

APPENDIX C

PROPOSED BERING SEA/ALEUTIAN ISLANDS HALIBUT PROHIBITED SPECIES CATCH LIMIT REVISIONS: COMMUNITY ANALYSIS

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LIST OF ACRONYMS AND ABBREVIATIONS

ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act
AKFIN	Alaska Fisheries Information Network
APICDA	Aleutian Pribilof Islands Community Development Association
BBEDC	Bristol Bay Economic Development Corporation
BSAI	Bering Sea/Aleutian Islands
CBSFA	Central Bering Sea Fishermen’s Association
CDQ	Community Development Quota
CEQ	Council on Environmental Quality
CVRF	Coastal Villages Region Fund
CFEC	Commercial Fisheries Entry Commission
DCED	Alaska Division of Community and Regional Economic Development
EA	Environmental Assessment
EEOC	Equal Employment Opportunity Commission
EO	Executive Order
FMP	fishery management plan
GOA	Gulf of Alaska
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
MSA	Metropolitan Statistical Area
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
NSEDC	Norton Sound Economic Development Corporation
PCOC	Petersburg Chamber of Commerce
PSC	prohibited species catch
QS	quota share
RIR	Regulatory Impact Review
SBPR	shore-based processor
SHARC	Subsistence Halibut Registration Certificate
TAC	total allowable catch
YDFDA	Yukon Delta Fisheries Development Association

SECTION 1.0 INTRODUCTION AND METHODOLOGY

For the purposes of this community assessment, a two-pronged approach to analyzing the community or regional components of changes associated with the implementation of Bering Sea/Aleutian Islands (BSAI) halibut prohibited species catch (PSC) revisions was utilized. First, tables based on existing quantitative fishery information were developed to identify patterns of participation in the various components of the relevant groundfish and/or halibut fisheries. Summary tables, presenting data on an annual basis typically from 2003 or 2008 through 2013, depending on the dataset, are presented in Section 2.0, along with accompanying narrative. This analysis focuses on fishery sectors (primarily catcher vessels, catcher processors, or shore-based processors for the relevant commercial fisheries, and permit holders or fishermen for subsistence halibut fisheries) and follows annual and average participation indicators.

Within this quantitative characterization of fishery participation, a number of simplifying assumptions were made. For the purposes of this analysis, assignment of catcher vessels (and catcher processors) to a region or community has been made based upon ownership address information as listed in the Alaska Commercial Fisheries Entry Commission vessel registration files or the National Oceanic Atmospheric Administration (NOAA) Fisheries federal permit data. As a result, some caution in the interpretation of this information is warranted. It is not unusual for vessels to have complex ownership structures involving more than one entity in more than one region. Further, ownership location does not directly indicate where a vessel spends most of its time, purchases services, or hires its crew as, for example, some of the vessels owned by residents of the Pacific Northwest spend a great deal of time in Alaska ports and hire at least a few crew members from these ports. The region or community of ownership, however, does provide a rough indicator of the direction or nature of ownership ties (and a proxy for associated economic activity, as no existing datasets provide information on where BSAI groundfish vessel earnings are spent), especially when patterns are viewed at the sector or vessel class level. Ownership location has further been chosen for this analysis as the link of vessels to communities rather than other indicators, such as vessel homeport information, based on previous North Pacific Fishery Management Council (NPFMC) fishery management plan (FMP) social impact assessment experience that indicated the problematic nature of existing homeport data.

For shore-based processors, regional or community designation was based on the location of the plant itself (rather than ownership address) to provide a relative indicator of the local volume of fishery-related economic activity, which can also serve as a rough proxy for the relative level of associated employment and local government revenues. This is also consistent with other recent NPFMC FMP social impact assessment practice.

There are, however, substantial limitations on the data that can be utilized for these purposes, based on confidentiality restrictions. A prime example of this is where a community is the site of a single processor,

or even two or three processors.¹ No information can be disclosed about the volume and/or value of landings in those communities. This, obviously, severely limits quantitative discussions of the potential impacts of the BSAI halibut PSC limit revision alternatives. In short, the frame of reference or unit of analysis for the discussion in this section is the individual sector,² and the analysis looks at how participation in fisheries most likely to be affected by the proposed management actions has been differentially distributed across communities and regions within this framework. The practicalities of data limitations, however, serve to restrict this discussion.

The second approach to producing this community analysis involved selecting a subset of Alaska regions/communities engaged in the relevant BSAI groundfish and/or halibut fisheries for brief characterization in Section 3.0 to describe the range, direction, and order of magnitude of social- and community-level engagement and dependency on those fisheries. The approach of using a subset of communities rather than attempting characterization of all of the communities in the region(s) involved was chosen due to the practicalities of time and resource constraints. Further, this characterization was undertaken with existing information only and did not involve fieldwork in any of the communities, which served to limit a detailed understanding of the current and oft-changing dynamic interaction of the specific public and private subsectors or groups of resource users likely to be directly or indirectly affected by the proposed action alternatives in any given community.

The total set of communities engaged in the relevant groundfish and halibut fisheries is numerous and far-flung. Communities (and types of potential impacts) vary based upon the type of direct engagement of the individual community in the fishery, whether it is through being the location of ownership for a portion of the catcher vessel fleet, ownership of a portion of the catcher processor fleet, operation of shore-based processing facilities, or being the location of fishery support sector businesses. In short, this second approach uses the community or region as the frame of reference or unit of analysis (as opposed to the fishery sector as in the first approach). This approach examines, within the community or region, the local nature of engagement or dependence on the fishery in terms of the various sectors present in the community and the relationship of those sectors (in terms of size and composition, among other factors) to the rest of the local social and economic context. This approach then qualitatively provides a context for potential community impacts that may occur as a result of fishery management-associated changes to the locally present sectors in combination with other community-specific attributes and socioeconomic characteristics.

Simplifying assumptions also needed to be made as to which regions or communities to select for characterization, given the large number of communities participating in the fisheries (especially the

¹ The number of data points that need to be lumped to comply with data confidentiality restrictions varies by data source. The Commercial Fisheries Entry Commission (CFEC) requires aggregation of four data points to permit reporting of what would otherwise be confidential data, while virtually all other data sources require the aggregation of three data points to permit disclosure. In this section, because several data sources draw at least in part on CFEC data, volume and value data are presented only when four or more data points are aggregated.

² In this community analysis, the term “trawl vessels” is often used as shorthand for “vessels utilizing trawl gear” and “hook-and-line vessels” is often used as shorthand for “vessels utilizing hook-and-line gear.” While in theory some individual vessels may fish Bering Sea/Aleutian Islands (BSAI) groundfish with both types of gear over the course of a year, these multi-gear vessels are few and none appear in the primary 2008-2013 dataset used for this analysis.

BSAI halibut³ fishery). Overall, it was assumed that the focus should be on the communities most engaged in and dependent on the relevant fisheries (and therefore most likely to be directly affected by proposed management actions), recognizing that communities with a high degree of dependence on either harvesting or processing sectors and/or multi-sector activity would likely be most vulnerable to potential adverse impacts under Alternative 1 (the no-action alternative) or Alternative 2 (the action alternative). Alternately, this group would also include those communities most likely to directly benefit from intended potential positive impacts of the action alternative.

The initial selection of BSAI groundfish communities to be screened for characterization in Section 3.0 included those Alaska communities that had a level of engagement, including one or more of the following indicators in the primary dataset used for analysis (2008-2013):

- An annual average of one or more resident-owned groundfish trawl⁴ catcher vessel(s) that made at least one BSAI groundfish delivery over the years 2003-2013 inclusive.
- An annual average of one or more resident-owned hook-and-line catcher vessel(s) that made at least one BSAI groundfish delivery over the years 2003-2013 inclusive, where hook-and-line groundfish catcher vessels are defined as those participating in groundfish fisheries subject to BSAI halibut PSC limits.⁵
- An annual average of one or more resident-owned groundfish trawl catcher processor(s) that participated in the BSAI groundfish fisheries over the years 2003-2013 inclusive.
- An annual average of one or more resident-owned groundfish hook-and-line catcher processor(s) that participated in the BSAI groundfish fisheries over the years 2003-2013 inclusive, where hook-and-line groundfish catcher processors are defined as those participating in groundfish fisheries subject to BSAI halibut PSC limits.⁶
- An annual average of greater than 0.5 locally operating shore-based processor(s) that processed BSAI groundfish over the years 2003-2013 inclusive.

³ In this document, “BSAI halibut fishery” is used as shorthand for directed halibut fisheries in International Pacific Halibut Commission (IPHC) Area 4 (which includes IPHC Areas 4A, 4B, 4C, 4D, and 4E). The boundaries of IPHC Area 4 are largely consistent with the boundaries of the federal BSAI North Pacific management area, except IPHC Area 4A includes the far western portion of the federal Gulf of Alaska North Pacific management area south of the Aleutian Chain in the general vicinity of Akutan and Unalaska Islands (the sites of their namesake communities, which are labeled in Figure 1), as well as Umnak Island (the large unlabeled island in Figure 1 shown to the west of Unalaska Island).

⁴ As a simplifying assumption, trawl vessels that engaged in pelagic trawl and non-pelagic trawl in both shallow-water and deep-water complexes were combined due to the limited number of vessels in any complex, pelagic or non-pelagic, in any community, for any year, in order to present more complete data than would otherwise be possible due to confidentiality restrictions.

⁵ This serves to exclude data from halibut and sablefish fisheries in federal waters as well as those from guideline harvest-level fisheries that are under the management authority of the State of Alaska and not subject to the federal PSC limits. For practical purposes, this limits the BSAI groundfish hook-and-line catcher vessel fishery considered in this analysis to the Pacific cod longline fishery in federal waters.

⁶ As was the case with hook-and line catcher vessels, this serves to exclude data from halibut and sablefish fisheries in federal waters as well as those from guideline harvest-level fisheries that are under the management authority of the State of Alaska and not subject to the federal PSC limits. For practical purposes, this limits the BSAI groundfish hook-and-line catcher processor fishery considered in this analysis to the Pacific cod fishery in federal waters.

Using these criteria, 12 communities were initially selected for screening for characterization as the Alaska communities most engaged in, and potentially the most dependent on, the BSAI groundfish fisheries most likely to be directly affected by one or more of the various BSAI halibut PSC limit revision options or reductions under Alternative 2. These communities are:

- Adak
- Akutan
- Anchor Point
- Anchorage
- Atka
- King Cove
- Kodiak
- Nome
- Sand Point
- Petersburg
- St. Paul
- Unalaska/Dutch Harbor⁷

Of these 12 communities, six (Adak, Akutan, Atka, Nome, St. Paul, and Unalaska) were separately selected for characterization as BSAI halibut-dependent communities, given substantial engagement in and dependence on that fishery as determined in a separate exercise (see below). As such, they could be affected in a number of different ways by any of the alternatives.

The remaining six communities, all located outside of the BSAI region, vary in the nature and level of their engagement in the BSAI groundfish fisheries.

- Anchor Point appears in the 2008-2013 dataset only as location of BSAI groundfish hook-and-line catcher vessel ownership, with average annual participation of one Anchor Point resident-owned vessel over that period, with no vessels active in the two most recent years for which data are available. Given the limited nature of this one-sector engagement in the fishery, Anchor Point was dropped from further consideration for inclusion in the regional/community characterizations.
- Anchorage appears in the dataset as having resident ownership of one BSAI groundfish trawl catcher processor for each year 2011-2013, two BSAI groundfish hook-and-line catcher processors in 2010, and three BSAI groundfish hook-and-line catcher processors each year 2011-2013, as well as being the location of one BSAI groundfish shore-based processor each year 2011-2013. All first wholesale gross revenue data associated with Anchorage's engagement in

⁷ In this community analysis, the term "Unalaska" is used hereafter to refer to the City of Unalaska including its port of Dutch Harbor, which is fully encompassed within the municipal boundaries of the City of Unalaska. Within some data sources, Unalaska and Dutch Harbor fishery statistics are reported separately, as there are separate Unalaska and Dutch Harbor mailing addresses and zip codes; in this chapter those statistics are combined for reporting as they represent two components of the same community.

these sectors are confidential. Given the size and economic diversity of Anchorage, however, which would effectively further limit the community's reliance and dependence on this already limited fishery engagement, Anchorage was dropped from further consideration for inclusion in the regional/community characterizations, but an Anchorage-specific discussion is included in the Section 4.0 analysis.

- King Cove appears in the 2008-2013 dataset as being the location of one BSAI groundfish shore-based processor for each year during this period. All revenue data associated with King Cove's engagement in this sector are confidential. However, economic analysis in the Regulatory Impact Review (RIR), a part of the main document to which this community analysis document is appended, concludes that for practical purposes only a portion of catcher vessel trawl-caught landings of BSAI Pacific cod would be at risk for shore-based processors under any of the Alternative 2 options and BSAI halibut PSC limit reduction levels being considered. Given a general knowledge of King Cove shore-based processing operations and BSAI trawl catcher vessel Pacific cod delivery patterns, it is assumed that the King Cove shore-based processor has little dependency on BSAI trawl-caught Pacific cod landings relative to landings of all area, gear, and species fisheries combined. Given the concentrated nature of community engagement in BSAI groundfish fishery through the shore-based processing sector alone and the assumed limited dependency of that sector on the BSAI trawl cod fishery, King Cove was dropped from further consideration for inclusion in the regional/community characterizations, but a King Cove-specific discussion is included in the Section 4.0 analysis.
- Kodiak appears in the 2008-2013 dataset as having resident ownership of an annual average of approximately six BSAI groundfish trawl catcher vessels over this period. The BSAI groundfish ex-vessel gross revenues for these vessels accounted for an annual average of 39.2 percent of total ex-vessel gross revenues for these vessels for the non-confidential data years of 2009 and 2011-2013, meaning that as individual operations they are relatively highly dependent on this potentially affected fishery; however, these ex-vessel gross revenues account for approximately 4.4 percent of the average annual total ex-vessel gross revenues for all Kodiak resident-owned catcher vessels (for all areas, gears, and fisheries) over this same time period, such that the community catcher vessel fleet as a whole has very little dependence on the BSAI groundfish trawl fishery. While one Kodiak resident-owned hook-and-line catcher vessel participated in the BSAI groundfish fishery in 2009, and two did so in 2008 and 2010, none have done so in more recent years. One Kodiak shore-based processor participated in the fishery for each year 2011-2013, but none did so 2008-2010. Given the limited dependency of the overall Kodiak catcher vessel fleet on the BSAI groundfish fishery, the limited nature of Kodiak's engagement in the hook-and-line catcher vessel and shore-based processing sectors of the BSAI groundfish fishery, and the relative size and economic diversity of the community of Kodiak in general and its commercial fisheries in particular, Kodiak was dropped from further consideration for inclusion in the regional/community characterizations, but a Kodiak-specific discussion is included in the Section 4.0 analysis.
- Petersburg appears in the 2008-2013 dataset as having resident ownership of one BSAI groundfish trawl catcher vessel in 2009 and 2010 and one hook-and-line catcher vessel in 2009,

but no more recent participation in either sector. Petersburg had an annual average of four resident-owned hook-and-line catcher processors engaged in BSAI groundfish fishery 2008-2013. Data are confidential for 2008-2009, but for 2010-2013 BSAI groundfish first wholesale gross revenues for participating Petersburg hook-and line catcher processors accounted for approximately 83 percent of the total first wholesale gross revenues for all Petersburg resident-owned catcher processors (for all areas, gears, and fisheries) over this same time period (and about 22 percent of Petersburg resident-owned catcher vessel ex-vessel gross revenues and Petersburg resident-owned catcher process first wholesale gross revenues combined over this same time period). Given the concentration of dependency of the Petersburg catcher processor fleet on the BSAI groundfish fishery and the limited nature of Petersburg's engagement in the trawl catcher vessel and hook-and-line catcher vessel sectors of the fishery, Petersburg was dropped from further consideration for inclusion in the regional/community characterizations, but a Petersburg-specific discussion is included in the Section 4.0 analysis.

- Sand Point appears in the 2008-2013 dataset as having limited resident-ownership BSAI groundfish trawl catcher vessels (one in 2008 and three in 2009, but none more recently) and as being the location of one BSAI groundfish shore-based processor for each year 2008-2013. All revenue data associated with Sand Point's engagement in either sector are confidential. In terms of the shore-based processing sector engagement, however, economic analysis in the RIR, a part of the main document to which this community analysis document is appended, concludes that for practical purposes only a portion of catcher vessel trawl-caught landings of BSAI Pacific cod would be at risk for shore-based processors for any of the Alternative 2 options and BSAI halibut PSC limit reduction levels being considered. Given a general knowledge of Sand Point shore-based processing operations and BSAI trawl catcher vessel Pacific cod delivery patterns, it is assumed that the Sand Point shore-based processor has little dependency on BSAI trawl-caught Pacific cod landings relative to landings of all area, gear, and species fisheries combined. Given lack of recent participation of resident-owned trawl catcher vessels, the overall concentrated nature of community engagement in BSAI groundfish fishery through the shore-based processing sector especially in recent years, and the assumed limited dependency of the local shore-based processor on the BSAI trawl cod fishery in particular, Sand Point was dropped from further consideration for inclusion in the regional/community characterizations, but a Sand Point-specific discussion is included in the Section 4.0 analysis.

To determine the communities most dependent upon the BSAI halibut fishery (which would then be characterized in Section 3.0), staff of the Alaska Fisheries Science Center's Economic and Social Sciences Research Program utilized a set of fisheries involvement indices they had earlier developed using secondary data to explore the degree to which Alaska communities are involved in fisheries (Kasperski and Himes-Cornell 2014) to examine community involvement in the BSAI halibut Individual Fishing Quota (IFQ) fishery. To conduct this analysis, information was gathered on communities throughout Alaska that participate in the fishery. This BSAI halibut community involvement analysis (Kasperski 2015; included as Attachment 1 to this document) considered two basic types of halibut fishery involvement (commercial processing and commercial harvesting) and created numerical indices of engagement, reliance, and dependence for each category of halibut fishery involvement. For the purposes

of this exercise, engagement is defined as representing the scale of the industry in the community, reliance as representing the importance to the community of the industry in terms of numbers per resident, and dependence as representing how important halibut is to the overall fishing portfolio of the community using the halibut share of community totals. By separating commercial processing from commercial harvesting, the indices utilized show the importance for those communities that may not have a large number of BSAI halibut landings in their community, but have a large number of fishermen and vessel owners who participate in the BSAI halibut fishery in the community. These indicators provide a quantitative measure of current community involvement in the BSAI halibut IFQ fishery, which will help provide information about the communities most likely affected by changes in fisheries management.

The BSAI halibut community involvement analysis was conducted in two stages. In the first stage, indices of commercial halibut fishery involvement across the state were created for all Alaska communities that had some participation in halibut fisheries. The communities were then given a score of 1 if their index score was greater than one standard deviation above the mean index score value. This enables the adding of different index scores together, but comes at the cost of removing the relative importance among highly involved communities. These binary (0 and 1) scores are then added together to come up with a community's statewide halibut dependence score based on all halibut activities in the state. In the second stage, the list of statewide halibut-dependent communities is cross referenced with communities that either had greater than 25 percent of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25 percent of processed pounds in the community from BSAI halibut. These communities were deemed BSAI halibut-dependent communities and are shown in Table 1-1 along with their binary fishery involvement scores for each index.

Table 1-1
BSAI Halibut-Dependent Communities as Determined by Community Involvement Analysis

Community	Commercial Processing Engagement	Commercial Processing Reliance	Commercial Processing Dependence	Commercial Harvesting Engagement	Commercial Harvesting Reliance	Commercial Harvesting Dependence	Statewide Halibut Dependence Score
Mekoryuk	0	0	1	1	1	1	4
Atka	0	0	1	0	1	1	3
Savoonga	0	0	0	0	1	1	2
Tununak	0	0	0	0	1	1	2
Hooper Bay	0	0	0	0	1	1	2
Chefornak	0	0	0	0	1	1	2
Toksook Bay	0	0	0	0	1	1	2
St. Paul	0	0	1	0	0	1	2
St. George	0	0	0	0	1	1	2
Kipnuk	0	0	0	0	1	0	1
Adak	0	0	0	0	0	1	1
Unalaska	1	0	0	0	0	0	1
Akutan	0	0	0	0	0	1	1
Newtok	0	0	0	0	0	1	1
Nightmute	0	0	0	0	0	1	1

Source: Kasperski 2015 (included as Attachment 1 to this document)

It is assumed that Alaska-directed halibut fishery communities identified would be those that would potentially benefit the most from the proposed management actions relative to the degree that the BSAI halibut stock itself would benefit from these proposed actions (and the effective redistribution of overall halibut allocations between sectors that may occur with the various alternatives). Conversely, the BSAI halibut communities identified for characterization are potentially those Alaska communities that could be most adversely impacted by the no-action alternative, assuming that the action alternative would result in halibut stock improvements.

