that the 'footprint' of the offshore sector is more readily discernable than that of the inshore sector within the Seattle area.
  - Approximately 10% of CP processing volume was purchased from catcher vessel fleet, which is itself based primarily in Seattle.
- *Rollover implications* --- continuation of sector dynamic
  - Further consolidation is certainly possible, if recent history is a guide.
  - Other things being equal, vessel numbers should remain constant even in the face of sector consolidation, again based on recent experience.
  - Net potential effects of rollover are sustained participation in the fishery – no marked positive or negative social consequences.

- *Allocation shift inshore implications: Seattle* (assumes motherships NOT part of offshore sector)

    - There would likely be net negative social effects resulting from significant impacts to catcher processors and related support sectors and, to a lesser degree, affected localities within the greater Seattle area (Port of Seattle, Ballard/BINMIC area), but the fact that inshore sectors that would benefit from the shift are also located in Seattle would offset these losses to a degree if not in the same specific areas.
    - Interview data and recent experience suggest that there would likely be increased instability in the offshore sector. Further bankruptcies would be likely (causing a strain on local/regional support businesses, although vessels are likely to remain in the fishery under new ownership).
    - Overall sector employment is likely to remain nearly the same, but the overall sector level of compensation would decrease due to shortened season length associated with the decreased quota allocation.
    - Overall social effects offset to a degree by increases in Seattle-based inshore-related entities income, Seattle-based inshore employment, and Seattle-based expenditures and support services.
    - Assuming a 10% shift inshore, catcher processors would process 19% less pollock than they did in 1996, or approximately 54% of their 1991 aggregate total (a 5% shift would bring the aggregate to 60% of their 1991 total). In other words, the shift inshore would result in the catcher processors' volume dropping to approximately one-half of their 1991 levels.
    - Comparing onshore and offshore jobs in terms of compensation, let alone other factors, is difficult. We have received limited information from operations from all sectors, from which we can reach only imprecise conclusions. Until better information is available, there is no way to devise a conversion factor between onshore and offshore jobs. Conventional wisdom is that offshore jobs can pay significantly more than onshore jobs for the same period of time, and interview data would seem to confirm that pattern, but good aggregated information was not available for the inshore sector. As for structural comparisons, onshore jobs have a basic rate of pay per hour, plus overtime, whereas offshore jobs (in general) are paid on a share basis and have no minimum guaranteed wage. Offshore compensation can vary widely depending on fishing conditions, vessel performance, and market conditions. Aggregate information that is available indicates that both labor forces are predominately composed of Washington/PNW residents. For the offshore sector, Washington resident employees have higher average incomes than employees from other states; for the inshore sector Alaska residents have higher average incomes than employees from other states.

- *Allocation shift offshore implications: Seattle*

    - There would be likely net positive effects resulting from significant impacts to catcher processors and related support sectors and, to a lesser degree, affected localities within the greater Seattle area. Again, however, the fact that both inshore sector, which is also based in Seattle would offset these gains with their losses, to a degree.
    - Assuming a 10% shift offshore, catcher processors would process approximately 19% more pollock than they did in 1996, or approximately 79% of their 1991 aggregate total (a 5% shift would result in their processing approximately 72% of their 1991 total). In other words, the shift offshore would result in the CPs processing approximately 20% less than their 1991 (i.e. pre-I/O 1) levels.
    - Such a shift would likely lead to increased stability in the catcher processor sector, although given the internal variation within the sector further consolidation is still certainly possible.
    - There would be potential reduction of compensation for inshore-related jobs based out of Seattle due to shortened seasons, and reduced support and supply services.

Separation of Motherships from Offshore Category

One of the major structural changes proposed for I/O-3 allocations would be the creation of a separate mothership category. The major social impact issues associated with this proposed separation are bulleted out in this section.