In both the quantitative indicators and regional/community summaries, information is presented on community engagement in the BSAI groundfish and the BSAI commercial halibut and subsistence⁸ halibut fisheries.⁹ For Alaska communities, the communities that have the potential to experience the greatest adverse impacts that could result from the proposed management actions are largely a subset of the same communities that have the potential to experience the greatest beneficial impacts that could result from the proposed management actions, but the overall number of Alaska communities engaged in the BSAI halibut fisheries is larger than the number of Alaska communities engaged in the BSAI groundfish fisheries. This potential differential distribution of adverse and beneficial impacts among communities is addressed in the quantitative indicators discussion and in the regional/community characterizations.

The location of these Alaska communities and their proximity to the BSAI groundfish management areas and the halibut regulatory areas in the BSAI may be seen in Figure 1. Brief characterizations of these communities by region are presented in Section 3.0.

Section 4.0 provides a summary of potential community-level impacts. Discussions in this section include community engagement, dependence, and vulnerability; risks to fishing community sustained participation in the BSAI groundfish fisheries; and potential community beneficial impacts resulting from positive impacts to BSAI halibut fisheries.

⁸ In federally managed waters within and offshore of Alaska, residents of Alaska communities defined as rural have preferential subsistence-use access to a range of resources, including halibut, over residents of other Alaska communities. Among Alaska communities appearing on the bulleted lists of BSAI groundfish communities and/or BSAI halibut communities within this section, all meet the regulatory definition of rural communities, except for Adak, Anchor Point, and Anchorage.

⁹ Halibut sport fishing data at the community level for the BSAI are largely unavailable and not included in this analysis. Halibut sport charter fishing is known to occur in the region as, for example, Unalaska experienced pulse in halibut sport charter business activity following the local landing of an all-tackle world-record 459-pound Pacific halibut in 1996; the community has seen at least a minimal amount of charter activity in the ensuing years. The limited amount of BSAI regional halibut sportfishing data that are available are summarized in "Sport Fishery" section (Section 3.1.4.3) of the Environmental Assessment (EA) portion of the main document to which this community analysis is appended.

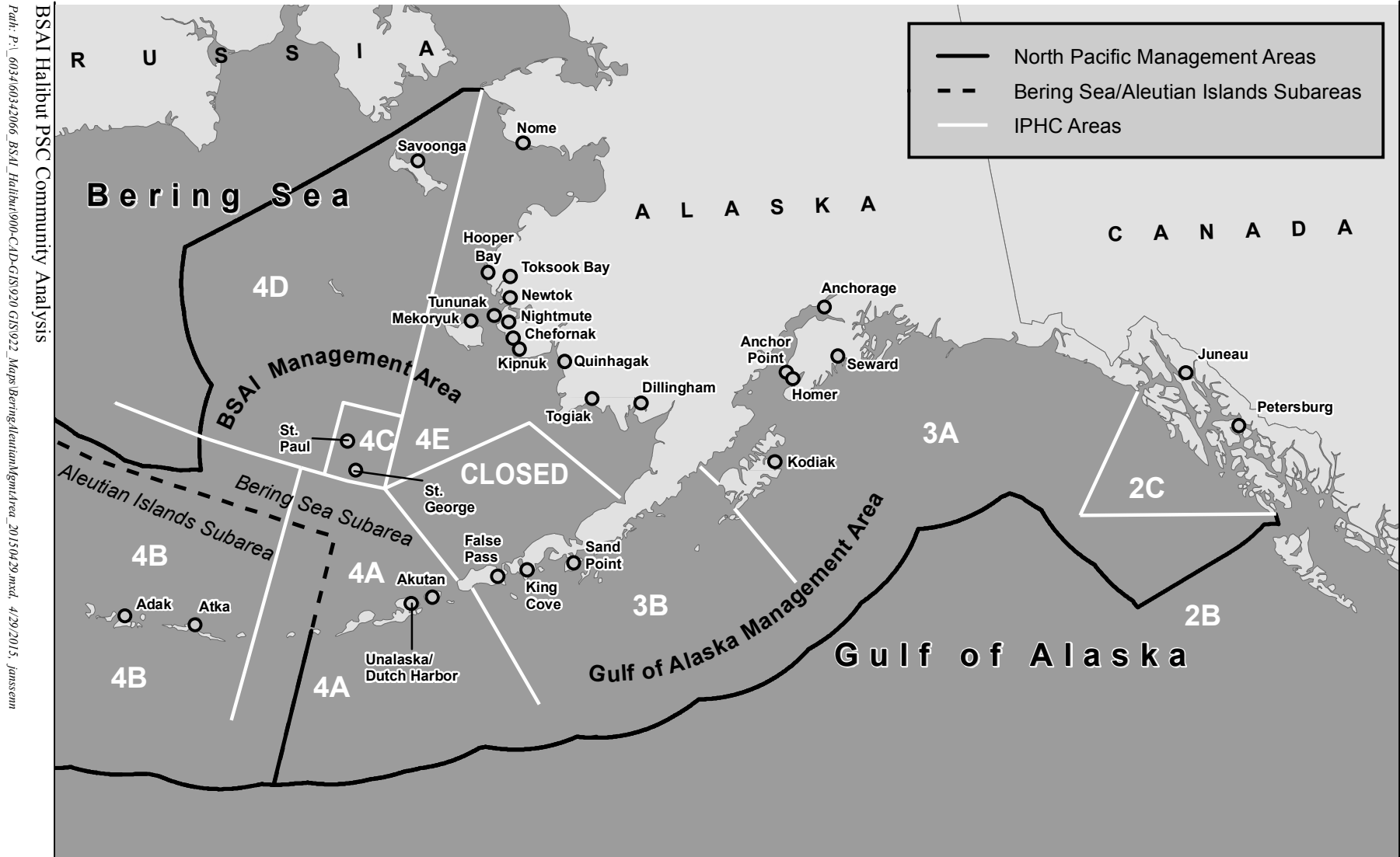


Figure 1
North Pacific Fishery Management Areas, International Pacific Halibut Commission Management Areas, and Selected Alaska Fishing Communities

SECTION 2.0

QUANTITATIVE INDICATORS

The following series of tables provides quantitative information, within the bounds of confidentiality restrictions, for communities directly engaged in the BSAI groundfish fishery, by sector, as well as for communities most engaged in/dependent upon the BSAI halibut directed fisheries. This information is summarized on a regional/community basis for Alaska communities/regions in the summary community discussions in a Section 3.0 of this document.

2.1 BSAI GROUND FISH TRAWL CATCHER VESSELS

Tables 2-1a through 2-1e provide a series of quantitative indicators of sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography depending on data confidentiality restrictions, for resident-owned BSAI groundfish trawl catcher vessels, plus the American Fisheries Act (AFA) status of these vessels, as noted in the following paragraphs. For Alaska communities, overall community resident-owned catcher vessel fleet dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-1a provides a count, by ownership community and year (2008-2013), of BSAI groundfish trawl catcher vessels for all Alaska communities; the metropolitan Seattle area of Washington (as defined by the Seattle-Tacoma-Bellevue, Washington Metropolitan Statistical Area and referred to as the “Seattle MSA” in this document);¹⁰ Newport, Oregon; and state totals for Alaska, Washington, Oregon, and all other states combined, along with annual average counts and percentages. As shown, the largest component of fleet ownership during any given year is, by far, the Seattle MSA (annually averaging 70 percent of all participating vessels), followed by Newport, Oregon (annually averaging 12 percent of all participating vessels). Within Alaska, only Kodiak averages more than one vessel participating per year over this timespan, and it is the only Alaska community with any vessels participating in the three most recent years for which data are available (2011-2013).

Table 2-1b provides BSAI groundfish trawl catcher vessel ex-vessel gross revenue information by ownership community and year (2008-2013) to the extent possible within data confidentiality restrictions, along with annual averages in terms of dollars and percentages. For Alaska, no information can be disclosed on an individual community basis (except for Kodiak and then only for 2009, which is shown in a subsequent table). This table clearly shows the concentration of the fleet ex-vessel values in the Pacific Northwest in general and the Seattle MSA in particular. In this table, Oregon-owned vessel data for communities outside of Newport were combined with data of all other states to allow for disclosure of Newport data that would have otherwise been precluded by confidentiality restrictions.

¹⁰ The Seattle-Tacoma-Bellevue Metropolitan Statistical Area is a U.S. Census Bureau definition used to tabulate the metropolitan area in and around Seattle, Washington. It includes King, Snohomish, and Pierce counties.

Table 2-1a
Individual BSAI Groundfish Trawl Catcher Vessels by Community of Vessel Owner, 2008-2013 (number of vessels)

Geography	Number of Vessels by Year						Average 2008-2013 (Number of Vessels)	Average 2008-2013 (Percent of Grand Total)
	2008	2009	2010	2011	2012	2013		
Kodiak	5	5	5	7	7	6	5.8	5.6%
Petersburg	0	1	1	0	0	0	0.3	0.3%
Sand Point	1	3	0	0	0	0	0.7	0.6%
Alaska Total	6	9	6	7	7	6	6.8	6.5%
Seattle MSA	75	75	71	70	74	75	73.3	70.0%
All Other Washington	7	7	5	7	4	7	6.2	5.9%
Washington Total	82	82	76	77	78	82	79.5	75.8%
Newport	13	13	13	13	11	10	12.2	11.6%
All Other Oregon	3	4	4	6	6	3	4.3	4.1%
Oregon Total	16	17	17	19	17	13	16.5	15.7%
All Other States Total	3	2	3	2	2	0	2.0	1.9%
Grand Total	107	110	102	105	104	101	104.8	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-1b
BSAI Groundfish Trawl Catcher Vessels Ex-vessel Gross Revenues by Community of Vessel Owner, 2008-2013 (dollars)

Geography	Ex-vessel Gross Revenue from BSAI Groundfish Only by Year (Dollars)						Average 2008-2013 (Dollars)	Average 2008-2013 (Percent of Grand Total)
	2008	2009	2010	2011	2012	2013		
Alaska Total	\$5,726,792	\$4,609,628	\$4,327,696	\$5,029,840	\$7,037,686	\$5,880,612	\$5,435,376	2.4%
Seattle MSA	\$206,640,330	\$146,458,838	\$126,768,737	\$196,947,776	\$218,403,464	\$201,456,865	\$182,779,335	80.7%
All Other Washington	\$16,887,338	\$11,560,764	\$8,296,515	\$14,937,323	\$14,948,385	\$17,481,831	\$14,018,693	6.2%
Washington Total	\$223,527,668	\$158,019,602	\$135,065,252	\$211,885,099	\$233,351,848	\$218,938,695	\$196,798,027	86.9%
Newport	\$18,158,271	\$13,349,039	\$11,590,184	\$19,401,891	\$18,895,662	\$12,675,149	\$15,678,366	6.9%
All Other Oregon and Other States*	\$11,209,515	\$7,250,359	\$6,496,342	\$11,181,576	\$13,001,540	\$1,803,118	\$8,490,408	3.8%
Oregon and All Other States Total	\$29,367,787	\$20,599,398	\$18,086,526	\$30,583,467	\$31,897,202	\$14,478,267	\$24,168,775	10.7%
Grand Total	\$258,622,247	\$183,228,628	\$157,479,474	\$247,498,405	\$272,286,737	\$239,297,575	\$226,402,178	100.0%

*Note: "All Other Oregon" and "Oregon Total" values cannot be displayed separately due to confidentiality restrictions.

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-1c
BSAI Groundfish Trawl Catcher Vessels Ex-vessel Gross Revenue Diversification
by Community of Vessel Owner, All Communities, 2008-2013 (dollars)

Geography	Annual Average Number of BSAI Groundfish Trawl CVs 2008-2013	BSAI Groundfish Trawl CVs Annual Average Ex-Vessel Gross Revenues from BSAI Trawl-Caught Groundfish Only 2008-2013 (Dollars)	BSAI Groundfish Trawl CVs Annual Average Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2008-2013 (Dollars)	BSAI Groundfish Trawl CVs BSAI Trawl-Caught Groundfish Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2008-2013
Alaska Total	6.8	\$5,435,376	\$13,874,273	39.2%
Seattle MSA	73.3	\$182,779,335	\$194,882,937	93.8%
All Other Washington	6.2	\$14,018,693	\$15,140,106	92.6%
Washington Total	79.5	\$196,798,027	\$210,023,044	93.7%
Newport	12.2	\$15,678,366	\$19,777,047	79.3%
All Other Oregon and Other States	6.3	\$8,490,408	\$11,938,666	71.1%
Oregon and All Other States Total	18.5	\$24,168,775	\$31,715,713	76.2%
Grand Total	104.8	\$226,402,178	\$255,613,035	88.6%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-1d
BSAI Groundfish Trawl Catcher Vessel and All Catcher Vessels Ex-vessel Gross Revenue
Diversification by Community of Vessel Owner, Kodiak, 2009 and 2011-2013 (dollars)

Catcher Vessel Type	Annual Average Number of CVs 2009 and 2011-2013	Annual Average Ex-Vessel Gross Revenues from BSAI Trawl-Caught Groundfish Only 2009 and 2011-2013 (Dollars)	Annual Average Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2009 and 2011-2013 (Dollars)	BSAI Trawl-Caught Groundfish Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2009 and 2011-2013
BSAI Groundfish Trawl Vessels Only	6.3	\$5,521,847	\$14,095,453	39.2%
All Commercial Fishing Catcher Vessels	267.3	\$5,521,847	\$124,180,756	4.4%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-1e
BSAI Groundfish Trawl Catcher Vessels AFA Program Designations
by Community of Vessel Owner, Annual Average 2008-2013

Geography	Annual Average 2008-2013 (number of BSAI Groundfish Vessels)			Annual Average 2008-2013 (percent of BSAI Groundfish Vessels)		
	Total Vessels	AFA Status		Total Vessels	AFA Status	
		Yes	No		Yes	No
Kodiak	5.8	5.0	0.8	100.0%	85.7%	14.3%
Petersburg	0.3	0.0	0.3	100.0%	0.0%	100.0%
Sand Point	0.7	0.0	0.7	100.0%	0.0%	100.0%
Alaska Total	6.8	5.0	1.8	100.0%	73.2%	26.8%
Seattle MSA	73.3	67.0	6.3	100.0%	91.4%	8.6%
All Other Washington	6.2	3.2	3.0	100.0%	51.4%	48.6%
Washington Total	79.5	70.2	9.3	100.0%	88.3%	11.7%
Newport	12.2	12.2	0.0	100.0%	100.0%	0.0%
All Other Oregon	4.3	4.2	0.2	100.0%	96.2%	3.8%
Oregon Total	16.5	16.3	0.2	100.0%	99.0%	1.0%
All Other States Total	2.0	1.7	0.3	100.0%	85.0%	15.0%
Grand Total	104.8	93.2	11.7	100.0%	88.9%	11.1%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-1c provides information on BSAI groundfish trawl catcher vessel dependency on BSAI trawl caught groundfish compared to all other areas, gear types, and species fished by those same vessels. As shown, dependency on BSAI groundfish, as measured in percentage of total ex-vessel revenues, ranges between 71 and 94 percent for all geographies, except for Alaska resident-owned vessels, which average 39 percent dependency on an annual basis.

Table 2-1d provides information on Alaska community catcher vessel fleet (all commercial fishing catcher vessels in the community, not just vessels that participate in the BSAI groundfish fishery) dependency on BSAI trawl caught groundfish compared to all other areas, gear types, and species fished by those vessels owned by residents of that same community to the extent possible given data confidentiality restrictions. Only information for Kodiak can be disclosed, and then only for four data years (2009 and 2011-2013). As shown, BSAI trawl caught groundfish accounted for approximately 39 percent of the total ex-vessel gross revenues of the roughly six Kodiak vessels that participated in the fishery on an annual average basis for those four years. BSAI trawl caught groundfish ex-vessel gross revenues accounted for approximately four percent of total Kodiak resident-owned catcher vessel ex-vessel gross revenues (all areas, all gear types, all species for approximately 267 vessels per year) over these same four years.

Table 2-1e provides information on AFA status of BSAI groundfish trawl catcher vessels on an annual average count and percentage basis by ownership community. Inclusion of vessels in the AFA class would likely reduce, to some degree, the vulnerability of individual vessels to adverse impacts from BSAI halibut PSC limit reductions as through co-op or other internal vessel class compensation mechanisms and/or separate accounting of PSC thresholds unique to that vessel class (thereby insulating these vessels somewhat from adverse consequences of actions of vessels outside of their restricted class over which they have very little influence or control). As shown, the large majority of participating vessels from all geographies are AFA vessels, with the exception of vessels owned by residents of Oregon communities other than Newport (the simple majority of which are still AFA vessels).

2.2 BSAI GROUND FISH TRAWL CATCHER PROCESSORS

Tables 2-2a through 2-2d provide a series of quantitative indicators of sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography depending on data confidentiality restrictions, for resident-owned BSAI groundfish trawl catcher processors, plus the Amendment 80 and AFA status of these vessels, as noted in the following paragraphs.

Table 2-2a provides a count, by ownership community and year (2008-2013), of BSAI groundfish trawl catcher processors for all Alaska communities; the Seattle MSA of Washington; and all other states combined, along with annual average counts and percentages. As shown, the largest component of fleet ownership during any given year is, by far, the Seattle MSA, which included ownership of all Washington resident-owned vessels in the most recent three years for which data are available (annually averaging 89 percent of all participating vessels), followed by “all other states” combined (annually averaging eight percent of all participating vessels). Within Alaska, participation was limited to only one vessel with Anchorage ownership and then only for the three most recent data years (2011-2013).

Table 2-2a
Individual BSAI Groundfish Trawl Catcher Processors by Community of Vessel Owner, 2008-2013 (number of vessels)

Geography	Number of Vessels by Year						Average 2008-2013 (Number of Vessels)	Average 2008-2013 (Percent of Grand Total)
	2008	2009	2010	2011	2012	2013		
Anchorage	0	0	0	1	1	1	0.5	1.4%
Alaska Total	0	0	0	1	1	1	0.5	1.4%
Seattle MSA	36	33	31	32	32	30	32.3	89.0%
All Other Washington	1	1	1	0	0	0	0.5	1.4%
Washington Total	37	34	32	32	32	30	32.8	90.4%
Oregon Total	0	0	0	0	0	0	0.0	0.0%
All Other States Total	3	3	3	3	3	3	3.0	8.3%
Grand Total	40	37	35	36	36	34	36.3	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-2b
BSAI Groundfish Trawl Catcher Processors First Wholesale Gross Revenues by Community of Vessel Owner, 2008-2013 (dollars)

Geography	First Wholesale Gross Revenue from BSAI Groundfish Only by Year (Dollars)						Average 2008-2013 (Dollars)	Average 2008-2013 (Percent of Total)
	2008	2009	2010	2011	2012	2013		
Seattle MSA	871,968,102	709,094,988	765,837,963	965,763,727	1,018,767,950	875,109,416	\$867,757,025	92.2%
All Other Communities and States	80,753,475	30,356,470	40,931,974	108,798,599	95,795,817	81,472,000	\$73,018,056	7.8%
Total	952,721,577	739,451,458	806,769,937	1,074,562,327	1,114,563,767	956,581,416	\$940,775,080	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-2c
BSAI Groundfish Trawl Catcher Processors First Wholesale Gross Revenue
Diversification by Community of Vessel Owner, 2008-2013 (dollars)

Geography	Annual Average Number of BSAI Groundfish Trawl CPs 2008-2013	BSAI Groundfish Trawl CPs Annual Average First Wholesale Gross Revenues from BSAI Trawl-Caught Groundfish Only 2008-2013 (Dollars)	BSAI Groundfish Trawl CPs Annual Average Total First Wholesale Gross Revenues from All Area, Gear, and Species Fisheries 2008-2013 (Dollars)	BSAI Groundfish Trawl CPs BSAI Trawl-Caught Groundfish First Wholesale Value as a Percentage of Total First Wholesale Gross Revenue Annual Average 2008-2013
Seattle MSA	32.3	\$867,757,025	\$916,241,996	94.7%
All Other Communities and States	4.0	\$73,018,056	\$73,968,260	98.7%
Total	36.3	\$940,775,080	\$990,210,256	95.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-2d
BSAI Groundfish Trawl Catcher Processors and Amendment 80 and AFA Program
Designations by Community of Vessel Owner, Annual Average 2008-2013

Geography	Annual Average 2008-2013 (number of BSAI Groundfish Vessels)					Annual Average 2008-2013 (percent of BSAI Groundfish Vessels)				
	Total Vessels	Amendment 80		AFA		Total Vessels	Amendment 80		AFA	
		Yes	No	Yes	No		Yes	No	Yes	No
Anchorage	0.5	0.0	0.5	0.5	0.0	100.0%	0.0%	100.0%	100.0%	0.0%
Alaska Total	0.5	0.0	0.5	0.5	0.0	100.0%	0.0%	100.0%	100.0%	0.0%
Seattle MSA	32.3	17.0	15.3	16.2	16.2	100.0%	52.6%	47.4%	50.0%	50.0%
All Other Washington	0.5	0.3	0.2	0.2	0.3	100.0%	66.7%	33.3%	33.3%	66.7%
Washington Total	32.8	17.8	15.5	16.3	16.5	100.0%	54.3%	47.2%	49.7%	50.3%
Oregon Total	0.0	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%
All Other States Total	3.0	3.0	0.0	0.0	3.0	100.0%	100.0%	0.0%	0.0%	100.0%
Grand Total	36.3	20.8	16.0	16.8	19.5	100.0%	57.3%	44.0%	46.3%	53.7%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-2b provides BSAI groundfish trawl catcher processor first wholesale gross revenue information by ownership community and year (2008-2013) to the extent possible within data confidentiality restrictions, along with annual averages in terms of dollars and percentages. No information can be disclosed for Alaska. This table clearly shows the concentration of the fleet first wholesale gross revenue in the Seattle MSA (annually averaging 92 percent of the sector total); the values for all other Washington communities plus all other states needed to be combined in order to show a grand total that would have otherwise been precluded by confidentiality restrictions.

Table 2-2c provides information on BSAI groundfish trawl catcher processor dependency on BSAI trawl caught groundfish compared to all other areas, gear types, and species fished by those same vessels. As shown, dependency on BSAI groundfish, as measured in percentage of total first wholesale gross revenues, ranges between 95 and 99 percent for all geographies.

Table 2-2d provides information on Amendment 80 and AFA status of BSAI groundfish trawl catcher processors on an annual average count and percentage basis by ownership community. Inclusion of vessels in the Amendment 80 and AFA classes would likely reduce, to some degree, the vulnerability of individual vessels to adverse impacts from BSAI halibut PSC limit reductions as through co-op or other internal vessel class compensation mechanisms and/or separate accounting of PSC thresholds unique to that vessel class (thereby insulating these vessels somewhat from adverse consequences of actions of vessels outside of their restricted class over which they have very little influence or control). As shown, the majority of participating vessels from all geographies are Amendment 80 vessels. However, there are more non-AFA vessels than AFA vessels.

2.3 BSAI GROUND FISH HOOK-AND-LINE CATCHER VESSELS

Tables 2-3a through 2-3d provide a series of quantitative indicators of sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography depending on data confidentiality restrictions, for resident-owned BSAI groundfish hook-and-line catcher vessels, as noted in the following paragraphs. For Alaska communities, overall community resident-owned catcher vessel fleet dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-3a provides a count, by ownership community and year (2008-2013), of BSAI groundfish hook-and-line catcher vessels for all Alaska communities; the Seattle MSA of Washington; the rest of Washington; and state totals for Alaska, Oregon, Washington, and all other states combined, along with annual average counts and percentages. As shown, the largest component of fleet ownership during any given year (except for a tie with the Seattle MSA in 2008) is Unalaska, Alaska (annually averaging 33 percent of all participating vessels). Unalaska is the only community inside or outside of Alaska in the data that participated in the sector in each year covered by the data; Unalaska averaged 3.5 vessels participating annually, while no other Alaska community averaged more than one vessel participating per year. The Seattle MSA had an annual average slightly less than two vessels participating per year (or an annual average of about 16 percent of all participating vessels). In general, while overall BSAI groundfish hook-and-line catcher vessel participation is low, Alaska community participation was more widely

Table 2-3a
BSAI Groundfish Hook-and-Line Catcher Vessels by Community of Vessel Owner, 2008-2013 (number of vessels)

Geography	Number of Vessels by Year						Average 2008-2013 (Number of Vessels)	Average 2008-2013 (Percent of Grand Total)
	2008	2009	2010	2011	2012	2013		
Adak	1	1	0	1	0	0	0.5	4.7%
Anchor Point	2	2	1	1	0	0	1.0	9.4%
Cordova	1	0	0	0	0	0	0.2	1.6%
Homer	1	0	0	0	0	0	0.2	1.6%
Juneau	0	1	2	1	0	0	0.7	6.3%
Ketchikan	1	0	0	0	0	0	0.2	1.6%
King Salmon	0	1	0	0	0	0	0.2	1.6%
Kodiak	2	1	2	0	0	0	0.8	7.8%
Mekoryuk	0	0	0	0	0	1	0.2	1.6%
Nikolaevsk	0	1	0	0	1	0	0.3	3.1%
Petersburg	0	1	0	0	0	0	0.2	1.6%
Port Lions	1	0	0	0	0	0	0.2	1.6%
Sitka	0	0	0	0	0	1	0.2	1.6%
Unalaska	4	3	3	3	4	4	3.5	32.8%
Willow	1	1	0	0	0	0	0.3	3.1%
Alaska Total	14	12	8	6	5	6	8.5	79.7%
Seattle MSA	4	0	2	2	1	1	1.7	15.6%
All Other Washington	1	0	1	0	0	0	0.3	3.1%
Washington Total	5	0	3	2	1	1	2.0	18.8%
Oregon Total	0	0	0	0	0	0	0.0	0.0%
All Other States Total	0	0	0	0	0	1	0.2	1.6%
Grand Total	19	12	11	8	6	8	10.7	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-3b
BSAI Groundfish Hook-and-Line Catcher Vessels Ex-vessel Gross Revenues by Community of Vessel Owner, 2008-2013 (dollars)

Geography	Ex-vessel Gross Revenue by from BSAI Groundfish Only by Year (Dollars)						Average 2008-2013 (Dollars)	Average 2008-2013 (Percent of Total)
	2008	2009	2010	2011	2012	2013		
All States (Total)*	\$1,139,753	\$334,612	\$212,019	\$344,599	\$465,004	\$659,064	\$525,842	100.0%

*Note: due to confidentiality restrictions, either an "Alaska Total" or a "Grand Total" could be displayed, but not both.

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-3c
BSAI Groundfish Hook-and-Line Catcher Vessels Ex-vessel Gross Revenue Diversification
by Community of Vessel Owner, All Communities, 2008-2013 (dollars)

Geography	Annual Average Number of BSAI Groundfish H&L CVs 2008-2013	BSAI Groundfish H&L CVs Annual Average Ex-Vessel Gross Revenues from BSAI H&L-Caught Groundfish Only 2008-2013 (Dollars)	BSAI Groundfish H&L CVs Annual Average Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2008-2013 (Dollars)	BSAI Groundfish H&L CVs BSAI H&L-Caught Groundfish Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2008-2013
All States (Total)	10.7	\$525,842	\$6,191,931	8.5%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-3d
BSAI Groundfish Hook-and-Line Catcher Vessels Ex-vessel Gross Revenue
Diversification by Community of Vessel Owner, Unalaska, 2013 (dollars)

Catcher Vessel Type	Number of CVs 2013	Ex-Vessel Gross Revenues from BSAI H&L-Caught Groundfish Only 2013 (Dollars)	Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2013 (Dollars)	BSAI H&L-Caught Groundfish Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue 2013
BSAI Groundfish H&L Vessels Only	4	\$512,118	\$1,708,686	30.0%
All Commercial Fishing Catcher Vessels	17	\$512,118	\$4,265,099	12.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

distributed than was seen in the BSAI groundfish trawl catcher vessel sector (16 communities¹¹ total with at least one vessel in at least one year represented in the 2008-2013 data) and Alaska resident-owned vessel participation was stronger than Pacific Northwest resident-owned vessel participation (8.5 vessels and 2.0 vessels on an annual average basis, respectively).

Table 2-3b provides BSAI groundfish hook-and line catcher vessel ex-vessel gross revenue information by ownership community and year (2008-2013) to the extent possible within data confidentiality restrictions, along with annual averages in terms of dollars and percentages. For this sector, only a grand total for participation can be disclosed; an Alaska total could be shown, or a sector total could be shown, but not both.

Table 2-3c provides information on BSAI groundfish hook-and-line catcher vessel dependency on BSAI groundfish compared to all other areas, species, and gear types fished by those same vessels. As shown, dependency on BSAI groundfish, as measured in percentage of total ex-vessel revenues, was roughly nine percent.

Table 2-3d provides information on Alaska community catcher vessel fleet (all commercial fishing catcher vessels in the community, not just vessels that participate in the BSAI groundfish fishery) dependency on BSAI hook-and-line caught groundfish compared to all other areas, gear types, and species fished by those vessels owned by residents of that same community to the extent possible given data confidentiality restrictions. Only information for Unalaska can be disclosed, and then only for one year (2013). As shown, BSAI hook-and-line caught groundfish accounted for approximately 30 percent of the total ex-vessel gross revenues of the four vessels that participated in the fishery that year. BSAI hook-and-line caught groundfish ex-vessel gross revenues accounted for approximately 12 percent of total Unalaska resident-owned catcher vessel ex-vessel gross revenues (all areas, all gear types, all species for 17 vessels) that same year.

2.4 BSAI GROUND FISH HOOK-AND-LINE CATCHER PROCESSORS

Tables 2-4a through 2-4d provide a series of quantitative indicators of sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography depending on data confidentiality restrictions, for resident-owned BSAI groundfish hook-and-line catcher processors, as noted in the following paragraphs. For Alaska communities, overall community resident-owned catcher processor fleet dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-4a provides a count, by ownership community and year (2008-2013), of BSAI groundfish hook-and-line catcher processors for all Alaska communities; the Seattle MSA of Washington; the rest of

¹¹ A total of 18 different Alaska community names are shown in the dataset as having at least one local resident-owned vessel participating in hook-and-line BSAI groundfish fisheries in at least one year over the period 2008-2013 (although two communities reported separately in the dataset are actually part of the same municipality [i.e., Unalaska and Dutch Harbor, while having separate post offices/ mailing addresses/zip codes, are both part of the City of Unalaska; Douglas is a part of the City & Borough of Juneau]. For the sake of clarity in reporting community-level impacts, communities that are part of the same municipality have been combined in the tables and text of this analysis).

Table 2-4a
Individual BSAI Hook-and-Line Catcher Processors by Community of Vessel Owner, 2008-2013 (number of vessels)

Geography	Number of Vessels by Year						Average 2008-2013 (Number of Vessels)	Average 2008-2013 (Percent of Grand Total)
	2008	2009	2010	2011	2012	2013		
Anchorage	0	0	2	3	3	3	1.8	5.2%
Petersburg	3	3	5	5	4	4	4.0	11.4%
Seward	0	0	1	1	0	0	0.3	1.0%
Alaska Total	3	3	8	9	7	7	6.2	17.6%
Seattle MSA	33	32	26	21	21	20	25.5	72.9%
All Other Washington	3	3	4	3	3	4	3.3	9.5%
Washington Total	36	35	30	24	24	24	28.8	82.4%
Oregon Total	0	0	0	0	0	0	0.0	0.0%
All Other States Total	0	0	0	0	0	0	0.0	0.0%
Grand Total	39	38	38	33	31	31	35.0	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-4b
BSAI Groundfish Hook-and-Line Catcher Processors First Wholesale Gross Revenues by Community of Vessel Owner, 2008-2013 (dollars)

Geography	First Wholesale Gross Revenue from BSAI Groundfish Only by Year (Dollars)						Average 2008-2013 (Dollars)	Average 2008-2013 (Percent of Total)
	2008	2009	2010	2011	2012	2013		
Seattle MSA	\$165,139,823	\$112,233,707	\$97,326,775	\$144,440,470	\$139,051,871	\$103,005,999	\$126,866,441	68.2%
All Other Communities and States	\$41,692,115	\$29,012,701	\$56,752,621	\$82,800,831	\$81,446,636	\$62,490,959	\$59,032,644	31.8%
Total	\$206,831,938	\$141,246,408	\$154,079,395	\$227,241,301	\$220,498,507	\$165,496,959	\$185,899,085	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-4c
BSAI Groundfish Hook-and-Line Catcher Processors First Wholesale Gross Revenue
Diversification by Community of Vessel Owner, 2008-2013 (dollars)

Geography	Annual Average Number of BSAI Groundfish H&L CPs 2008-2013	BSAI Groundfish H&L CPs Annual Average First Wholesale Gross Revenues from BSAI H&L-Caught Groundfish Only 2008-2013 (Dollars)	BSAI Groundfish H&L CPs Annual Average Total First Wholesale Gross Revenues from All Area, Gear, and Species Fisheries 2008-2013 (Dollars)	BSAI Groundfish H&L CPs BSAI H&L-Caught Groundfish First Wholesale Value as a Percentage of Total First Wholesale Gross Revenue Annual Average 2008-2013
Seattle MSA	25.5	\$126,866,441	\$150,926,991	84.1%
All Other Communities and States	9.5	\$59,032,644	\$65,770,486	89.8%
Total	35.0	\$185,899,085	\$216,697,477	85.8%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-4d
BSAI Groundfish Hook-and-Line Catcher Processors First Wholesale Gross Revenue
Diversification by Community of Vessel Owner, Petersburg, 2010-2013 (dollars)

Catcher Vessel Type	Annual Average Number of BSAI Groundfish H&L CPs 2010-2013	BSAI Groundfish H&L CPs Annual Average First Wholesale Gross Revenues from BSAI H&L-Caught Groundfish Only 2010-2013 (Dollars)	BSAI Groundfish H&L CPs Annual Average Total First Wholesale Gross Revenues from All Area, Gear, and Species Fisheries 2010-2013 (Dollars)	BSAI Groundfish H&L CPs BSAI H&L-Caught Groundfish First Wholesale Value as a Percentage of Total First Wholesale Gross Revenue Annual Average 2010-2013
BSAI Groundfish H&L CPs Only	4.5	\$20,040,973	\$24,137,944	83.0%
All Commercial Fishing CPs	4.5	\$20,040,973	\$24,137,944	83.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Washington; and state totals for Alaska, Oregon, Washington, and all other states combined, along with annual average counts and percentages. As shown, the largest component of fleet ownership during any given year is, by far, the Seattle MSA (annually averaging 73 percent of all participating vessels), followed by Petersburg, Alaska (annually averaging 11 percent of all participating vessels). An annual average of four Petersburg resident-owned vessels participated in the fishery during 2008-2013; within Alaska outside of Petersburg, participation was limited to Anchorage and Seward resident-owned vessels, with annual average participation of approximately two vessels and less than one vessel, respectively, with Anchorage participation growing over that time period.

Table 2-4b provides BSAI groundfish hook-and-line catcher processor first wholesale gross revenue information by ownership community and year (2008-2013) to the extent possible within data confidentiality restrictions, along with annual averages in terms of dollars and percentages. No information can be disclosed for Alaska. This table clearly shows the concentration of the fleet first wholesale gross revenues in the Seattle MSA (annually averaging 68 percent of the sector total); the values for all other Washington communities plus all other states were combined to allow disclosure of a grand total that would have otherwise been precluded by confidentiality restrictions.

Table 2-4c provides information on BSAI groundfish hook-and-line catcher processor dependency on BSAI groundfish compared to all other areas, species, and gear types fished by those same vessels. As shown, dependency on BSAI groundfish, as measured in percentage of total first wholesale gross revenues, ranges between 84 and 90 percent for all geographies.

Table 2-4d provides information on Alaska community catcher processor fleet (all commercial fishing catcher processors in the community, not just vessels that participate in the BSAI groundfish fishery) dependency on BSAI hook-and-line caught groundfish compared to all other areas, gear types, and species fished by those catcher processors owned by residents of that same community to the extent possible given data confidentiality restrictions. Only information for Petersburg can be disclosed, and then only for four data years (2010-2013). As shown, BSAI groundfish accounted for approximately 83 percent of the total first wholesale gross revenues of the approximately five Petersburg resident-owned catcher processors that participated in the fishery on an annual average basis for those four years. Figures for the total Petersburg catcher processor fleet area are the same for those four years, as no other types of catcher processors were owned by Petersburg residents in those same years.¹²

2.5 SHORE-BASED PROCESSORS IN ALASKA ACCEPTING BSAI GROUND FISH DELIVERIES

Tables 2-5a through 2-5f provide a series of quantitative indicators of sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography depending on data

¹² During this same time period (2010-2013), Petersburg had an annual average resident-owned community catcher vessel fleet of 307.2 vessels, with average annual total ex-vessel gross revenues of \$67,982,943. Petersburg's resident-owned BSAI groundfish hook-and-line catcher processors first wholesale gross revenues from BSAI groundfish represented 21.8 percent of the total combined \$92,120,887 in resident-owned catcher vessel ex-vessel gross revenues and resident-owned catcher processor first wholesale gross revenues for all area, gear, and species fisheries on an average annual basis for 2010-2013.

Table 2-5a
Shore-Based Processors in Alaska Accepting BSAI Groundfish Deliveries by Community 2008-2013*

Community	Number of Processors by Year						Average 2008-2013 (Number of Processors)	Average 2008-2013 (Percent of Total)
	2008	2009	2010	2011	2012	2013		
Adak	1	1	1	1	1	1	1.0	9.8%
Akutan	1	1	1	1	1	1	1.0	9.8%
Anchorage	0	0	0	1	1	1	0.5	4.9%
Atka	0	0	1	1	1	1	0.7	6.6%
False Pass	0	1	0	0	0	0	0.2	1.6%
King Cove	1	1	1	1	1	1	1.0	9.8%
Kodiak	0	0	0	1	1	1	0.5	4.9%
Nome	1	1	1	0	1	0	0.7	6.6%
Sand Point	1	1	1	1	1	1	1.0	9.8%
Seward	0	0	0	0	0	1	0.2	1.6%
Toksook Bay	0	0	0	0	0	1	0.2	1.6%
Unalaska	4	4	3	3	3	3	3.3	32.8%
Total	9	10	9	10	11	12	10.2	100.0%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-5b
Ex-vessel Gross Revenues from BSAI Groundfish Deliveries to Shore-Based Processors in Alaska by Community, 2008-2013 (dollars)*

Community	Ex-vessel Gross Revenue from BSAI Groundfish Only by Year (Dollars)						Average 2008-2013 (Dollars)	Average 2008-2013 (Percent of Total)
	2008	2009	2010	2011	2012	2013		
Unalaska and Akutan	\$184,037,036	\$128,399,739	\$111,976,219	\$174,188,239	\$188,335,338	\$166,817,263	\$158,958,972	94.9%
All Other Alaska	\$13,686,377	\$9,486,353	\$3,820,121	\$6,496,151	\$9,489,831	\$8,579,405	\$8,593,040	5.1%
Total	\$197,723,413	\$137,886,092	\$115,796,340	\$180,684,390	\$197,825,168	\$175,396,668	\$167,552,012	100.0%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-5c
Shore-Based Processors in Alaska Accepting BSAI Groundfish Deliveries Ex-vessel
Gross Revenues Diversity by Community 2008-2013*

Geography	Annual Average Number of Processors 2008-2013	BSAI Groundfish Ex-vessel Gross Revenues Annual Average 2008-2013 (Dollars)	Total (All Areas and Species) Ex-vessel Gross Revenues Annual Average 2008-2013 (Dollars)	BSAI Groundfish Ex-vessel Gross Revenues as a Percentage of Total Ex-vessel Gross Revenues Annual Average 2008-2013
Unalaska and Akutan	4.3	\$158,958,972	\$267,053,739	59.5%
All Other Alaska	5.8	\$8,593,040	\$112,852,957	7.6%
Total	10.2	\$167,552,012	\$379,906,696	44.1%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-5d
All Areas and Species Ex-Vessel Gross Revenues Diversity by Community for
All Shore-Based Processors (for Alaska communities with at least one shore-based
processor accepting BSAI groundfish deliveries) 2008-2013*

Geography	Number of Processors 2008-2013	BSAI Groundfish Ex-vessel Gross Revenues 2008-2013 (Dollars)	Total (All Areas and Species) Ex-vessel Gross Revenues 2011-2013 (Dollars)	BSAI Groundfish Ex-vessel Gross Revenues as a Percentage of Total First Wholesale Gross Revenues 2011-2013
Unalaska and Akutan	6.8	\$158,958,972	\$309,124,127	51.4%
All Other Alaska	31.8	\$8,593,040	\$338,316,044	2.5%
Total	38.7	\$167,552,012	\$647,440,171	25.9%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-5e
Shore-Based Processors in Alaska Accepting BSAI Groundfish Deliveries Ex-vessel
Gross Revenues Diversity by Community 2013*

Geography	Number of Processors 2013 Only	BSAI Groundfish Ex- vessel Gross Revenues 2013 Only (Dollars)	Total (All Areas and Species) Ex-vessel Gross Revenues 2013 Only (Dollars)	BSAI Groundfish Ex- vessel Gross Revenues as a Percentage of Total Ex- vessel Gross Revenues 2013 Only
Unalaska and Akutan	4.0	\$166,817,263	\$257,702,530	64.7%
Adak, Atka, King Cove, and Sand Point	4.0	\$7,943,992	\$93,554,297	8.5%
All Other Alaska	4.0	\$635,414	\$22,094,101	2.9%
Total	12.0	\$175,396,668	\$373,350,928	47.0%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-5f
All Areas and Species Ex-Vessel Gross Revenues Diversity by Community for
All Shore-Based Processors (for Alaska communities with at least one shore-based
processor accepting BSAI groundfish deliveries) 2013*

Geography	Number of Processors 2013 Only	BSAI Groundfish Ex- vessel Gross Revenues 2013 Only (Dollars)	Total (All Areas and Species) Ex-vessel Gross Revenues 2013 Only (Dollars)	BSAI Groundfish Ex- vessel Gross Revenues as a Percentage of Total First Wholesale Gross Revenues 2013 Only
Unalaska and Akutan	7.0	\$166,817,263	\$300,004,853	55.6%
Adak, Atka, King Cove, and Sand Point	5.0	\$7,943,992	\$96,033,560	8.3%
All Other Alaska	27.0	\$635,414	\$255,379,971	0.2%
Total	39.0	\$175,396,668	\$651,418,385	26.9%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

confidentiality restrictions, for shore-based BSAI groundfish processors operating in Alaska, as noted in the following paragraphs. Overall community shore-based processor dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-5a provides information on the distribution of shore-based processors in Alaska communities that accepted BSAI groundfish trawl and/or hook-and-line deliveries in the period 2008-2013. For the purposes of this analysis, shore-based BSAI groundfish processors are defined as those shore-based entities (as identified by F_ID [intent to operate] and SBPR [shore-based processor] codes in AKFIN [Alaska Fisheries Information Network] data) accepting catcher (or catcher processor) class vessel BSAI groundfish deliveries, excluding halibut and/or sablefish. As shown, a total of 12 Alaska communities were the location of BSAI groundfish shore-based processing over this time period, but three of those communities (False Pass, Seward, and Toksook Bay) processed BSAI groundfish in only one of the six years covered by the data. Of the other nine communities, five (Adak, Akutan, King Cove, Sand Point, and Unalaska) processed every year, two (Atka and Nome) processed in four out of the six years, and two (Anchorage and Kodiak) processed in three out of the six years.