- Creation of separate mothership category, in and of itself, has no apparent negative social impacts to other sectors or to communities. There are, however, several caveats to this generalization:

    - Mothership allocations divergent from their historical catch increases the likelihood of negative impacts on other industry sectors (and linked communities).

    - The creation of a third category of pollock allocation could provide the impetus for additional capitalization or create opportunities for entities from other sectors to "switch categories" – both of which could create difficulties for sustained participation on the part of some sectors or subsectors.

- Placing motherships in the inshore category could affect inshore sector dynamics such that there could be potential positive or negative impacts to inshore sector participants.

  - There are inherent differences in operations between motherships and "true" shore plants that result from the mobility of the motherships. Placing these two types of operations in the same category – one literally grounded in communities, the other not – could have implications for fishing communities. One large unknown in this equation is the degree of cooperation or competition that would result from combining these categories.

  - There are also inherent differences between "fixed" floating inshore processors and motherships. How the competition between these two subsectors would play out if they were combined into the same sector is unknown.

- Separating mothership operations from the offshore category would make the residual offshore category a 'catcher processor category' containing only similar operations.

  - In the recent past there has been considerable consolidation among catcher processors. The removal of motherships may amplify the effects of the present and potential future consolidation.

  - If consolidation should proceed far enough, some current participants have expressed a concern about the possibility of agreements among catcher processor operators resulting in an IFQ-like pursuit of the offshore Bering Sea pollock fishery. This could have both potential positive and negative impacts, including:

    - Utilization of catcher vessels would likely decline (based on what has been seen with the CDQ fisheries) with negative effects on individual entities.

    - Catcher processor utilization rates would likely increase, along with the economic value of their products.

REFERENCES CITED

BINMIC Planning Committee
1998 Ballard Interbay Northend manufacturing and Industrial Center (BINMIC) Final Plan. Seattle.

City of Seattle, Neighborhood Planning Office
1998 BINMIC Newsletter.

Chase, Robert A. and Glenn Pascall
1996 Jobs Today -- Jobs Tomorrow: The Puget Sound-Alaska Partnership. Prepared for the Tacoma-Pierce County Chamber of Commerce and the Greater Seattle Chamber of Commerce. Seattle.

Economic Consulting Services
1997 Ballard-Interbay-Northend Manufacturing and Industrial Center Plan Economic Analysis and Economic Development Strategy. Prepared for the City of Seattle and the BINMIC Planning Committee. Seattle.

Economic Development Council of Seattle and King County
1995 Foundations for the Future -- An Economic Strategy for the Central Puget Sound Region, Volume Two: Strategic Opportunities and Institutional Capabilities. Seattle.

Hennig, Susan and Patricia Tripp
1988 The Rise and Fall of the City of Ballard, 1890-1907. Chapter 7 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

Hooker, Paul; Morton Miller; and Douglas Lipton
1994 Profile of Change: A Review of Offshore Factory Trawler Operations in the Bering Sea/Aleutian Islands Pollock Fishery.

Impact Assessment, Inc.
1995 Supplemental Social Impact Assessment of the North Pacific Fishery Management Council Specified License Limitation Options for the North Pacific Groundfish and Crab Fisheries, Revision 1.1. Submitted to the North Pacific Fishery Management Council. March, 1995.

1994 Sector Description and Preliminary Social Impact Assessment of the North Pacific Fishery Management Council Regulatory Changes in the Groundfish and Crab Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Islands. Submitted to the North Pacific Fishery Management Council. October, 1994.

1991a Community Profiles Developed for the Social Impact Assessment of the Inshore/Offshore Amendment Proposal. Submitted to the North Pacific Fishery Management Council. January, 1991.

1991b Social Impact Assessment of the Inshore/Offshore Amendment Proposal. Submitted to the North Pacific Fishery Management Council. March, 1991.

Martin O'Connell Associates
1994 The Local and Regional Economic Impacts of the Port of Seattle. Prepared for the Port of Seattle. Seattle.

McRae, Melinda
1988 Chittenden Locks and the Lake Washington Ship Canal. Chapter 9 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

Miller, Morton; Douglas Lipton; and Paul Hooker
1994 Profile of Change: A Review of Offshore Factory Trawler Operations in the Bering Sea/Aleutian Islands Pollock Fishery. np.

Natural Resource Consultants
1997 Economic Impacts of Washington's Inshore Seafood Processing Industry, 1997 Update. Seattle.

1988 Commercial Fishing and the State of Washington: A Brief Overview of Recent and Future Growth in the Washington Seafood Industry. Seattle.

1986 Commercial Fishing and the State of Washington: A Contemporary Economic Overview of Local and Distant Water Commercial Fisheries. Seattle.

nd Impact of Washington's Inshore Seafood Processing Industry on the Washington State Economy. Prepared for the Pacific Seafood Processors Association. Seattle. 1991 or 1992 (? -- based on 1991 data).

North Pacific Fishery Management Council Staff
1998 Status Report on Baseline Information for the Inshore/Offshore 3 Analysis (information as of January 27, 1998). Anchorage.

1997 BSAI Pollock Sector Profiles. Anchorage.

Pacific Associates
1997 The Economic Impact of the Inshore Processing Industry Upon Alaska During 1994. Prepared for the North Pacific Seafood Coalition. Seattle.

1997 The Economic Impact of the Inshore Processing Industry Upon Alaska During 1995. Prepared for the North Pacific Seafood Coalition. Seattle.

Port of Seattle

1997 Foreign Waterborne Trading Partners & Commodities, 1996: Total Waterborne Trade Through the Port of Seattle. Port of Seattle Marine Division Market Research: Seattle.

1994 Puget Sound Commercial Moorage Facilities Study. Economic and Trade Development, marine Planning and Development Department. Seattle.

Reinartz, Kay F.

1988a Gilman Park and the West Coast Improvement Company. Chapter 4 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

1988b Ballard in the 1890's. Chapter 5 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

1988c Yankee and Immigrant -- Ballardites All. Chapter 6 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

1988d Ballard – Pride of Puget Sound, 1900-1920. Chapter 8 of Passport to Ballard: The Centennial Story, Kay F. Reinartz (editor). Ballard News Tribune: Seattle.

Terry, Joe; Angie Greig; Dave Colpo; and Dick Kinoshita

1997 Economic Aspects of the GOA and BSAI Pollock Fisheries (draft). Alaska Fisheries Science Center, National Marine Fisheries Service: Seattle.

APPENDIX: Socioeconomic Description/SIA Interview Protocols

The following protocols were used as discussion guides for the collection of data under this research effort. These represent categories of information to gather, as opposed to lists of specific questions typical of a formal survey. The goal of using protocols to help guide interviews is to provide for the collection of comparable data from different sources and locations. Not all parts of each protocol were applicable to the various contacts, and some sections received more emphasis for some interviews than for others. As with previous projects for the NPFMC, protocols will be adjusted, as required, following an initial field interval to take into account lessons learned from the first efforts at their implementation. By design, these protocols are similar to those used during the last groundfish related study for the NPFMC in order to provide for comparability of data to the extent practical. Specifically, where we recontacting entities contacted for previous SIA projects for the NPFMC the emphasis of the interview was on updating information and discussing changes seen by the individual entity and within the sector since the previous contact, rather than burdening the person being contacted with recapitulating information already accessible.

It should also be noted that the interview protocols here are directed toward the "sector description" side of the research, and not toward the "community profile" or "community context" side of the effort. The interviews for these types of data were guided by an outline that follows previous NPFMC community data presentations, particularly the Inshore/Offshore I work, with the goal being to update those areas of the community profiles required to describe and analyze links between sectors and communities, and the direction and magnitude of potential impacts at those intersections that would result from inshore/offshore considerations.