Table 2-5b provides information on the ex-vessel gross revenues¹³ from BSAI groundfish deliveries by community and year (2008-2013) to the extent possible within data confidentiality restrictions. As shown, information on no individual community can be shown for every year and still permit disclosure of a grand total for all communities, but information for Unalaska and Akutan combined can be disclosed for 2008-2013 and still provide the ability to disclose a sector total. Unalaska and Akutan combined accounted for an average of about 95 percent of BSAI groundfish shore-based processor ex-vessel gross revenues for those years.

Table 2-5c provides information on average annual BSAI groundfish shore-based processor dependency on BSAI groundfish compared to all area and species fisheries landings processed by those same processors for the years 2008-2013. As shown, the combined Unalaska and Akutan BSAI groundfish processors derived approximately 60 percent of their total ex-vessel gross revenues from BSAI groundfish alone over that period; for all other Alaska BSAI groundfish shore-based processors as a group, BSAI groundfish accounts for approximately eight percent of total ex-vessel gross revenues on an average annual basis over the same period for those same processors.

Table 2-5d provides information on average annual total shore-based processor dependency (all shore-based processors in the communities that had at least one BSAI groundfish processor, not just the shore-

¹³ Typically, first wholesale gross revenues derived from ADFG Commercial Operators Annual Report (COAR) data would be used as an indicator to track revenues for shore-based plants (and the relative distribution of shore-based processing revenues for the relevant fisheries among communities) rather than ex-vessel gross revenues from landings taken by the processor as derived from ADFG/CFEC fish ticket data. In this case, however, there are fundamental problems with the use of COAR data for community-based analysis. Some processors based in the Gulf of Alaska (GOA) that are known to accept deliveries of BSAI groundfish on a regular basis attribute the origin of that catch in the COAR data to the GOA, the location of the processing activity, rather than the BSAI, the location of fishing activity. Given that it is the location of fishing activity/origin of catch that would determine what proportion of landings in the potentially affected communities would be subject to impacts under the various BSAI halibut PSC limit revisions, COAR data-derived shore-based processor first wholesale gross revenue data are not useful to determine relative community engagement in and dependency on the BSAI groundfish shore-based processing sector across all communities and the associated potential differential distribution of impacts between communities.

based processors that participated in the BSAI groundfish fishery) on BSAI groundfish compared to all area and species fishery landings processed by all processors for the years 2008-2013, within the constraints of confidentiality restrictions. As shown, for 2008-2013, BSAI groundfish ex-vessel gross revenues accounted for 51 percent of all shore-based processor ex-vessel gross revenues for Unalaska and Akutan combined, while BSAI groundfish ex-vessel gross revenues accounted for approximately three percent of all shore-based ex-vessel gross revenues for all processors combined in the remaining Alaska communities that had a least one shore-based processor accepting any BSAI groundfish landings that year.

Table 2-5e provides information on BSAI groundfish shore-based processor dependency on BSAI groundfish compared to all area and species fisheries landings processed by those processors using a different community grouping for 2013, the only year that data confidentiality restrictions will allow finer detail on community group distribution than shown in previous tables in this section. As shown, the combined Unalaska and Akutan BSAI groundfish processors derived approximately 65 percent of their total ex-vessel gross revenues from BSAI groundfish alone for that year; the combined Adak, Atka, King Cove, and Sand Point BSAI groundfish processors derived approximately nine percent of their total ex-vessel gross revenues from BSAI groundfish alone for that year; and for all other Alaska BSAI groundfish shore-based processors as a group, BSAI groundfish accounted for approximately three percent of total ex-vessel gross revenues for that year for those same processors.

Table 2-5f provides information on average annual total shore-based processor dependency (all shore-based processors in the communities that had at least one BSAI groundfish processor, not just the shore-based processors that participated in the BSAI groundfish fishery) on BSAI groundfish compared to all area and species fishery landings processed by all processors for 2013, within the constraints of confidentiality restrictions. As shown, in 2013, BSAI groundfish ex-vessel gross revenues accounted for 56 percent of all shore-based processor ex-vessel gross revenues for Unalaska and Akutan combined; BSAI groundfish ex-vessel gross revenues accounted for about eight percent of all shore-based processor ex-vessel gross revenues for Adak, Atka, King Cove, and Sand Point combined; while BSAI groundfish ex-vessel gross revenues accounted for less than one percent of all shore-based ex-vessel gross revenues for all processors combined in the remaining Alaska communities that had a least one shore-based processor accepting any BSAI groundfish landings that year.

2.6 BSAI HALIBUT CATCHER VESSELS

Tables 2-6a through 2-6d provide a series of quantitative indicators of sector engagement in and dependency on the BSAI halibut fishery, by community and/or regional geography depending on data confidentiality restrictions, for resident-owned BSAI halibut catcher vessels, as noted in the following paragraphs. For Alaska communities, overall community resident-owned catcher vessel fleet dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-6a
Individual BSAI Halibut Catcher Vessels by Community of Vessel Owner, 2003-2013 (number of vessels)

Geography	Number of Vessels by Year											Average 2003-2013 (Number of Vessels)	Average 2003-2013 (Percent of Grand Total)
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Adak	0	1	2	1	1	2	1	1	1	1	1	1.1	0.3%
Akutan	2	1	3	2	3	2	3	4	3	5	3	2.8	0.9%
Atka	1	1	1	2	2	2	0	3	3	4	5	2.2	0.7%
Chefornak	8	15	14	18	29	28	20	23	21	8	19	18.5	5.6%
Dillingham	10	8	8	8	9	11	3	0	1	2	1	5.5	1.7%
Homer	18	16	16	12	13	11	12	12	14	15	13	13.8	4.2%
Hooper Bay	13	2	5	4	5	5	10	7	9	9	11	7.3	2.2%
Juneau	10	9	7	5	4	6	4	5	5	4	4	5.7	1.7%
Kipnuk	22	16	9	14	22	21	23	20	24	20	19	19.1	5.8%
Kodiak	20	21	22	22	17	17	14	16	12	13	11	16.8	5.1%
Mekoryuk	28	31	29	30	32	28	29	28	29	24	23	28.3	8.6%
Newtok	4	6	4	6	15	10	6	8	8	8	8	7.5	2.3%
Nightmute	6	4	8	10	9	7	7	5	8	7	4	6.8	2.1%
Nome	6	6	6	7	7	7	10	8	8	7	4	6.9	2.1%
Quinhagak	4	4	3	5	6	12	6	2	8	9	16	6.8	2.1%
Savoonga	0	0	0	0	10	6	11	11	10	14	12	6.7	2.1%
Sitka	3	2	3	3	3	5	5	7	8	5	2	4.2	1.3%
St. George	5	4	0	2	3	4	4	3	6	6	4	4.1	1.3%
St. Paul	18	13	14	15	15	17	16	18	18	17	16	16.1	4.9%
Togiak	24	15	15	14	10	9	8	8	12	16	10	12.8	3.9%
Toksook Bay	40	22	35	30	41	37	34	33	39	30	31	33.8	10.3%
Tununak	25	20	25	23	30	28	27	27	29	26	27	26.1	8.0%
Unalaska	13	14	11	9	9	11	13	10	9	9	8	10.5	3.2%
Other CDQ Communities	13	15	13	7	9	12	12	5	6	14	15	11.0	3.4%
Other Alaska non-CDQ Communities	16	13	11	14	11	15	12	12	13	12	9	12.5	3.8%
Alaska Total	309	259	264	263	315	313	290	276	304	285	276	286.7	87.6%
Seattle MSA	21	20	21	25	21	21	23	24	21	21	21	21.7	6.6%
All Other Washington	13	12	11	8	10	9	7	6	6	4	4	8.2	2.5%
Washington Total	34	32	32	33	31	30	30	30	27	25	25	29.9	9.1%
Oregon and All Other States	16	15	13	10	12	10	7	6	6	7	16	10.7	3.3%
Grand Total	359	306	309	306	358	353	327	312	337	317	317	327.4	100.0%

Note: Alaska communities listed by name include all Alaska communities with an annual average of greater than 2.0 vessels participating in the fishery 2003-2013, plus Adak, which was identified by the community dependency exercise as a BSAI halibut dependent community based on a combination of factors. Only seven other Alaska communities had between 1.0 and 2.0 active vessels, inclusive, on an annual average basis 2003-2013: Chevak, Goodnews Bay, and Naknek among CDQ communities and Anchorage, Cordova, Seward, and Wasilla among non-CDQ communities. A total of 38 other Alaska communities appear in the data as having at least some minimal resident-owned catcher vessel engagement in the BSAI halibut fishery at least one year 2003-2013.

Table 2-6b
BSAI Halibut Catcher Vessels Ex-vessel Gross Revenues by Community of Vessel Owner, 2003-2013 (dollars)

Geography	Ex-vessel Gross Revenue from BSAI Halibut by Year (Dollars)											Average 2003-2013 (Dollars)	Average 2003-2013 (Percent of Grand Total)
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Chefornak	\$7,881	\$6,646	\$12,303	\$59,892	\$101,481	\$145,193	\$66,861	\$72,368	\$69,620	\$8,894	\$49,135	\$54,570	0.2%
Homer	\$3,091,167	\$1,798,153	\$1,804,032	\$2,321,411	\$2,068,969	\$1,625,183	\$1,257,208	\$2,368,361	\$4,444,167	\$3,350,773	\$1,759,980	\$2,353,582	8.4%
Juneau	\$1,562,989	\$1,625,871	\$779,138	\$1,320,232	\$1,425,442	\$1,424,543	\$1,053,964	\$1,429,815	\$2,426,528	\$1,467,000	\$862,561	\$1,398,008	5.0%
Kipnuk	\$6,896	\$2,317	\$2,077	\$14,865	\$33,007	\$53,297	\$37,717	\$44,434	\$75,416	\$38,906	\$69,260	\$34,381	0.1%
Kodiak	\$4,215,395	\$3,682,913	\$3,429,276	\$3,740,005	\$4,228,728	\$5,164,926	\$2,378,069	\$4,213,935	\$4,749,386	\$2,616,880	\$2,109,235	\$3,684,432	13.1%
Mekoryuk	\$102,642	\$145,069	\$225,517	\$320,676	\$696,080	\$436,809	\$314,430	\$394,528	\$549,212	\$270,768	\$275,968	\$339,245	1.2%
Newtok	\$1,986	\$1,092	\$2,982	\$14,090	\$74,699	\$40,026	\$10,939	\$23,164	\$35,652	\$22,469	\$36,500	\$23,964	0.1%
Nightmute	\$7,595	\$3,824	\$40,970	\$77,918	\$116,062	\$80,538	\$26,669	\$70,620	\$118,312	\$102,612	\$70,719	\$65,076	0.2%
Nome	\$139,634	\$130,123	\$72,354	\$125,166	\$386,976	\$535,016	\$345,307	\$220,776	\$429,978	\$232,460	\$87,564	\$245,941	0.9%
Savoonga	\$0	\$0	\$0	\$0	\$127,073	\$68,344	\$79,940	\$198,029	\$139,912	\$312,831	\$121,666	\$95,254	0.3%
St. Paul	\$783,308	\$992,515	\$1,004,799	\$1,750,193	\$1,983,999	\$3,730,680	\$1,328,169	\$2,983,980	\$4,026,026	\$2,991,401	\$2,121,243	\$2,154,210	7.7%
Togiak	\$131,354	\$56,382	\$101,834	\$47,903	\$53,118	\$35,019	\$16,697	\$92,371	\$189,207	\$174,523	\$134,249	\$93,878	0.3%
Toksook Bay	\$65,330	\$18,501	\$113,929	\$274,375	\$434,342	\$438,710	\$250,632	\$373,914	\$499,536	\$451,893	\$424,149	\$304,119	1.1%
Tununak	\$21,680	\$9,366	\$36,147	\$113,224	\$124,226	\$114,022	\$36,356	\$52,616	\$142,324	\$50,021	\$100,657	\$72,785	0.3%
Unalaska	\$1,205,421	\$1,012,052	\$884,511	\$1,229,301	\$1,441,807	\$1,536,004	\$864,167	\$2,144,667	\$2,520,560	\$1,700,191	\$1,163,541	\$1,427,474	5.1%
Adak/Akutan/Atka/St. George	\$86,190	\$130,736	\$247,098	\$411,439	\$564,442	\$1,049,251	\$395,438	\$811,613	\$1,422,122	\$681,676	\$845,346	\$604,123	2.2%
Hooper Bay/Quinhagak	\$2,980	\$787	\$6,871	\$4,518	\$24,744	\$25,456	\$6,377	\$21,049	\$38,292	\$41,583	\$52,471	\$20,466	0.1%
Other CDQ Communities	\$249,121	\$268,558	\$200,972	\$192,844	\$91,636	\$315,155	\$36,434	\$3,849	\$13,198	\$28,879	\$31,845	\$130,226	0.5%
Other Alaska non-CDQ Communities	\$2,517,735	\$1,547,821	\$1,618,646	\$2,145,126	\$2,387,591	\$2,164,549	\$2,829,754	\$4,990,575	\$9,757,720	\$3,873,959	\$1,324,932	\$3,196,219	11.4%
Alaska Total	\$14,199,304	\$11,432,727	\$10,583,457	\$14,163,177	\$16,364,423	\$18,982,721	\$11,335,127	\$20,510,661	\$31,647,167	\$18,417,719	\$11,641,021	\$16,297,955	58.2%
Seattle MSA	\$6,540,231	\$5,202,134	\$5,895,442	\$9,510,580	\$8,492,599	\$8,093,750	\$5,006,409	\$8,027,879	\$10,273,723	\$7,355,496	\$3,647,670	\$7,095,083	25.3%
All Other Washington	\$3,193,778	\$2,936,629	\$2,174,435	\$1,990,549	\$3,317,768	\$2,816,106	\$1,711,730	\$1,900,412	\$2,695,252	\$1,283,349	\$880,489	\$2,263,681	8.1%
Washington Total	\$9,734,009	\$8,138,763	\$8,069,876	\$11,501,129	\$11,810,367	\$10,909,856	\$6,718,139	\$9,928,291	\$12,968,975	\$8,638,846	\$4,528,159	\$9,358,765	33.4%
Oregon and All Other States	\$4,522,502	\$2,713,376	\$2,587,168	\$2,444,714	\$3,402,743	\$2,267,413	\$1,114,718	\$1,567,141	\$2,500,899	\$1,489,348	\$1,372,954	\$2,362,089	8.4%
Grand Total	\$28,455,814	\$22,284,866	\$21,240,501	\$28,109,021	\$31,577,533	\$32,159,990	\$19,167,985	\$32,006,093	\$47,117,041	\$28,545,913	\$17,542,134	\$28,018,808	100.0%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-6c
BSAI Halibut Catcher Vessels Ex-vessel Gross Revenue Diversification by
Community of Vessel Owner, All Communities, 2008-2013 (dollars)

Geography	Annual Average Number of BSAI Halibut CVs 2003-2013	BSAI Halibut CVs Annual Average Ex-Vessel Gross Revenues from BSAI Halibut Only 2003-2013 (Dollars)	BSAI Halibut CVs Annual Average Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2003-2013 (Dollars)	BSAI Halibut CVs BSAI Halibut Ex-Vessel Gross Revenues as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2003-2013
Chefornak	18.5	\$54,570	\$54,922	99.4%
Homer	13.8	\$2,353,582	\$8,499,571	27.7%
Juneau	5.7	\$1,398,008	\$2,025,911	69.0%
Kipnuk	19.1	\$34,381	\$37,172	92.5%
Kodiak	16.8	\$3,684,432	\$20,411,655	18.1%
Mekoryuk	28.3	\$339,245	\$345,473	98.2%
Newtok	7.5	\$23,964	\$24,306	98.6%
Nightmute	6.8	\$65,076	\$68,047	95.6%
Nome	6.9	\$245,941	\$792,563	31.0%
Savoonga	6.7	\$95,254	\$95,254	100.0%
St. Paul	16.1	\$2,154,210	\$2,180,317	98.8%
Togiak	12.8	\$93,878	\$605,880	15.5%
Toksook Bay	33.8	\$304,119	\$313,759	96.9%
Tununak	26.1	\$72,785	\$75,404	96.5%
Unalaska	10.5	\$1,427,474	\$2,413,376	59.1%
Adak/Akutan/Atka/St. George	9.8	\$604,123	\$720,805	83.8%
Hooper Bay/Quinhagak	14.1	\$20,466	\$33,100	61.8%
Other CDQ Communities	16.5	\$130,226	\$810,125	16.1%
Other Alaska non-CDQ Communities	16.7	\$3,196,219	\$12,742,931	25.1%
Alaska Total	286.7	\$16,297,955	\$52,250,570	31.2%
Seattle MSA	21.7	\$7,095,083	\$26,868,534	26.4%
All Other Washington	8.2	\$2,263,681	\$8,686,619	26.1%
Washington Total	29.9	\$9,358,765	\$35,555,152	26.3%
Oregon and All Other States	10.7	\$2,362,089	\$12,996,949	18.2%
Grand Total	327.4	\$28,018,808	\$100,802,671	27.8%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-6d
All Commercial Fishing Catcher Vessels Ex-vessel Gross Revenue Diversification
by Community of Vessel Owner, All Alaska Communities (with at least one
resident-owned BSAI halibut catcher vessel in any year), 2003-2013

Geography	Annual Average Number of All CVs Owned by Community Residents 2003-2013	BSAI Halibut Ex-Vessel Gross Revenue Annual Average 2003-2013 (Dollars)	Total (All Areas, Species, and Gears) Ex-Vessel Gross Revenue Annual Average 2003-2013 (Dollars)	BSAI Halibut Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2003-2013
Chefornak	23.5	\$54,570	\$279,549	19.5%
Homer	318.5	\$2,074,661	\$65,737,028	3.2%
Juneau	212.2	\$1,361,260	\$28,729,511	4.7%
Kipnuk	30.1	\$34,381	\$295,227	11.6%
Kodiak	267.6	\$3,315,310	\$111,677,264	3.0%
Mekoryuk	29.0	\$339,245	\$377,697	89.8%
Newtok	9.1	\$23,964	\$64,907	36.9%
Nightmute	9.4	\$65,076	\$104,676	62.2%
Nome	13.6	\$245,941	\$1,110,432	22.1%
Savoonga	6.7	\$95,254	\$95,254	100.0%
St. Paul	16.2	\$2,150,696	\$2,220,083	96.9%
Togiak	62.7	\$93,911	\$2,116,895	4.4%
Toksook Bay	45.3	\$304,119	\$712,285	42.7%
Tununak	26.3	\$72,785	\$76,871	94.7%
Unalaska	24.8	\$1,000,656	\$4,018,030	24.9%
Adak/Akutan/Atka/St. George	10.9	\$436,233	\$751,531	58.0%
Hooper Bay/Quinhagak	21.2	\$20,466	\$91,855	22.3%
Other CDQ Communities	262.8	\$92,882	\$12,424,995	0.7%
Other Alaska non-CDQ Communities	1,956.7	\$2,975,684	\$341,109,467	0.9%
Alaska Total	3,345.5	\$14,757,095	\$571,993,558	2.6%

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 2-6a provides a count, by ownership community and year (2003-2013), of BSAI halibut catcher vessels for all Alaska communities with annual average participation of more than 2.0¹⁴ vessels for this time period, plus Adak; the Seattle MSA; state totals for Alaska and Washington; and for Oregon and all other states combined, along with annual average counts and percentages. As shown, vessel ownership among states is heavily concentrated in Alaska, while within Alaska is distributed within numerous communities. In addition to the 23 Alaska communities named in the table, seven Alaska communities saw an average of between one and two vessels, inclusive, participating annually; another 38 Alaska communities appear in the data as participating in fishery at a lower average annual level but at least minimally sometime during this time span.

Table 2-6b provides BSAI halibut catcher vessel ex-vessel gross revenue information by ownership community and year (2003-2013) to the extent possible within data confidentiality restrictions, along with annual averages in terms of dollars and percentages. For Alaska, relatively high ex-vessel gross revenue communities (over \$1 million) include Homer, Juneau,¹⁵ and Kodiak, three communities located in the Gulf of Alaska (GOA), along with St. Paul and Unalaska in the BSAI region. This table clearly shows the concentration of the fleet ex-vessel values in the Seattle MSA.

Table 2-6c provides information on BSAI halibut catcher vessel dependency on BSAI halibut compared to all other areas, gear types, and species fished by those same vessels, to the extent possible given confidentiality restrictions. As shown, dependency on BSAI halibut, as measured in percentage of total ex-vessel revenues, ranged widely across geographies, but dependency over 90 percent seen for halibut is seen in nine different Alaska communities.

Table 2-6d provides information on Alaska community catcher vessel fleet dependency on BSAI halibut compared to all other areas, gear types, and species fished by those vessels owned by residents of that same community to the extent possible given data confidentiality restrictions. (This table includes all commercial fishing catcher vessels, not just vessels that participate in the BSAI halibut fishery for those communities that had at least one resident-owned BSAI halibut catcher vessel participating in any year 2003-2013.) As shown, community fleet dependency on BSAI halibut for three of the five highest BSAI halibut ex-vessel gross revenue producing Alaska communities of Homer, Juneau, and Kodiak ranges between 3.0 and 4.7 percent; for the other two relatively high-producing Alaska communities of St. Paul and Unalaska, dependency of the overall local fleet was 97 percent and 25 percent, respectively.¹⁶

¹⁴ Only Chevak has an average of 2.0 vessels annually; it is not reported separately in the table to allow disclosure of “Other CDQ Communities” and “Other Alaska non-CDQ Communities” subtotals in the table.

¹⁵ In addition to the Alaska communities noted in Section 1.0 as not meeting the federal regulatory definition of rural for the purposes of subsistence resource management (Adak, Anchor Point, and Anchorage), Homer and Juneau also do not meet the federal regulatory definition of rural communities.

¹⁶ Note: community resident-owned catcher vessel data in Table 2-6d is derived from a different source than Table 2-6c (and all of the other BSAI halibut catcher vessel data tables in this section). As a result, variations occur in the classification of some vessels, particularly those listed as owned in more than one community during the course of any given year during the reporting period. The ex-vessel gross revenue data in Table 2-6d should be taken as indicative of trends or reflective of orders of magnitude differences between communities in relation to the relative BSAI halibut dependency of overall community catcher vessel fleets rather than comparing halibut ex-vessel gross revenue absolute values for given communities between the two tables.

2.7 SHORE-BASED PROCESSORS IN ALASKA ACCEPTING BSAI HALIBUT DELIVERIES

Tables 2-7a through 2-7d provide a series of quantitative indicators of sector engagement in and dependency on the BSAI halibut fishery, by community and/or regional geography depending on data confidentiality restrictions, for shore-based BSAI halibut processors operating in Alaska, as noted in the following paragraphs. Overall community shore-based processor dependency is also shown to the extent possible within data confidentiality restrictions.

Table 2-7a provides information on the distribution of shore-based processors in Alaska communities that accepted BSAI halibut deliveries in the period 2003-2013. For the purposes of this analysis, shore-based BSAI halibut processors are defined as those shore-based entities (as identified by F_ID [intent to operate] and SBPR [shore-based processor] codes in AKFIN [Alaska Fisheries Information Network] data) accepting BSAI halibut deliveries. As shown, 24 Alaska communities were the locations of BSAI halibut shore-based processing over this time period, but seven of those communities processed BSAI halibut in less than half of the years covered by the data. BSAI halibut was processed every year in five communities (Akutan, Nome, St. Paul, Togiak, and Unalaska); in one community (Atka) BSAI halibut processing took place in 10 out of the 11 years, and in seven communities BSAI halibut processing occurred in nine out of the 11 years, including six that processed every year except in 2012 and 2013, the two most recent data years (Hooper Bay, Kipnuk, Mekoryuk, Quinhagak, Toksook Bay, and Tununak; the seventh community, Adak, did not process in 2009 and 2010, but did process more recently).

Table 2-7b provides information on the first wholesale gross revenues from BSAI halibut deliveries by community and year (2003-2013) to the extent possible within data confidentiality restrictions. As shown, no individual community can be disclosed, but information for Akutan, St. Paul, and Unalaska combined can be disclosed for all years 2003-2013 and still provide the ability to disclose a sector total. Akutan, St. Paul, and Unalaska combined accounted for an annual average of about 80 percent of all BSAI halibut shore-based processor first wholesale gross revenues for those years.

Table 2-7c provides information on average annual BSAI halibut shore-based processor dependency on BSAI halibut compared to all area and species fisheries landings processed by those same processors for the years 2003-2013. As shown, the combined Akutan, St. Paul, and Unalaska BSAI halibut processors derived approximately five percent of their total first wholesale gross revenues from BSAI halibut alone over that period; for all other Alaska BSAI halibut shore-based processors as a group, BSAI halibut accounted for approximately seven percent of total first wholesale gross revenues on an average annual basis over the same period.

Table 2-7d provides information on average annual total shore-based processor dependency (all shore-based processors in the communities that had at least one BSAI halibut processor, not just the shore-based processors that participated in the BSAI halibut fishery) on BSAI halibut compared to all area and species fishery landings processed by all processors for the years 2003-2013, within the constraints of confidentiality restrictions. As shown, for that span of years, BSAI halibut first wholesale gross revenues accounted for about four percent of all shore-based processor first wholesale gross revenues for Akutan, St. Paul, and Unalaska combined, while BSAI halibut first wholesale gross revenues accounted for

Table 2-7a
Shore-Based Processors in Alaska Accepting BSAI Halibut Deliveries by Community 2003-2013

Community	Number of Processors by Year											Average 2003-2013 (Number of Processors)	Average 2003-2013 (Percent of Total)
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Adak	1	2	1	1	1	1	0	0	1	1	1	0.9	4.9%
Akutan	1	1	1	1	1	1	1	1	1	1	1	1.0	5.4%
Anchorage	0	0	0	0	0	0	0	0	1	1	1	0.3	1.5%
Atka	1	1	1	1	1	1	0	1	1	1	1	0.9	4.9%
Chefornak	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
Dillingham	1	1	2	2	1	1	0	0	0	0	0	0.7	3.9%
Egegik	1	0	0	1	1	0	0	0	0	0	0	0.3	1.5%
False Pass	0	0	0	0	0	0	0	0	0	1	0	0.1	0.5%
Hooper Bay	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
King Salmon	0	0	0	1	0	0	0	0	0	0	0	0.1	0.5%
Kipnuk	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
Kodiak	1	1	0	0	0	0	0	0	0	0	1	0.3	1.5%
Mekoryuk	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
Naknek	0	0	0	0	0	0	1	0	0	0	0	0.1	0.5%
Nome	1	1	1	1	1	1	1	1	1	1	1	1.0	5.4%
Quinhagak	1	1	1	1	1	1	1	1	0	1	1	0.9	4.9%
Savoonga	0	0	0	1	1	1	1	1	0	1	1	0.6	3.4%
Sitka	1	0	1	1	0	0	0	0	0	0	0	0.3	1.5%
St George	1	1	1	1	1	0	0	0	0	0	0	0.5	2.4%
St Paul	2	2	2	2	2	2	2	2	2	1	1	1.8	9.8%
Togiak	1	1	1	1	1	1	1	1	1	1	1	1.0	5.4%
Toksook Bay	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
Tununak	1	1	1	1	1	1	1	1	1	0	0	0.8	4.4%
Unalaska	4	4	3	3	3	4	2	2	3	3	2	3.0	16.1%
Total	23	22	21	24	21	20	16	16	17	13	12	18.6	100.0%

Source: ADFG Commercial Operators Annual Report data compiled by AKFIN 2015.

Table 2-7b
First Wholesale Gross Revenues from BSAI Halibut Deliveries to Shore-Based Processors in Alaska by Community, 2003-2013 (dollars)

Geography	First Wholesale Gross Revenue from BSAI Halibut Only by Year (Dollars)											Average 2003-2013 (Dollars)	Average 2003-2013 (Percent of Total)
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Akutan/St. Paul/Unalaska	\$16,161,800	\$18,703,197	\$23,644,665	\$24,770,285	\$29,751,442	\$26,790,996	\$21,191,397	\$38,170,159	\$45,683,460	\$20,663,157	\$9,249,738	\$24,980,027	80.2%
All Other Alaska Communities	\$9,386,037	\$5,981,894	\$5,283,967	\$4,868,811	\$6,667,765	\$6,184,418	\$3,072,500	\$5,113,580	\$7,950,523	\$8,148,310	\$5,047,789	\$6,155,054	19.8%
Total	\$25,547,837	\$24,685,091	\$28,928,631	\$29,639,097	\$36,419,207	\$32,975,414	\$24,263,897	\$43,283,739	\$53,633,983	\$28,811,467	\$14,297,527	\$31,135,081	100.0%

Source: ADFG Commercial Operators Annual Report data compiled by AKFIN 2015.

Table 2-7c
Shore-Based Processors in Alaska Accepting BSAI Halibut Deliveries First Wholesale
Gross Revenues Diversity by Community 2003-2013

Geography	Annual Average Number of Processors 2003-2013	BSAI Halibut First Wholesale Gross Revenues Annual Average 2003-2013 (Dollars)	Total (All Areas and Species) First Wholesale Gross Revenues Annual Average 2003-2013 (Dollars)	BSAI Halibut First Wholesale Gross Revenues as a Percentage of Total First Wholesale Gross Revenues Annual Average 2003-2013
Akutan/St. Paul/Unalaska	5.8	\$24,980,027	\$533,199,244	4.7%
All Other Alaska	12.8	\$6,155,054	\$88,832,258	6.9%
Total	18.6	\$31,135,081	\$622,031,502	5.0%

Source: ADFG Commercial Operators Annual Report data compiled by AKFIN 2015.

Table 2-7d
All Areas and Species First Wholesale Gross Revenues Diversity by Community for
All Shore-Based Processors (for Alaska communities with at least one shore-based
processor accepting BSAI halibut deliveries) 2003-2013

Geography	Annual Average Number of Processors 2003-2013	BSAI Halibut First Wholesale Gross Revenues Annual Average 2003-2013 (Dollars)	Total (All Areas and Species) First Wholesale Gross Revenues Annual Average 2003-2013 (Dollars)	BSAI Halibut First Wholesale Gross Revenues as a Percentage of Total First Wholesale Gross Revenues Annual Average 2003-2013
Akutan/St. Paul/Unalaska	10.0	\$24,980,027	\$668,898,772	3.7%
All Other Alaska	53.4	\$6,155,054	\$622,267,840	1.0%
Total	63.4	\$31,135,081	\$1,291,166,612	2.4%

Source: ADFG Commercial Operators Annual Report data compiled by AKFIN 2015.

approximately one percent of all shore-based processor first wholesale gross revenues for all processors combined in the remaining Alaska communities that had a least one shore-based processor accepting any BSAI halibut landings that year.

2.8 SUBSISTENCE HALIBUT HARVEST

Table 2-8 provides information on subsistence halibut harvest by community, for Areas 4A, 4B, 4C, 4D, and 4E in terms of the number of subsistence fishermen, the number of fish harvested, and the total pounds of halibut caught for each year 2009-2012 and the annual averages 2009-2012 in available years for each of those variables. These data are based on Subsistence Halibut Registration Certificates (SHARCs) and caution should be used in their interpretation.

To protect confidentiality, data for tribal and community reporting entities with five or fewer SHARCs issued have been not included in Alaska Department of Fish and Game subsistence reports since 2008. As a result, many communities known to participate in the BSAI halibut subsistence fishery are not listed in the data. For example, 16 reporting tribal or community entities listed in the SHARC data as engaged in BSAI halibut subsistence fishing in 2008 have no non-confidential data values for more recent years. Additionally, another 34 reporting tribal or community entities listed in the SHARC data that had no reported engagement (zero values) in the BSAI halibut subsistence fishery in 2008 have no non-confidential values in more recent years. Additional information on Area 4 subsistence halibut fisheries is provided in the Subsistence Fisheries section (Section 3.1.4.4) of the Environmental Assessment (EA), a part of the main document to which this community analysis document is appended.¹⁷

¹⁷ Additional limited information on subsistence/personal use halibut fisheries in Area 4 is provided in the Sport Fishery section (Section 3.1.4.3) of the EA, a part of the main document to which this community analysis is appended.

Table 2-8
BSAI Halibut Subsistence Number of Fishermen, Halibut Caught,
and Pounds of Halibut Caught, Area 4 A-E, 2009-2012*

Area	Community	Reporting Entity (Tribal Village or City)	Category	2009	2010	2011	2012	Average (available years) 2009-2012
4A	Akutan	Native Village of Akutan	Number of Subsistence Fishermen	9	9	8	0	6.5
			Number of Halibut Caught	146	90	56	0	73.0
			Pounds of Halibut Caught	2,993	1,659	1,593	0	1,561.3
	Unalaska	Qawalangin Tribe of Unalaska	Number of Subsistence Fishermen	10	20	12	11	13.3
			Number of Halibut Caught	103	107	124	31	91.3
			Pounds of Halibut Caught	1,732	1,363	2,174	260	1,382.3
		Unalaska	Number of Subsistence Fishermen	60	69	50	46	56.3
Number of Halibut Caught	677	693	564	499	608.3			
Pounds of Halibut Caught	11,888	11,456	7,563	8,412	9,829.8			
4B	Adak	Adak	Number of Subsistence Fishermen	2	--	7	5	4.7
			Number of Halibut Caught	1	--	33	16	16.7
			Pounds of Halibut Caught	41	--	672	554	422.3
	Atka	Native Village of Atka	Number of Subsistence Fishermen	--	--	2	--	2.0
			Number of Halibut Caught	--	--	10	--	10.0
			Pounds of Halibut Caught	--	--	140	--	140.0
4C	St. George	Pribilof Islands Aleut Community of St. George	Number of Subsistence Fishermen	--	6	4	--	5.0
			Number of Halibut Caught	--	30	20	--	25.0
			Pounds of Halibut Caught	--	720	490	--	605.0
	St. Paul	Pribilof Islands Aleut Community of St. Paul	Number of Subsistence Fishermen	15	19	9	14	14.3
			Number of Halibut Caught	323	485	45	149	250.5
			Pounds of Halibut Caught	6,580	10,139	1,214	2,009	4,985.5
4D	Aleknagik	Native Village of Aleknagik	Number of Subsistence Fishermen	2	0	--	--	1.0
			Number of Halibut Caught	4	0	--	--	2.0
			Pounds of Halibut Caught	84	0	--	--	42.0
	Bethel	Orutsararmuit Native Village	Number of Subsistence Fishermen	2	3	7	5	4.3
			Number of Halibut Caught	47	54	31	0	33.0
			Pounds of Halibut Caught	1,232	483	861	0	644.0
	Cheformak	Village of Cheformak	Number of Subsistence Fishermen	3	8	12	--	7.7
			Number of Halibut Caught	18	75	257	--	116.7
			Pounds of Halibut Caught	250	1,081	1,139	--	823.3
	Chevak	Chevak Native Village	Number of Subsistence Fishermen	3	--	--	--	3.0
			Number of Halibut Caught	8	--	--	--	8.0
			Pounds of Halibut Caught	193	--	--	--	193.0
	Dillingham	Native Village of Dillingham	Number of Subsistence Fishermen	4	2	4	3	3.3
			Number of Halibut Caught	9	5	26	24	16.0
			Pounds of Halibut Caught	270	480	872	516	534.5
	Eek	Native Village of Eek	Number of Subsistence Fishermen	6	7	3	5	5.3
			Number of Halibut Caught	4	37	9	21	17.8
			Pounds of Halibut Caught	100	1,045	217	698	515.0
	Hooper Bay	Native Village of Hooper Bay	Number of Subsistence Fishermen	10	5	3	--	6.0
			Number of Halibut Caught	125	32	11	--	56.0
			Pounds of Halibut Caught	1,187	345	121	--	551.0

Section 2.0 Quantitative Indicators

Area	Community	Reporting Entity (Tribal Village or City)	Category	2009	2010	2011	2012	Average (available years) 2009-2012
4D (cont)	Kipnuk	Native Village of Kipnuk	Number of Subsistence Fishermen	7	13	5	--	8.3
			Number of Halibut Caught	78	273	85	--	145.3
			Pounds of Halibut Caught	273	2,230	770	--	1,091.0
	Kongiganak	Native Village of Kongiganak	Number of Subsistence Fishermen	3	--	--	--	3.0
			Number of Halibut Caught	7	--	--	--	7.0
			Pounds of Halibut Caught	117	--	--	--	117.0
	Kwigillingok	Native Village of Kwigillingok	Number of Subsistence Fishermen	31	--	--	--	31.0
			Number of Halibut Caught	0	--	--	--	0.0
			Pounds of Halibut Caught	0	--	--	--	0.0
	Mekoryuk	Native Village of Mekoryuk	Number of Subsistence Fishermen	5	4	4	--	4.3
			Number of Halibut Caught	67	52	74	--	64.3
			Pounds of Halibut Caught	1,169	574	322	--	688.3
	Naknek	Naknek Native Village	Number of Subsistence Fishermen	7	0	5	0	3.0
			Number of Halibut Caught	0	0	0	0	0.0
			Pounds of Halibut Caught	0	0	0	0	0.0
	Nome	Nome Eskimo Community	Number of Subsistence Fishermen	8	4	6	5	5.8
			Number of Halibut Caught	105	26	33	34	49.5
			Pounds of Halibut Caught	2,179	630	866	910	1,146.3
		Nome	Number of Subsistence Fishermen	7	5	5	8	6.3
			Number of Halibut Caught	50	38	13	35	34.0
			Pounds of Halibut Caught	1,159	571	307	704	685.3
	Quinhagak	Native Village of Kwinhagak	Number of Subsistence Fishermen	--	--	7	0	3.5
			Number of Halibut Caught	--	--	8	0	4.0
			Pounds of Halibut Caught	--	--	59	0	29.5
Toksook Bay	Native Village of Toksook Bay	Number of Subsistence Fishermen	9	10	9	5	8.3	
		Number of Halibut Caught	164	105	80	42	97.8	
		Pounds of Halibut Caught	1,048	875	606	294	705.8	
Tununak	Native Village of Tununak	Number of Subsistence Fishermen	7	9	5	3	6.0	
		Number of Halibut Caught	69	91	92	28	70.0	
		Pounds of Halibut Caught	488	576	224	173	365.3	
4E	Savoonga	Native Village of Savoonga	Number of Subsistence Fishermen	7	6	9	--	7.3
			Number of Halibut Caught	27	42	36	--	35.0
			Pounds of Halibut Caught	668	1,270	777	--	905.0

*Note: To protect confidentiality, data for tribes and communities with 5 or fewer SHARCs issued are not reported by ADFG. Blank cells indicate redacted data.

Source: Fall and Kostner 2011, 2012, 2013, and 2014.

SECTION 3.0 REGIONAL/COMMUNITY CHARACTERIZATION AND THE LOCAL CONTEXT OF POTENTIAL IMPACTS OF BSAI HALIBUT PSC LIMIT REVISIONS

Detailed information on the range of BSAI groundfish fishing communities relevant to the proposed action may be found in a number of other groundfish-related documents, including the *Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement* (NMFS 2004) and *Sector and Regional Profiles of the North Pacific Groundfish Fishery* (Northern Economics and EDAW 2001), in a technical paper (Downs 2003) supporting the *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska* (NMFS 2005) as well as that Environmental Impact Statement itself, the *Final Environmental Impact Statement for Steller Sea Lion Protection Measures for Groundfish Fisheries in the Bering Sea and Aleutian Islands Management Area* (NOAA 2014), and *Final Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis to Reduce Gulf of Alaska Halibut Prohibited Species Catch Limits, Amendment 85 to the Fishery Management Plan for Groundfish of the Gulf of Alaska: Appendix 7 – Community Analysis* (AECOM 2013). These sources also include specific characterizations of the degree of individual community and regional engagement in, and dependency upon, the North Pacific groundfish fishery. For this analysis, these documents, as well as other NPFMC-related documents concerning other fisheries but containing detailed community profile information for a number of the BSAI groundfish-related communities, are incorporated by reference, including the *Five-Year Review of the Crab Rationalization Management Program for Bering Sea and Aleutian Islands Crab Fisheries – Appendix A: Social Impact Assessment* (AECOM 2010); *Comprehensive Baseline Commercial Fishing Community Profiles: Unalaska, Akutan, King Cove, and Kodiak, Alaska – Final Report* (EDAW and Northern Economics 2005); and *Comprehensive Baseline Commercial Fishing Community Profiles: Sand Point, Adak, St. Paul and St. George, Alaska – Final Report* (EDAW/AECOM and Northern Economics 2008). Additionally, *Community Profiles for North Pacific Fisheries – Alaska* (Himes-Cornell *et al.* 2013) was as a key source for information on BSAI halibut-dependent communities in framing the summary community profiles presented here.