Further, the set of protocols included here encompasses 'employee-level' interviews as well as 'management-level' interviews. For this work, it is anticipated the effort was necessarily directed toward 'management-level' interviews. The other interview protocols, which were not used in this present work, are included here for the sake of completeness to as they were used for the 1994 work incorporated into this document..

Protocol: SECTOR-BASED ASSOCIATIONS

(Note: this protocol was used for such entities as sector associations and fishery interest groups, as relevant)

Who does this group represent

What is the history of this association

Where are the members drawn from

Are there organizations similar to this one

How large is the membership

How large is this in relation to the potential number of members

How has membership changed over the years

What are the main reasons for having this organization (why was it formed / why does it continue)

What are the current issues facing association members

Where do you see the fishing industry going

How do you see things changing for your association/group in the future

Do you see the role of pollock/groundfish/other species fisheries changing in future

How has inshore/offshore changed things, and has it established or maintained stability in the fishery?

What categories of people involved in the industry belong to the Association?

Who are some local owners, operators, and specific vessels engaged in this fishery?

Are there any other organizations that represent people who participate in this fishery?

Harvesting Entity Protocol: HARVESTER/SKIPPER-OWNER

(Note: This protocol was used for catcher vessels, both shoreside and at-sea delivery vessels)

History of Participation

Vessel Specifications (current vessel)

Vessel History (ownership, economic activity, vessel modifications, why?)

Home Port/Harvest Area History

Gear Types Used

How long have you been a skipper/owner?

Product

Daily Harvest Capacity by Species

Total On-Board Product Capacity

Annual Cycle by Species (what happens if a species is down, perceived options within pollock fishery)

Changes in Recent Years

Different Species

Different Areas

Where is your product landed (by species) and what influences this

Do you usually deliver to a single processor/mothership (why/why not, market value? joint venture?)

Employment

Different Categories of Crew Positions

Number of Crew by Category by Season

Employment Cycle Description

Type of Employment Arrangement (share, wages, etc.) by crew category

Recruitment Procedures (where/why/how including kinship, reputation, replacement crew)

Employee Turnover/Longevity by Crew Category

Demographics of Employees (age/sex/ethnicity patterns)

Employee compensation range by category

Fleet

How many vessels in the fleet

Do you cooperate with other vessels in the fleet?

Where are different species landed and what influences where

Where do you obtain services (repair, maintenance, etc.)

Do you belong to any fishing industry associations? (how involved)

Future Directions

Where do you see the industry going

How do you see things changing for your operation/vessel in the future

Do you see the role of pollock/other species changing in your operation in future

Preferred management tools or options for perceived problems

How has inshore/offshore changed things, and has it established or maintained stability in the fishery?

Harvesting Entity Protocol: HARVESTER/CREW

(Note: This protocol was used in the previous study rather than in the current study, although some crew members were contacted over the course of the study)

What is your job

How long working on this vessel

Past employment in fishery

Point of hire

How did you get/find out about this job

Home town/permanent residence

Where is this vessel's home port

Family/relatives living at home port?

Other relatives/friends working in the fishery

Annual residence cycle

education/job training

other employment experience

other jobs now/locally/elsewhere

do you think your experience is pretty typical of the other crew members

what are the different categories of crew who work on this type of vessel?

are there persons who do more than one type of job?

are there organizations/unions who represent people working on harvester vessels?

future job/residence plans

if there were cutbacks here, where would you seek employment

how do you see things changing for your operation/vessel in the future

where do you see the industry going

do you see the role of pollock changing in your operation in future

At-Sea Processing Entity Protocol: CATCHER/PROCESSOR and MOTHERSHIP MANAGEMENT

History of Operations

- Company History
- History of Operations
- History of Ship
- Past and Current Waters of Harvest/Reception
- Location by species
- Location by ease of delivery by incoming vessels?
- Place of product delivery (Where does it go)
- Average length of stay/degree of mobility

Product

- Daily Volume Capacity by Species
- Annual Cycle by Species
- Changes in Recent Years
  - Different Species
  - Different Product (canning, freezing, surimi, etc.)