In general, the fishing communities expected to be potentially directly and adversely affected by the proposed action alternatives are those BSAI groundfish communities where potentially affected vessel owners reside; where vessels make deliveries to shore-based processors and generate associated economic activities and public revenues, including those derived from landing or severance taxes; where vessel support services are provided; where vessels are otherwise located or homeported during the year and generate some level of related economic activity; and where skippers and crew reside. Similarly, in general, the fishing communities expected to be potentially directly and adversely affected by the no-action alternative, but potentially indirectly and beneficially affected by proposed action alternatives, are those BSAI halibut communities where potentially affected vessel owners reside; where vessels make deliveries to shore-based processors and generate associated economic activities and public revenues, including those derived from landing or severance taxes; where vessel support services are provided;

where vessels are otherwise located or homeported during the year and generate some level of related economic activity; and where skippers and crew reside.

Community-level information for some of these potential data categories, however, is not available or is too inconsistently collected to be useful for multi-community analyses. Information on vessel homeport (or the meaning of homeport designations for given vessels), for example, is known to be inconsistent enough for homeport designation to be of little utility as an indicator of location of vessel-associated economic activity in general; direct information on the location of vessel purchases of support services specifically is not readily available. Information is not readily available on the community of long-term residence of vessel skippers and crew and processing crew that work aboard the potentially affected vessels or in the shore-based processors active in the BSAI groundfish and/or BSAI halibut fisheries. Information developed for other recent analyses, however, suggests that, generally, companies operating vessels in the BSAI groundfish and BSAI halibut catcher vessel sectors tend to recruit crew from many locations, depending on the specific location of vessel ownership, homeport, and/or the scale and scope of vessel operations. Different shore-based processors use a combination of local and regional or national hiring that varies based on the location of the processing plant; the processing season and combination of species processed; and individual operational characteristics, including the size of plant operations, the mix of product forms produced, and the scale of the operating company. To the extent that these types of information are available for the individual communities characterized, a summary of these types of data is included in the regional/community characterizations below.

The following sections provide a regional and community-by-community characterization of the local community context of BSAI groundfish commercial, BSAI halibut commercial, and BSAI halibut subsistence fisheries for those communities.

3.1 ALEUTIAN PRIBILOF ISLANDS COMMUNITY DEVELOPMENT ASSOCIATION REGION, UNALASKA, AND ADAK

3.1.1 Location

The Aleutian Pribilof Island Community Development Association (APICDA) is a Community Development Quota (CDQ) entity that includes communities along the Alaskan peninsula and in the Aleutian Islands, and one of the two communities in the Pribilof Islands. BSAI halibut-dependent communities within APICDA include Akutan, Atka, and St. George. Other communities in APICDA include False Pass, Nelson Lagoon, and Nikolski.

Unalaska and Adak, the two non-CDQ communities in the Aleutian Islands, are included in this regional discussion. Because of significant existing fisheries development, Unalaska did not qualify as a CDQ community, but with an Aleut population larger than that of each of the APICDA communities,¹⁸ it is an

¹⁸ In 2010, Unalaska's Aleut population was larger than the Aleut populations of the Aleutian Pribilof Island Community Development Association (APICDA) BSAI halibut dependent communities (Akutan, Atka, and St. George) combined, and it was only about seven percent smaller than the Aleut populations of all APICDA communities combined.

ex-officio member of APICDA and Unalaska residents participate in a number of APICDA programs. Adak was almost exclusively a military installation at the time of the creation of the CDQ program and therefore was not considered for inclusion as a CDQ community, but following base closure has been the focus of effort by the regional Alaska Native corporation and others to develop a sustainable civilian community with a local economy based on commercial fishing and maritime services.

3.1.2 Historic Overview

Archaeological evidence suggests that the Alaskan peninsula and Aleutian Islands were settled at least 8,000 to 9,000 years ago. Russian ships reached the Aleutians in 1741 and began fur trading and harvesting activities shortly thereafter. Many Alaska Native inhabitants were pressed into slavery by Russian traders to harvest furs, including those Aleut inhabitants of the region who were forcibly relocated to the Pribilof Islands to harvest fur seals near prime rookeries in the Bering Sea.

By the late 1800s, Unalaska had emerged as an important coaling station and commercial trade center supporting the Gold Rush, serving as a gateway to gold fields in Nome and other locations along Alaska's western coast. By the turn of the 20th century, Unalaska had become a center for seafood processing. During World War II, the area was an active front in the war and military installations were established in Unalaska and Adak. After the war, Unalaska transitioned back to a major fishing and shipping port and seafood processing center. By the 1960s, the growth of the king crab fishery drew more commercial fishermen to the region, increasing participation in the cod, pollock, and crab fisheries. Adak, however, remained a military base supporting Cold War operations before officially closing in 1997. It is now being redeveloped as a civilian community by the Aleut Corporation and its subsidiaries (Himes-Cornell *et al.* 2013).

3.1.3 Demographics

Demographic and socioeconomic characteristics for the BSAI halibut-dependent communities in this area are presented in Table 3-1 (and population size relative to community resident-owned catcher vessel BSAI halibut dependency is shown in Table 3-2). All of the APICDA member communities can be considered small, rural communities with a high percentage of Alaska Native residents. For those communities considered BSAI halibut-dependent, the communities of Atka and St. George have total populations of 61 and 102 people, respectively. Approximately 95.1 and 88.2 percent of residents in Atka and St. George, respectively, reported they were Alaska Native during the 2010 U.S. Census. The community of Akutan is somewhat unique demographically since it is the home of a large shore-based processor and the demographics of the processing workforce residing in company housing at the plant site tend to overshadow the small, predominately Alaska Native population residing within the traditional community footprint.¹⁹ In 2010, Akutan's total population was 1,027 with 5.5 percent stating they were

¹⁹ Initially (in 1992) Akutan was deemed not eligible for participation in the Community Development Quota (CDQ) program as the community was home to "previously developed harvesting or processing capability sufficient to support substantial groundfish participation in the BSAI..." though the community met other qualifying criteria. The Akutan Traditional Council subsequently initiated action to show that large industrial enclave-style development of the locally operating shore-based processor was essentially socially and economically separate and distinct from the traditional community of Akutan. With the support of APICDA and others, Akutan obtained CDQ status in 1996, becoming a member community of APICDA.

Table 3-1
APICDA Region BSAI Halibut Dependent Communities Selected Demographic Indicators

APICDA Region BSAI Halibut Dependent Community	Total Population	Alaska Native Residents (percent of total population)	Minority Residents (percent of total population)	Residents Living in Group Quarters (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family Households	Median Family Income (dollars)	Low-Income* Residents (percent of total population)
Adak**	326	5.5%	81.9%	66.6%	\$34,871	\$88,750	26	\$76,250	15.7%
Akutan	1,027	5.5%	90.8%	91.2%	\$25,370	\$38,333	23	\$45,000	15.2%
Atka	61	95.1%	95.1%	0.0%	\$26,397	\$60,000	17	\$69,375	0.0%
St. George	102	88.2%	91.2%	3.9%	\$25,418	\$44,792	24	\$51,875	14.5%
Unalaska**	4,376	6.1%	66.3%	48.0%	\$32,331	\$89,706	533	\$99,286	8.6%

*Defined as those persons living below the poverty threshold.

**Note: neither Adak nor Unalaska are member communities of APICDA, but both are within the geographic region encompassed by APICDA and both were identified by community dependency exercise as BSAI halibut dependent communities. Adak and Unalaska were the only non-CDQ communities in any region of Alaska identified as BSAI halibut dependent communities.

Source: US Census 2010; ADCCED 2015.

Table 3-2
APICDA Region BSAI Halibut Dependent Communities Catcher Vessel Engagement and Dependency

APICDA Region BSAI Halibut Dependent Community	Population 2010	Catcher Vessel Annual Average Values 2003-2013*					
		Number of Community Resident-Owned BSAI Halibut CVs	Number of All Community Resident-Owned CVs	BSAI Halibut Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	All Species Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	BSAI Halibut Ex-Vessel Gross Revenues as a Percentage of All Species Gross Revenues	
						Community Resident-Owned BSAI Halibut CVs Only	All Community Resident-Owned CVs
Adak**	326	1.1	1.3	\$436,233	\$751,531	83.8%	58.0%
Akutan	1,027	2.8	3.5				
Atka	61	2.2	2.2				
St. George	102	4.1	3.9	\$1,000,656	\$4,018,030	59.1%	24.9%
Unalaska**	4,376	10.5	24.8				

*Note: Ex-vessel gross revenue figures in this table are taken from Table 2-6d, which is derived from a different data source than Tables 2-6a through 2-6c. The Unalaska and Adak/Akutan/Atka/St. George halibut trawl ex-vessel gross revenue annual averages 2003-2013 shown in in Table 2-6d (and in this table) vary from those in Table 2-6c; however, the data sources for the halibut and total ex-vessel gross revenue annual averages 2003-2013 shown in this table are from the same data source, such that calculated percentages of dependency are based on internally consistent data and, while not directly comparable to the figures in Table 2-6c, should provide a reasonable order-of-magnitude percentage dependence figure for those community fleets.

**Note: neither Adak nor Unalaska are member communities of APICDA, but both are within the geographic region encompassed by APICDA and both were identified by community dependency exercise as BSAI halibut dependent communities. Adak and Unalaska were the only non-CDQ communities in any region of Alaska identified as BSAI halibut dependent communities.

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015; Population data ADCCED 2015.

Alaska Native. The percentages of minority residents in Atka and St. George are similar to their respective percentages of Alaska Native residents, suggesting relatively homogenous populations in both communities. In Akutan, however, the population in group quarters is high (91.2 percent of all residents) and approximately 90.8 percent of residents are minority. These statistics reflect the sizable minority workforce associated with the shore-based processor in Akutan. Economic indicators in these CDQ communities show per capita income between \$25,000 and \$27,000 annually, although median household incomes are higher in Atka (\$60,000) than in Akutan and St. George (\$38,333 and \$44,792, respectively). The percent of the population considered low-income was 0.0 percent for Atka, which was much lower than the percentages of the population in Akutan (15.2 percent) and St. George (14.5 percent).

Unalaska, traditionally an Aleut community, has become a plural community with port and fisheries-related development. In 2010, the total population of Unalaska was 4,376 people, 6.1 percent of whom stated they were Alaska Native. Adak is also a relatively diverse community with a shore-based processor and is still transitioning from its days as a relatively large military base in the 1990s to a small civilian Alaskan community. Unlike all of the other communities in the region, including Unalaska, and all of the other communities analyzed as halibut-dependent communities in this document, Adak is not classified as “rural” for the purposes of federal subsistence regulation.²⁰ In 2010, the total population of Adak was 326 people, with 5.5 percent stating they were Alaska Native. Adak and Unalaska both had a substantial proportion of their population living in group quarters, and the percentage of minority residents was much higher than the percentage of Alaska Native residents. Like the statistics for Akutan, these numbers can be attributed to the sizable minority workforce associated with shore-based processors in both communities. Per capita income in these communities was higher than in nearby CDQ communities (\$34,871 in Adak; \$32,331 in Unalaska), and other economic indicators such as median household income and median family income were much higher. The proportion of low-income residents in Adak was 15.7 percent, while the proportion of low-income residents in Unalaska was 8.6 percent.

3.1.4 Local Economy

The economy of the area is focused primarily on supporting the various regional commercial fisheries. For example, shore-based seafood processing plants are located throughout the region, including in the communities of Adak, Akutan, Atka, and Unalaska. Unalaska is the primary port in the area, serving as the base of operations for approximately 300 vessels that fish within the BSAI. Data from 2010 estimate that roughly a quarter of total landings made in Alaska that year occurred within this area, with landings of pollock and Pacific cod accounting for the majority of landings (Himes-Cornell *et al.* 2013). In general, tourism is not a primary economic driver in the communities in this area, although some sportfishing, hunting, bird watching, and eco-tourism opportunities exist.

The economic importance of commercial fishing for Unalaska cannot be overstated, as Unalaska has ranked as the number one U.S. port in volume of landings since 1992 and has ranked as second in value

²⁰ An individual must have their primary, permanent place of residence in a rural area to qualify to hunt, trap, or fish under federal subsistence regulations, with “rural” meaning any community or area of Alaska determined by the Federal Subsistence Board to qualify as such. Only residents of communities or areas that the Board has determined to be rural are eligible for subsistence priority (Coble 2015).

of landings (behind New Bedford, Massachusetts) since 2000. In recent years, employment statistics for Unalaska have shown that the top three employers in the community were seafood processing companies, and that their employees accounted for over half of all employment in the city. The support service sector for the commercial fishing fleet is by far the most developed in the BSAI region, and Unalaska and firms dependent on the fisheries, such as stevedoring and shipping, regularly rank as some of the largest employers. There is no other community in the region with the level of development or the range of services provided to the various sectors in the BSAI, which include 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, gear replacement and repair, vessel repair, stevedoring, vehicle rentals, warehousing, and welding, among others (AECOM 2010; NOAA 2014).

In Adak, the former military infrastructure has provided the Aleut Enterprise Corporation with a unique opportunity to provide services to the region, as the airport in Adak is the largest in the Aleutians and the harbor facilities consist of three deep water piers and a small boat harbor. Fuel sales and providing a convenient port for crew transfers are two ways that Adak supports the commercial fishery in the BSAI. Observer data suggest that catcher vessels regularly made embarkations and disembarkations in the community. While the data are silent on the nature of these visits to Adak, it can safely be assumed that at least a portion of these port calls included crew transfers, provisioning, fueling, product offloads, and purchases of other local goods and services (NOAA 2014).

3.1.5 Engagement in the Commercial BSAI Halibut Fishery

3.1.5.1 Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

BSAI Halibut-Dependent Communities

For the regional communities dependent on the BSAI halibut fishery, Table 3-2 shows the average number of resident-owned BSAI halibut catcher vessels, all community resident-owned catcher vessels, BSAI halibut ex-vessel gross revenues for all vessels, total (all species, areas, and gear) ex-vessel gross revenue for all vessels, the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for BSAI halibut catcher vessels, and the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for all community resident-owned catcher vessels. As shown, the CDQ communities of Akutan, Atka, and St. George averaged between 2.2 and 4.1 BSAI halibut vessels annually from 2003-2013, while the non-CDQ communities of Adak and Unalaska averaged 1.1 and 10.5 vessels, respectively. For the communities of Adak, Akutan, Atka, and St. George, the number of BSAI halibut vessels and total community resident-owned vessels were generally similar; in Unalaska, however, approximately 14.3 catcher vessels were owned by residents in the community, averaged from 2003-2013, that participated in other fisheries but that did not participate in the BSAI halibut fishery.

For the reporting of ex-vessel gross revenues, Adak was combined with the communities of Akutan, Atka, and St. George, due to data confidentiality restrictions. For these four communities, the average ex-vessel gross revenue for BSAI halibut was \$436,233, which represented approximately 83.8 percent of all revenue for those vessels over the same time period. For all resident-owned catcher vessels in these communities, the total revenue was \$751,531 and BSAI halibut ex-vessel revenue represented 58.0 percent of this total for the years 2003-2013. For Unalaska, halibut ex-vessel gross revenue over \$1.0 million, representing a comparatively lower average percentage of all ex-vessel gross revenue for BSAI catcher vessels (59.1 percent) and all resident-owned vessels (24.9 percent).

Other CDQ Communities Engaged in the BSAI Halibut Fishery

Other APICDA community resident-owned BSAI halibut catcher vessel engagement was limited to False Pass. According to the 2003-2013 dataset, one False Pass resident-owned vessel participated in the BSAI halibut fishery in 2003-2006 and 2008. All ex-vessel gross revenue information associated with this vessel is confidential.

Other Measures of CDQ Community BSAI Halibut Harvest Engagement

In addition to catcher vessel-related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged by looking at the number of fishermen with permits in the halibut fishery compared to all commercial fishermen with permits. The number of halibut fishermen compared to all fisheries combined in the various APICDA communities from 1980 through 2011 can be found in Attachment 2, Figure 1, along with population trend lines for those same communities. As shown, the number of total fishermen has generally declined in the communities of St. George and Atka since 1980 and has stayed relatively constant in the communities of Akutan, False Pass, and Nelson Lagoon. The communities with relatively high proportions of halibut fishermen compared to all fishermen include Akutan, Atka, and St. George.

3.1.5.2 Shore-Based Processors and First Wholesale Gross Revenues

BSAI Halibut-Dependent Communities

Shore-based processors in Adak, Akutan, Atka, St. George, and Unalaska accepted BSAI halibut deliveries between 2003 and 2013.²¹ The average number of processors accepting BSAI halibut in Unalaska and Akutan was 3.0 and 1.0, respectively, and deliveries to these communities have occurred every year during this period. The average number of processors accepting BSAI halibut in Adak, Atka, and St. George was 0.9, 0.9, and 0.5, respectively, and data show that there was at least one year over the 2003-2013 span when BSAI halibut was not delivered.

²¹ No shore-based processor has been active in St. George in recent years. However, APICDA has organized a partnership with a separate company that acts as a buyer/facilitator for the local halibut fleet. Halibut are delivered in St. George to a tender owned by APICDA and then transferred to the shore-based processor in St. Paul for custom processing. For a discussion of this process, please see EDAW/AECOM and Northern Economics 2008.

For the reporting of first wholesale gross revenues, shore-based processors in the APICDA communities of Akutan and Unalaska were combined with those of in the Central Bering Sea Fishermen's Association (CBSFA) community of St. Paul due to data confidentiality restrictions. Shore-based processors in these three communities combined averaged nearly \$25 million in first wholesale gross revenues from BSAI halibut deliveries, representing an average of approximately 80.2 percent of wholesale gross revenues from BSAI shore-based processing for all communities in the fishery combined from 2003 to 2013. The annual average of \$25 million in first wholesale gross revenue of the BSAI halibut plants in these communities, however, was only about 4.7 percent of the annual average total first wholesale gross revenues (\$533 million) for those same plants. Shore-based first wholesale gross revenues cannot be disclosed for the communities of Adak, Atka, and St. George individually or as a group due to data confidentiality restrictions.

Other CDQ Communities Engaged in the BSAI Halibut Fishery

Other APICDA community BSAI halibut shore-based processor engagement was limited to False Pass. According to the 2003-2013 dataset, one False Pass shore-based processor accepted BSAI halibut fishery landings in 2009. All revenue information associated with this shore-based processor is confidential.

3.1.6 Engagement in the Subsistence BSAI Halibut Fishery

For those APICDA region communities for which subsistence data were available, including Unalaska and Adak, the community with the largest number of estimated halibut subsistence fishermen was Unalaska, with an average of 56.3 fishermen reported by the city and 13.3 reported by the tribal village from 2009-2012. The average number of halibut landed for 2009-2012 was 608.3 and 91.3, representing an estimated 9,829.8 and 1,382.3 pounds for the city and tribal village, respectively, making Unalaska easily the community most heavily engaged in the subsistence halibut fishery among all communities for which information is available. For the communities of Adak, Akutan, Atka, and St. George, the total number of estimated halibut fishermen was under 10 for each community for each year, with proportionally fewer halibut landed compared to Unalaska.

3.1.7 Engagement in the Commercial BSAI Groundfish Fishery

3.1.7.1 Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

Regional resident-owned BSAI groundfish catcher vessel activity during the period 2008-2013 was limited to the BSAI groundfish hook-and-line catcher vessels and to the communities of Adak and Unalaska. During this period, one Adak resident-owned BSAI groundfish hook-and-line catcher vessel participated in the fishery in 2008, 2009, and 2011. All ex-vessel gross revenue information related to this catcher vessel activity is confidential.