Employment

- Number of Employees at Peak during year
- Number of Employees at Ebb
- Employment Cycle description (length of stay on-board, onshore, special type of worker/relationship to home community?)

Point of Hire

Type of Employment Contract

Recruitment Procedures

Employee Turnover/Longevity by Job Category

Housing Arrangements/Capacity

Demographics of Employees (age/sex/ethnicity patterns)

Range of Job Categories

Employee wage range by job classification

Delivering Fleet (for motherships)

How many vessels/what type of vessels deliver here on a regular basis

Where are those vessels from

What about irregular deliveries (routing and changes in routing? influences to change?)

What services do you provide for the fleet

Future Directions

Where do you see the industry going

Do you see the role of pollock/other species changing in your operation in future

Evaluation of the success of Inshore/Offshore in managing the fishery -- industry-wide and in terms of this specific economic enterprise

Preferred management tools or options for perceived problems

How has inshore/offshore changed things, and has it established or maintained stability in the fishery?

At-Sea Processing Entity Protocol: EMPLOYEE

(Note: this protocol was not used for the current study, but was utilized in the 1994 research and is included here for the sake of completeness.)

What is your job

How long working for this employer

How long working on this vessel

Average length of stay on vessel

Past employment in fishery

Point of hire

Home town/permanent residence

Annual residence cycle

Difficulty of long stays at sea, family/community relations?

Family/relatives living there?

Other relatives/friends working in the fishery; where?

education/job training

other employment experience

other jobs now/locally/elsewhere

do you think your experience is pretty typical of the other employees here

future job/residence plans

if there were cutbacks here, where would you seek employment

Shore Processing Entity Protocol: EMPLOYER/"ENTITY"

History of Operations

- Company History
- History of Local Operations
- History of Facility

Product

- Daily Volume Capacity by Species
- Annual Cycle by Species
- Changes in Recent Years
    - Different Species
    - Different Product (canning, freezing, surimi, etc.)

Employment

- Number of Employees per category at Peak/Ebb during year (fluctuations)
- Point of Hire
- Type of Employment Contract
- Recruitment Procedures
- Employee Turnover/Longevity by Job Category
- Housing Arrangements/Type/Location
- Demographics of Employees (age/sex/ethnicity patterns)
- Range of Job Categories
- Employee wage range by job classification

Fleet

How many vessels/what type of vessels deliver here on a regular basis (if possible names of vessels, length of association with plant, which would be good to approach)

Where are those vessels from

What about irregular deliveries

What services do you provide for the fleet

Future Directions

Where do you see the industry going

Do you see the role of groundfish/other species changing in your operation in future

Evaluation of Inshore/Offshore as a management tool -- industry-wide, in terms of this particular business

Preferred management tools or options for perceived problems

How has inshore/offshore changed things, and has it established or maintained stability in the fishery?

Shore Processing Entity Protocol: EMPLOYEE

(Note: this protocol was not used under this study effort -- it was used in the 1994 SIA work and is included here for the sake of completeness)

What is your job

How long working for this employer

How long working at this job site

Point of hire

Home town/permanent residence

Family/relatives living here?

Other relatives/friends working in the fishery

Annual residence cycle

Past employment in fishery

education/job training

other employment experience

other jobs now/locally/elsewhere

do you think your experience is pretty typical of the other employees here

future job/residence plans

if there were cutbacks here, where would you seek employment

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NAVIGATION IMPROVEMENTS DETAILED PROJECT REPORT AND ENVIRONMENTAL ASSESSMENT

KING COVE, ALASKA

April 1997

DEPARTMENT OF THE ARMY
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HARBOR IMPROVEMENTS
FEASIBILITY REPORT
AND ENVIRONMENTAL ASSESSMENT

SAND POINT, ALASKA

January 1998