Three or four Unalaska resident-owned BSAI groundfish hook-and-line catcher vessels participated in the fishery in each year in 2008-2013. Ex-vessel gross revenue data are confidential for every year except

2013. As shown in Table 2-3d, in 2013, four Unalaska resident-owned BSAI groundfish hook-and-line vessels participated in the fishery and earned \$512,000 in ex-vessel gross revenues from BSAI groundfish and these same vessels earned a total of \$1,709,000 in ex-vessel gross revenues from all areas, species, and gear types combined (or a 30 percent dependence on BSAI groundfish for these BSAI groundfish hook-and-line vessels). That same year, a total of 17 Unalaska resident-owned commercial fishing catcher vessels (not just Unalaska resident-owned BSAI groundfish hook-and-line vessels) participated in all areas, species, and gear type fisheries, earning a total \$4,265,000 in ex-vessel gross revenues; BSAI groundfish ex-vessel gross revenues accounted for 12 percent of this total (for a 12 percent dependence on BSAI groundfish for the entire Unalaska resident-owned commercial catcher vessel fishing fleet).

3.1.7.2 Shore-Based Processors, Ex-vessel Gross Revenues, and First Wholesale Gross Revenues

Shore-based processors accepting BSAI groundfish deliveries during the period 2008-2013 operated in Adak, Atka, Akutan, and Unalaska. Three or four BSAI groundfish shore-based plants operated in Unalaska in each year, while one BSAI groundfish shore-based plant operated in Adak and Akutan every year. One shore-based processing plant in Atka participated in the BSAI groundfish fishery yearly 2010-2013, but did not do so in 2008 or 2009. Other BSAI groundfish shore-based processing activity in the APICDA region 2008-2013 was limited to one shore-based processor in False Pass in 2009 only.

As noted in Section 2.5, ex-vessel gross revenues are used as a proxy for the typically more appropriate first wholesale gross revenues for relative distribution of shore-based processing activities across communities due to limitations in the first wholesale gross revenue data that encompass BSAI groundfish processing in both BSAI and GOA communities. Ex-vessel gross revenue data for shore-based processors in individual communities in the region are confidential for every year 2008-2013. Shore-based processor ex-vessel gross revenue data can, however, be disclosed for the communities of Unalaska and Akutan combined for each of the years 2008-2013. As shown in Table 2-5b, Unalaska and Akutan BSAI groundfish shore-based processors had combined annual average ex-vessel gross revenues of approximately \$159 million during 2008-2013, accounting for 94.9 percent of all shore-based processing BSAI groundfish ex-vessel gross revenues produced in all of Alaska. As shown in Table 2-5c, over this same period, these same plants' annual average total ex-vessel gross revenues for all area and species fisheries were approximately \$267 million (for an 59.5 percent dependence of these plants on BSAI groundfish as measured by ex-vessel gross revenues). As shown in Table 2-5d, annual average dependence of all shore-based plants operating in the communities of Unalaska and Akutan combined on BSAI groundfish (not just the shore-based plants participating in the BSAI groundfish fishery itself) can also be calculated for 2008-2013. In those years, Unalaska and Akutan combined BSAI groundfish accounted for an annual average of \$159 million in ex-vessel gross revenues out of \$309 million ex-vessel gross revenues for processing of all areas and species combined by all processors in these two communities (for a 51.4 percent dependence of all plants in these communities on BSAI groundfish as measured by ex-vessel gross revenues).

In 2013 alone, BSAI groundfish shore-based processing communities can be grouped in such a way as to provide more detail on distribution of ex-vessel gross revenues between communities. In 2013, as shown

in Table 2-5e, for Unalaska and Akutan BSAI groundfish processors combined, approximately 65 percent of their total ex-vessel gross revenues for all area, species, and gear fisheries combined were attributed to BSAI groundfish alone for that year; while the analogous figures for Adak, Atka, King Cove, and Sand Point combined and all other Alaska BSAI groundfish shore-based processors combined were approximately nine and three percent, respectively. In that same year, as shown in Table 2-5f, BSAI groundfish shore-based processing ex-vessel gross revenues for Unalaska and Akutan combined; Adak, Atka, King Cove, and Sand Point combined; and all other Alaska shore-based processors combined; were 56, eight, and less than one percent, respectively, of the total ex-vessel gross revenue values for all area, species, and gear fisheries for all processors (not just BSAI groundfish processors) in communities that were the location of at least one shore-based processor accepting any BSAI groundfish landings that year.

Information from a different dataset (ADFG Commercial Operators Annual Reports compiled by AKFIN 2015) provides first wholesale gross revenue information for BSAI groundfish shore-based processors that is considered more accurate for the plants located in the BSAI region itself than for plants located in the GOA (such as King Cove, Sand Point, and Kodiak), where there are known underreporting issues caused by attributing both BSAI groundfish and GOA groundfish to the GOA based on the location of the processing plant rather than based on the location of actual catch/fishing activity that would potentially be subject to impacts from the proposed BSAI halibut PSC limit revisions. According to those data, Unalaska and Akutan BSAI groundfish shore-based processors earned combined annual average BSAI groundfish first wholesale gross revenues of \$544 million during 2011-2013. Over this same period, these same plants' annual average total first wholesale gross revenues for all area and species fisheries were approximately \$678 million (for an 80.3 percent dependence of these plants on BSAI groundfish first wholesale gross revenues). For these same years, in Unalaska and Akutan combined, BSAI groundfish accounted for an annual average of \$544 million in first wholesale gross revenues out of \$753 million first wholesale gross revenues for processing of all areas and species combined by all processors in these two communities (for a 72.3 percent dependence of all plants in these communities on BSAI groundfish first wholesale gross revenues).

3.1.8 CDQ Group Direct BSAI Halibut and/or Groundfish Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through CDQ quota ownership in a number of ways as discussed the “Community Development Quota Fisheries” section (Section 4.4.6) of the RIR, a part of the main document to which this community analysis document is appended, like other CDQ entities, APICDA has invested in capital assets as one way to attempt to meet the economic and social goals of the CDQ program. Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, APICDA had a 20, 25, and 100 percent interest in three different BSAI trawl limited access catcher vessels; and a 20 percent interest in one longline catcher processor, a 25 percent interest in four other longline catcher processors, and a 70 percent interest in a sixth longline catcher processor, according to CDQ group annual reports (Northern Economics 2015).

3.2 CENTRAL BERING SEA FISHERMEN'S ASSOCIATION REGION

3.2.1 Location

The CBSFA is a CDQ entity that represents the community of St. Paul, located in the Pribilof Islands. The CBSFA is unique among CDQ groups as it is the only entity that has one community as its sole member. Data suggest that St. Paul is a halibut-dependent community; public comments submitted throughout the environmental review process for this action reinforce the importance of halibut to the local fishermen of St. Paul.

3.2.2 Historic Overview

St. Paul was a historical traditional hunting location for Aleuts in the Aleutian Islands. In the 1780s, the islands were permanently settled by Russian explorers and fur traders who forcibly relocated Aleuts from Unalaska, Atka, and elsewhere to hunt and harvest fur seals. After the United States purchased Alaska from Russia in 1867, the U.S. government leased sealing rights to private companies after ultimately taking direct control of the fur seal harvest in 1910. During World War II, Aleut residents in St. Paul (and St. George) were relocated to Funter Bay on Admiralty Island as part of the emergency evacuation of residents from the Bering Sea. Aleut residents returned post-war; however, the commercial fur seal harvest was ended in 1985 and the economy of St. Paul transitioned to focus on commercial seafood processing and support services for the commercial fishing fleet (Himes-Cornell *et al.* 2013).

3.2.3 Demographics

Demographic and socioeconomic characteristics for St. Paul are presented in Table 3-3 (and population size relative to community resident-owned catcher vessel BSAI halibut dependency is shown in Table 3-4). St. Paul is a small community in the Pribilof Islands and has a high proportion of Alaska Native residents. In 2010, the total population was 479 people with 82.3 percent stating that they were Alaska Native. Geographically and socioculturally, a part of the Aleutian Pribilof Islands region (and heavily involved in the regional Aleut Corporation and the Aleutian Pribilof Islands Association), St. Paul, with the largest number of Aleut residents in the region, is the only CDQ community in the region that is not a part of APICDA. Like a number of other communities in the Aleutian Pribilof Islands geographic region, St. Paul is home to shore-based processor and the total population can increase substantially over the course of a year depending on the level of processing activity in the community. At the time of the 2010 U.S. Census, approximately 5.0 percent of the population was in group quarters housing. The per capita income for residents was \$20,901, while median household income and median family income were \$38,750 and \$39,583, respectively. It was estimated that 11.5 percent of the residents of St. Paul were low-income.

3.2.4 Local Economy

The primary economic sector in St. Paul is the commercial fishing industry. A major shore-based processor is active in St. Paul and many other businesses are located in the community that provide

Table 3-3
CBSFA Region BSAI Halibut Dependent Communities Selected Demographic Indicators

CBSFA Region BSAI Halibut Dependent Community	Total Population	Alaska Native Residents (percent of total population)	Minority Residents (percent of total population)	Residents Living in Group Quarters (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family Households	Median Family Income (dollars)	Low-Income* Residents (percent of total population)
St. Paul	479	82.3%	89.4%	5.0%	\$20,901	\$38,750	108	\$39,583	11.5%

*Defined as those persons living below the poverty threshold.
Source: US Census 2010; ADCCED 2015.

Table 3-4
CBSFA Region BSAI Halibut Dependent Communities Catcher Vessel Engagement and Dependency

CBSFA Region BSAI Halibut Dependent Community	Population 2010	Catcher Vessel Annual Average Values 2003-2013*					
		Number of Community Resident-Owned BSAI Halibut CVs	Number of All Community Resident-Owned CVs	BSAI Halibut Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	All Species Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	BSAI Halibut Ex-Vessel Gross Revenues as a Percentage of All Species Gross Revenues	
						Community Resident-Owned BSAI Halibut CVs Only	All Community Resident-Owned CVs
St. Paul	479	16.1	16.2	\$2,150,696	\$2,220,083	98.8%	96.9%

*Note: Ex-vessel gross revenue figures in this table are taken from Table 2-6d, which is derived from a different data source than Tables 2-6a through 2-6c. St. Paul halibut trawl ex-vessel gross revenue annual average 2003-2013 shown in in Table 2-6d (and this table) varies from that in Table 2-6c, but the amount of variance is inconsequential (approximately \$3,500, or a less than 0.2 percent difference).
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015; Population data ADCCED 2015.

services to the resident and visiting commercial fleets. The top employer in the community is Trident Seafoods (owners of shore-based seafood processing plant). Other major employers include city and tribal governments and Alaska Native corporations. The fur seal rookeries and more than 210 species of nesting birds attract some tourists to the island (Himes-Cornell *et al.* 2013).

The Trident plant, in terms of value, has relied primarily on crab, including opilio and king crab. Trident reports that cod is also processed during opilio season, although the amount of cod processed per seasons varies from one year to another. The local fleet does not participate directly in the crab fishery and is focused almost exclusively on BSAI halibut (as described below). However, without heavy participation by the shore-based processor in the crab fisheries, there is a concern that the underpinning of processing for the local halibut fishery would be removed. Halibut processing takes place from mid-June through September and employs a processing crew of about 25 to 30, of whom few, if any, are considered local residents (EDAW/AECOM and Northern Economics 2008).

3.2.5 Engagement in the Commercial BSAI Halibut Fishery

3.2.5.1 Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

Table 3-4 shows the average number of resident-owned BSAI halibut catcher vessels, all community resident-owned catcher vessels, BSAI halibut ex-vessel gross revenues for all vessels, total (all species, areas, and gear) ex-vessel gross revenue for all vessels, the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for BSAI halibut catcher vessels, and the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for all community resident-owned catcher vessels. As shown, the community of St. Paul averaged 16.1 BSAI halibut vessels annually from 2003-2013. The number of average total community resident-owned vessels was similar, at 16.2 for 2003-2013. The average ex-vessel gross revenue for BSAI halibut was over \$2.1 million, which represented approximately 98.8 percent of all revenue for those vessels over the same time period. For all resident-owned catcher vessels in St. Paul, the total revenue was over \$2.2 million and BSAI halibut ex-vessel revenue represented 96.9 percent of this total for the years 2003-2013.

Other Measures of CDQ Community BSAI Halibut Harvest Engagement

In addition to catcher vessel-related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged by looking at the number of fishermen with permits in the halibut fishery compared to all commercial fishermen with permits. The number of halibut fishermen compared to all fishermen combined in St. Paul can be found in Attachment 2, Figure 7, along with a population trend line. As shown, the number of total fishermen has varied greatly since 1980, declining in the late 1980s before increasing through the 1990s. The total number declined slightly during the early 2000s before increasing again through 2011. Halibut fishermen comprise a substantial percentage of all permits for every year in St. Paul.

3.2.5.2 Shore-Based Processors and First Wholesale Gross Revenues

The shore-based processor in St. Paul accepted BSAI halibut deliveries during the period 2003-2013. The official average number of processors accepting BSAI halibut in St. Paul was 1.8 and deliveries to St. Paul occurred every year during this period; however, with only one physical shore-based processor in St. Paul, one entity in the data is a separate legal entity that used Trident's facility for processing activities. This entity, 170 Degrees West, is a subsidiary of the CBSFA and is the operating company of the CBSFA halibut cooperative. The organization is focused exclusively on halibut custom processing caught by CBSFA-affiliated vessels and is primarily focused on selling value-added products (CBSFA 2015). Due to this direct involvement by CBSFA in BSAI CDQ halibut processing, Trident has shifted to concentrating almost exclusively on crab and Pacific cod, although it purchases some halibut from local vessels (IFQ shares) and from non-local vessels (EDAW/AECOM and Northern Economics 2008).

For the reporting of first wholesale gross revenues, the shore-based processor in St. Paul was combined with those in Akutan and Unalaska due to confidentiality restrictions. Shore-based processors in these three communities combined averaged nearly \$25 million in first wholesale gross revenues from BSAI halibut deliveries, representing an average of approximately 80.2 percent of wholesale gross revenues from BSAI shore-based processing for all communities in the fishery combined 2003-2013. The annual average of \$25 million in first wholesale gross revenue of the BSAI halibut plants in these communities, however, was only about 4.7 percent of the annual average total first wholesale gross revenues (\$533 million) for those same plants.

3.2.6 Engagement in the Subsistence BSAI Halibut Fishery

In St. Paul, subsistence data for the tribal village show that an average 14.3 fishermen were estimated to fish halibut from 2009-2012. The average number of halibut landed for 2009-2013 was 250.5, representing an estimated 4,985.5 pounds.

3.2.7 Engagement in the Commercial BSAI Groundfish Fishery

No CBSFA individual community (St. Paul) direct participation in the BSAI groundfish fishery is shown for any year in the 2008-2013 dataset used for this analysis. No St. Paul resident-owned catcher vessels participated in the BSAI groundfish fishery in any year during this period and no BSAI groundfish shore-based processors operated in the community during this period.

3.2.8 CDQ Group Direct BSAI Halibut and/or Groundfish Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through CDQ quota ownership in a number of ways as discussed the "Community Development Quota Fisheries" section (Section 4.4.6) of the RIR (a part of the main document to which this community analysis document is appended), like other CDQ entities, CBSFA has invested in capital assets as one way to attempt to meet the economic and social goals of the CDQ program. Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, CBSFA had a 10 percent interest in

eight different BSAI trawl limited access catcher vessels, a 30 percent interest in a ninth BSAI trawl limited access catcher vessel, and a 75 percent interest in a tenth BSAI trawl limited access catcher vessel; and a 100 percent interest in two different pot catcher vessels.

3.3 COASTAL VILLAGES REGION FUND REGION

3.3.1 Location

The Coastal Villages Region Fund (CVRF) is a CDQ entity that includes communities on the western coast of Alaska. Many communities are within the Yukon Delta National Wildlife Refuge, south of the Yukon River Delta, and around Kuskokwim Bay. BSAI halibut-dependent communities within CVRF include Chefnak, Hooper Bay, Kipnuk, Mekoryuk, Newtok, Nightmute, Quinhagak, Toksook Bay, and Tununak. Other communities in CVRF include Chevak, Eek, Goodnews Bay, Kongiganak, Kwigillingok, Napakiak, Napaskiak, Oscarville, Platinum, Scammon Bay, and Tuntutuliak.

3.3.2 Historic Overview

The CVRF region has historically been a Yup'ik Eskimo traditional homeland for thousands of years. The Yup'ik were seasonally migratory, travelling throughout the region to secure game and fish resources. Early Russian explorers may have entered the region in the 1790s, but many villages in the region were first documented by a regional survey in 1878-1879, after the purchase of Alaska by the United States in 1867. The economy of the region during the late 1800s was focused largely on fur trading and harvesting, with the community of Bethel emerging as a regional population and economic center. Through the 1900s, the economy transitioned to include commercial fishing, mining, and reindeer herding (Himes-Cornell *et al.* 2013).

3.3.3 Demographics

Demographic and socioeconomic characteristics for the BSAI halibut-dependent communities in this area are presented in Table 3-5 (and population size relative to community resident-owned catcher vessel BSAI halibut dependency is shown in Table 3-6). All of the communities in CVRF can be considered small, rural communities with a high percentage of Alaska Native residents. For those communities considered BSAI halibut-dependent, the largest communities are Hooper Bay, Quinhagak, and Kipnuk with total populations of 1,093, 669, and 639 people, respectively. The smallest BSAI halibut-dependent community in terms of percentage was Mekoryuk with 191 residents. All nine of the BSAI halibut-dependent communities in the CVRF had a percentage of Alaska Native residents of at least 92.0 percent (Toksook Bay) during the 2010 U.S. Census, with Kipnuk exhibiting the highest percentage of Alaska Native residents (97.7 percent).

For all BSAI halibut-dependent communities in the CVRF, the percentage of minority residents is very similar to the percentage of Alaska Native residents, suggesting relatively homogenous communities. No residents were living in group quarters at the time of the U.S. Census in 2010. Overall, per capita incomes are relatively low, ranging from \$9,033 (Hooper Bay) to \$19,152 (Mekoryuk). Median household

Table 3-5
CVRF Region BSAI Halibut Dependent Communities Selected Demographic Indicators

CVRF Region BSAI Halibut Dependent Community	Total Population	Alaska Native Residents (percent of total population)	Minority Residents (percent of total population)	Residents Living in Group Quarters (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family Households	Median Family Income (dollars)	Low-Income* Residents (percent of total population)
Chefornak	418	95.7%	96.7%	0.0%	\$10,537	\$51,563	80	\$53,750	16.6%
Hooper Bay	1,093	94.6%	98.1%	0.0%	\$9,033	\$34,464	212	\$38,594	41.2%
Quinhagak**	669	93.4%	97.8%	0.0%	\$11,152	\$34,688	138	\$41,964	28.9%
Kipnuk	639	97.7%	98.0%	0.0%	\$10,332	\$35,375	121	\$42,500	25.0%
Mekoryuk	191	93.2%	96.9%	0.0%	\$19,152	\$36,250	40	\$71,000	18.9%
Newtok	354	96.1%	97.2%	0.0%	\$9,530	\$43,409	57	\$43,611	30.1%
Nightmute	280	94.6%	95.4%	0.0%	\$12,726	\$53,750	53	\$58,125	22.4%
Toksook Bay	590	92.0%	95.6%	0.0%	\$15,694	\$64,306	109	\$65,481	9.8%
Tununak	327	94.5%	96.0%	0.0%	\$11,034	\$26,875	68	\$27,500	40.8%

*Defined as those persons living below the poverty threshold.

**Note: Quinhagak was not identified by community dependency exercise as a BSAI halibut dependent community, but has been added to allow more complete data disclosure than would otherwise be possible due to data confidentiality restraints (and was close to the threshold for dependency inclusion).

Source: US Census 2010; ADCED 2015.

Table 3-6
CVRF Region BSAI Halibut Dependent Communities Catcher Vessel Engagement and Dependency

CVRF Region BSAI Halibut Dependent Community	Population 2010	Catcher Vessel Annual Average Values 2003-2013					
		Number of Community Resident-Owned BSAI Halibut CVs	Number of All Community Resident-Owned CVs	BSAI Halibut Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	All Species Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	BSAI Halibut Ex-Vessel Gross Revenues as a Percentage of All Species Gross Revenues	
						Community Resident-Owned BSAI Halibut CVs Only	All Community Resident-Owned CVs
Chefornak	418	18.5	23.5	\$54,570	\$279,549	99.4%	19.5%
Hooper Bay	1,093	7.3	8.5	\$20,466	\$91,855	61.8%	22.3%
Quinhagak*	669	6.8	12.7	\$34,381	\$295,227	92.5%	11.6%
Kipnuk	639	19.1	30.1	\$339,245	\$377,697	98.2%	89.8%
Mekoryuk	191	7.5	9.1	\$23,964	\$64,907	98.6%	36.9%
Newtok	354	6.8	9.4	\$65,076	\$104,676	95.6%	62.2%
Nightmute	280	33.8	45.3	\$304,119	\$712,285	96.9%	42.7%
Toksook Bay	590	26.1	26.3	\$72,785	\$76,871	96.5%	94.7%

*Note: Quinhagak was not identified by community dependency exercise as a BSAI halibut dependent community, but has been added to allow more complete data disclosure than would otherwise be possible due to data confidentiality restraints (and was close to the threshold for dependency inclusion).

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015; Population data ADCED 2015.

incomes ranged from \$26,875 (Tununak) to \$64,306 (Toksook Bay), while median family incomes ranged from \$27,500 (Tununak) to \$71,000 (Mekoryuk). Communities with the highest proportion of low-income residents included Hooper Bay (41.2 percent), Tununak (40.8 percent), and Newtok (30.1 percent).

3.3.4 Local Economy

The economy of the region is currently focused on commercial fisheries, particularly the Chinook salmon harvest and the BSAI halibut fishery. Shore-based processors are operated in a number of CVRF communities by Coastal Villages Seafoods, Inc., a subsidiary of the CVRF. Some tourism and sportfishing occurs in the region, with most services and amenities offered in the Bethel area. The use of natural resources for subsistence use is relatively high in this region compared to other areas, with over 2,000 households in the area annually harvesting salmon for subsistence use (Himes-Cornell *et al.* 2013).

3.3.5 Engagement in the Commercial BSAI Halibut Fishery

3.3.5.1 Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

BSAI Halibut-Dependent Communities

For the regional communities dependent on the BSAI halibut fishery, Table 3-6 shows the average number of resident-owned BSAI halibut catcher vessels, all community resident-owned catcher vessels, BSAI halibut ex-vessel gross revenues for all vessels, total (all species, areas, and gear) ex-vessel gross revenue for all vessels, the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for BSAI halibut catcher vessels, and the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for all community resident-owned catcher vessels. As shown, the nine BSAI halibut-dependent communities averaged between 33.8 (Toksook Bay) and 6.8 (Nightmute and Quinhagak) BSAI halibut vessels annually from 2003-2013. Other communities with relatively large averages included Mekoryuk (28.3 vessels), Tununak (26.1 vessels), Kipnuk (19.1 vessels), and Chefnak (18.5 vessels). For most of the communities in this area, the numbers of BSAI halibut and total community resident-owned vessels were generally similar. However, an average of five more vessels occurred in Chefnak and an average of 11.5 more vessels occurred in Toksook Bay that did not participate in the BSAI halibut fishery from 2003-2013.

For the reporting of ex-vessel gross revenues, Hooper Bay was combined with Quinhagak due to confidentiality restrictions. For BSAI halibut-dependent communities in CVRF, the community with the largest average ex-vessel gross revenue was Mekoryuk (\$339,245), followed by Toksook Bay (\$304,119). These average ex-vessel gross revenues represented 98.2 and 96.6 percent of all revenue for those vessels over the same time period, respectively. For all resident-owned catcher vessels in these communities, the total revenue was \$377,697 and \$712,285, and BSAI halibut ex-vessel revenue represented 89.8 percent and 42.7 percent of these totals, respectively, for the years 2003-2013. In general, the proportions of ex-vessel gross revenue from BSAI halibut compared to ex-vessel revenue from all species, for those vessels

directly engaged in the BSAI halibut fishery, are relatively high for all communities aside from Hooper Bay/Quinhagak. However, when BSAI halibut ex-vessel revenue is compared against all species ex-vessel gross revenue, for all resident-owned catcher vessels in the community, the proportions are not as high and only Mekoryuk and Tununak exhibit percentages over 65.0 percent (averaged 2003-2013).

Other CDQ Communities Engaged in the BSAI Halibut Fishery

Other CVRF communities directly involved in the BSAI halibut commercial fishery included Chevak, Goodnews Bay, Kongiganak, Scammon Bay, Tuntutuliak, Napaskiak, Platinum, and Halibut Cove. These communities had an annual average number of commercial BSAI halibut vessels between 2.0 (Chevak) and 0.1 (Halibut Cove) for the years 2003-2013. All ex-vessel gross revenue data associated with these vessels are confidential.

Other Measures of CDQ Community BSAI Halibut Harvest Engagement

In addition to catcher vessel–related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged by looking at the number of fishermen with permits in the halibut fishery compared to all commercial fishermen with permits. The number of halibut fishermen compared to all fishermen in the various CVRF communities from 1980 through 2011 can be found in Attachment 2, Figure 3, along with population trend lines for those same communities. As shown, the number of total fishermen has varied between the various communities; although, in general, the total numbers of fishermen have decreased for many communities since 1980 or communities experienced an increase in fishermen through the 1990s after decreases to 1980s-era totals in the 2000s. The communities with relatively high proportions of halibut fishermen compared to all fishermen include Chefornek (since the mid-1990s), Mekoryuk, Nightmute, Toksook Bay, and Tununak.

3.3.5.2 Shore-Based Processors and First Wholesale Gross Revenues

BSAI Halibut-Dependent Communities

Shore-based processors in Chefornek, Hooper Bay, Kipnuk, Mekoryuk, Quinhagak, Toksook Bay, and Tununak accepted BSAI halibut deliveries between 2003 and 2013. The average number of processors accepting BSAI halibut in these communities ranged between 0.9 and 0.8, suggesting that one processor in each of these communities regularly processed BSAI halibut but was inactive for one or two years between 2003 and 2013. All first wholesale gross revenues for these processors are confidential.

Other CDQ Communities Engaged in the BSAI Halibut Fishery

No other shore-based processors within CVRF communities had deliveries of BSAI halibut between 2003 and 2013.

3.3.6 Engagement in the Subsistence BSAI Halibut Fishery

For those CVRF communities for which subsistence data are available, the BSAI halibut-dependent communities with the largest number of estimated halibut subsistence fishermen were Kipnuk and Toksook Bay, both with an average of 8.3 fishermen from 2009-2012. The average numbers of halibut landed for 2009-2012 were 145.3 and 97.8, representing an estimated 1,091.0 and 705.8 pounds, respectively. For other CVRF communities, the average number of halibut fishermen from 2009-2012 was generally fewer than 10; however, the estimated average number of halibut fishermen in Kwigillingok was 31.0, although no halibut were landed by these fishermen and data may not be completely accurate.

3.3.7 Engagement in the Commercial BSAI Groundfish Fishery

Direct CVRF individual community participation in the BSAI groundfish fishery over the period 2008-2013 was limited to the BSAI groundfish hook-and-line catcher vessel sector and the BSAI groundfish shore-based processor sector and participation was extremely limited within both sectors. One Merkooyuk resident-owned BSAI groundfish hook-and-line catcher vessel that participated in the fishery in 2013 and one BSAI groundfish shore-based processor operated in Toksook Bay in 2013. All volume and revenue information related to this catcher vessel and shore-based processing activity is confidential.

3.3.8 CDQ Group Direct BSAI Halibut and/or Groundfish Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through CDQ quota ownership in a number of ways as discussed the “Community Development Quota Fisheries” section (Section 4.4.6) of the RIR (a part of the main document to which this community analysis document is appended), like other CDQ entities, CVRF has invested capital assets as one way to attempt to meet the economic and social goals of the CDQ program. Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, CVRF had a 100 percent interest in one BSAI trawl limited access catcher vessel and a 100 percent interest in four different longline catcher processors. CVRF and NSEDC together also had a 71 percent interest in seven different BSAI trawl limited access catcher vessels.

3.4 NORTON SOUND ECONOMIC DEVELOPMENT CORPORATION REGION

3.4.1 Location

The Norton Sound Economic Development Corporation (NSEDC) is a CDQ entity that includes communities around Norton Sound, north to communities near the Bering Strait, including the communities on Little Diomed and Lawrence Islands. BSAI halibut-dependent communities with NSEDC include Nome and Savoonga. Other NSEDC communities include Brevig Mission, Diomed (Inalik), Elim, Golovin, Gambell, Koyuk, St. Michael, Shaktoolik, Tebbins, Teller, Unalakleet, Wales, and White Mountain.

3.4.2 Historic Overview

The Bering Strait area was above water 10,000 to 25,000 years ago and the area formed a land bridge to the Asian continent that is thought to have been a primary route by which humans migrated to North America. Archaeological sites in the area date human occupation to 12,000 years ago, although evidence of occupation on the Seward Peninsula and nearby coastal regions is dated to 4,000 to 3,000 years ago. Inupiat in the region had existing trade relationships with villages in Siberia. Some coastal towns, including St. Michael and Unalakleet, became regional trade centers. However, the arrival of Russian explorers and a series of disease outbreaks changed trade networks and reduced the population of the region. In the 1950s, the U.S. Bureau of Indian Affairs built schools at seasonal fish camp sites to encourage a more sedentary lifestyle (Himes-Cornell *et al.* 2013).

3.4.3 Demographics

Demographic and socioeconomic characteristics for the BSAI halibut-dependent communities in this area are presented in Table 3-7 (and population size relative to community resident-owned catcher vessel BSAI halibut dependency is shown in Table 3-8). The majority of the communities in NSEDC can be considered small, rural communities with a high percentage of Alaska Native residents. However, the city of Nome is a regional economic center and has different demographic and socioeconomic characteristics compared to other coastal communities in the NSEDC. For those communities considered BSAI halibut-dependent, the largest community is Nome, with a population of 3,598 and a percentage of Alaska native residents of 54.8 percent in 2010. Savoonga is a much smaller community on St. Lawrence Island and had a total population of 671 in 2010, with 94.5 percent of residents stating they were Alaska Native. The population in Nome is relatively more diverse than in Savoonga, as the percentage of minority residents in Savoonga is very similar to its percentage of Alaska Native residents while Nome's percentage of minority residents is almost 15 percent higher than its percentage of Alaska Natives. No residents lived in group quarters in Savoonga, while 5.3 percent of Nome residents did live in group quarters at the time of the U.S. Census in 2010. Socioeconomic indicators are very different between the two communities as Nome had a much higher per capita income (\$32,374), median household income (\$71,643), and median family income (\$77,768) than Savoonga (\$7,887, \$32,344, and \$32,083, respectively). The percentage of low-income residents in Nome was 10.3 percent, while 52.1 percent of Savoonga residents were considered low-income.

3.4.4 Local Economy

The main driver of the local economy in the region is commercial salmon fishing and other commercial fishing along the Yukon River, although Chinook salmon runs have been low in recent years and chum salmon runs have varied in volume. The establishment of shore-based processors in the region has resulted in growth of commercial fishing in the region, despite its relative remoteness. Mining is another economic driver in the region, with some tin and polymetallic resources found in the region and several small gold mines in operation around Nome. Some tourism in the region occurs as a result of the last third of the Iditarod, which runs from Unalakleet to Nome within the NSEDC region. However, sportfishing in the region is not as prevalent as it is in other areas of the state (Himes-Cornell *et al.* 2013).

Table 3-7
NSEDC Region BSAI Halibut Dependent Communities Selected Demographic Indicators

NSEDC Region BSAI Halibut Dependent Community	Total Population	Alaska Native Residents (percent of total population)	Minority Residents (percent of total population)	Residents Living in Group Quarters (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family Households	Median Family Income (dollars)	Low-Income* Residents (percent of total population)
Nome**	3,598	54.8%	70.5%	5.3%	\$32,374	\$71,643	784	\$77,768	10.3%
Savoonga	671	94.5%	95.1%	0.0%	\$7,887	\$32,344	134	\$32,083	52.1%

*Defined as those persons living below the poverty threshold.

**Note: Nome was not identified by community dependency exercise as a BSAI halibut dependent community, but has been added as a regional center (and was close to the threshold for dependency inclusion).

Source: US Census 2010; ADCCED 2015.

Table 3-8
NSEDC Region BSAI Halibut Dependent Communities Catcher Vessel Engagement and Dependency

NSEDC Region BSAI Halibut Dependent Community	Population 2010	Catcher Vessel Annual Average Values 2003-2013					
		Number of Community Resident-Owned BSAI Halibut CVs	Number of All Community Resident-Owned CVs	BSAI Halibut Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	All Species Ex-Vessel Gross Revenues (from All Community Resident-Owned CVs)	BSAI Halibut Ex-Vessel Gross Revenues as a Percentage of All Species Gross Revenues	
						Community Resident-Owned BSAI Halibut CVs Only	All Community Resident-Owned CVs
Nome*	3,598	6.9	13.6	\$245,941	\$1,110,432	31.0%	22.1%
Savoonga	671	6.7	6.7	\$95,254	\$95,254	100.0%	100.0%

*Note: Nome was not identified by community dependency exercise as a BSAI halibut dependent community, but has been added as a regional center (and was close to the threshold for dependency inclusion).

Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015; Population data ADCCED 2015.

3.4.5 Engagement in the Commercial BSAI Halibut Fishery

3.4.5.1 Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

BSAI Halibut-Dependent Communities

For the regional communities dependent on the BSAI halibut fishery, Table 3-8 shows the average number of resident-owned BSAI halibut catcher vessels, all community resident-owned catcher vessels, BSAI halibut ex-vessel gross revenues for all vessels, total (all species, areas, and gear) ex-vessel gross revenue for all vessels, the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for BSAI halibut catcher vessels, and the percentage of halibut ex-vessel gross revenues as a percentage of the total (all species, areas, and gear) ex-vessel gross revenues for all community resident-owned catcher vessels. As shown, the communities of Nome and Savoonga averaged 6.9 and 6.7 BSAI halibut vessels annually from 2003-2013, respectively. For Savoonga, the number of BSAI halibut vessels and total community resident-owned vessels were generally similar. In Nome, however, approximately 6.7 vessels were owned by residents in the community, averaged from 2003-2013, that did not participate in the BSAI halibut fishery.

For Savoonga, the average ex-vessel gross revenue for BSAI halibut was \$95,254, which represented 100.0 percent of all revenue for those vessels over the same time period. For Nome, the average ex-vessel gross revenue for BSAI halibut was \$245,941, which represented approximately 31.0 percent of all revenue for those vessels over the same time period. For all resident-owned catcher vessels in Nome, the total revenue was \$1,110,432 and BSAI halibut ex-vessel revenue represented 22.1 percent of this total for the years 2003-2013.

Other CDQ Communities Engaged in the BSAI Halibut Fishery

Other NSEDC communities directly involved in the BSAI halibut commercial fishery included Shaktoolik, Unalakleet, Elim, and White Mountain. These communities had an annual average number of commercial BSAI halibut vessels between 0.6 (Shaktoolik) and 0.1 (White Mountain) for the years 2003-2013. For most years 2003-2013, no BSAI halibut vessels were present in these communities and one or two vessels were present in these communities for just a few years. All ex-vessel gross revenue data associated with these vessels are confidential.

Other Measures of CDQ Community BSAI Halibut Harvest Engagement

In addition to catcher vessel-related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged by looking at the number of fishermen with permits in the halibut fishery compared to all commercial fishermen with permits. The number of halibut fishermen compared to all fishermen in the various NSEDC communities from 1980 through 2011 can be found in Attachment 2, Figure 4, along with population trend lines for those same communities. As shown, the numbers of total fishermen have decreased for most of the communities since the 1980s. For some communities, the fewest number of

total fishermen occurred in the early 2000s before rebounding slightly in more recent years. The communities with relatively high proportions of halibut fishermen compared to all fishermen include Nome and Savoonga.

3.4.5.2 Shore-Based Processors and First Wholesale Gross Revenues

BSAI Halibut-Dependent Communities

Shore-based processors in Nome and Savoonga accepted BSAI halibut deliveries between 2003 and 2013. The average number of processors accepting BSAI halibut in Nome was 1.0, with one processor operating each year during this time period. The average number of processors accepting BSAI halibut in Savoonga was 0.6 from 2003-2013, suggesting that one processor in this community semi-regularly processed BSAI halibut but was inactive for a handful of years from 2003-2013. All first wholesale gross revenues for these processors are confidential.

Other CDQ Communities Engaged in the BSAI Halibut Fishery

No other shore-based processors within NSEDC communities had deliveries of BSAI halibut between 2003 and 2013.

3.4.6 Engagement in the Subsistence BSAI Halibut Fishery

For those NSEDC communities for which subsistence data are available, the community with the largest number of estimated halibut subsistence fishermen was Nome, with the statistics for the Nome Eskimo Community and the City of Nome combined. For these, the average estimated numbers of halibut fishermen for 2009-2012 were 5.8 and 6.3, with 49.5 and 34.0 estimated average halibut caught, representing 1,146.3 and 685.3 pounds, respectively. Savoonga has an average of 7.3 fishermen reported from 2009-2011. The average number of halibut landed for 2009-2011 was 35.0, representing an estimated 905.0 pounds.²²

3.4.7 Engagement in the Commercial BSAI Groundfish Fishery

Direct NSEDC individual community participation in the BSAI groundfish fishery over the period 2008-2013 was limited to one BSAI groundfish shore-based processor that operated in Nome each year 2008-2010 and in 2012. All volume and revenue information related to this processing activity is confidential. No regional community resident-owned catcher vessels participated in the BSAI groundfish fishery in any year 2008-2013.

3.4.8 CDQ Group Direct BSAI Halibut and/or Groundfish Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through CDQ quota ownership in a number of ways as discussed the “Community Development Quota Fisheries” section

²² Data for Savoonga for 2012 are confidential and are not included in the average.

(Section 4.4.6) of the RIR (a part of the main document to which this community analysis document is appended), like other CDQ entities, NSEDC has invested capital assets as one way to attempt to meet the economic and social goals of the CDQ program. Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, NSEDC had a 38 percent interest in two different BSAI trawl limited access catcher vessels, a 100 percent interest in a longline catcher processor, and a nine percent interest in four different Amendment 80 catcher processors. NSEDC and CVRF together also had a 71 percent interest in seven different BSAI trawl limited access catcher vessels.

3.5 OTHER CDQ REGIONAL ENGAGEMENT IN THE BSAI GROUND FISH AND HALIBUT FISHERIES

3.5.1 Overview

Several communities of the Bristol Bay Economic Development Corporation (BBEDC) CDQ entity participate in the BSAI groundfish and/or BSAI halibut commercial fisheries, but no BBEDC communities are considered dependent on those fisheries. BBEDC communities are also engaged in the BSAI halibut fisheries. Given the lack of dependency on the relevant commercial fisheries, regional and community characterization is briefer in this section. BBEDC communities include Aleknagik, Clarks Point, Dillingham, Egegik, Ekuk, Ekwok, King Salmon, Levelock, Manokotak, Naknek, Pilot Point, Portage Creek, Port Heiden (Meschick), South Naknek, Togiak, Twin Hills, and Ugashik.

No communities of the Yukon Delta Fisheries Development Association (YDFDA) CDQ entity are shown in the 2008-2013 dataset as participating in the BSAI groundfish and/or BSAI halibut commercial fisheries. Given the lack of direct engagement the relevant commercial fisheries by resident-owned vessels or locally operating shore-based processors, regional and community characterization has not been included section, although summary information on YDFDA CDQ group ownership of vessels has been included in Section 3.5.8. YDFDA communities include Alakanuk, Emmonak, Grayling, Kotlik, Mountain Village, and Nunam Iqua (Sheldon Point).

3.5.2 Engagement in the Commercial BSAI Halibut Fishery

3.5.2.1 Harvester Engagement

Resident-Owned Catcher Vessels and Ex-Vessel Gross Revenues

Among BBEDC communities, Aleknagik, Clarks Point, Dillingham, Egegik, King Salmon, Manokotak, Naknek, Pilot Point, Port Heiden, Togiak, and Twin Hills all had resident-owned BSAI halibut catcher vessels participate in the fishery at some level during the 2003-2013 period, but all had an annual average of less than one vessel participating per year, except for Naknek (1.5), Dillingham (5.5), and Togiak (12.8). All ex-vessel gross revenues are confidential for these vessels, except for Togiak, whose resident-owned vessels had annual average gross revenues of approximately \$94,000 over the period 2003-2013.

Other Measures of CDQ Community BSAI Halibut Harvest Engagement

In addition to catcher vessel–related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged by looking at the number of fishermen with permits in the halibut fishery compared to all commercial fishermen with permits. The number of halibut fishermen compared to all fishermen in the various BBEDC communities from 1980 through 2011 can be found in Attachment 2, Figure 2, along with population trend lines for those same communities. As shown, the numbers of total fishermen have decreased for most of the communities since the 1980s. For some communities, the fewest number of total fishermen occurred in the early 2000s before rebounding slightly in more recent years. As shown, all of the BBEDC communities have relatively few halibut fishermen compared to all fishermen. For YDFDA communities, Attachment 2, Figure 5, displays the virtual lack of halibut permits held by community members from 1980 through 2011.

3.5.2.2 Shore-Based Processors and First Wholesale Gross Revenues

Shore-based processors in Dillingham, Egegik, King Salmon, Naknek, and Togiak accepted BSAI halibut deliveries between 2003 and 2013. One processor in Togiak accepted BSAI halibut deliveries each year during this period. In Dillingham, one or two processors accepted BSAI halibut deliveries each year 2003-2008, but none have done so more recently. A single processor in Egegik accepted BSAI halibut deliveries in 2003 and 2006-2007, one processor did so in King Salmon in 2006, and one processor did so in Naknek in 2009 only, but no activity was seen in other years in those communities. All first wholesale gross revenue information associated with BSAI halibut processing in these communities is confidential.

3.5.3 Engagement in the Subsistence BSAI Halibut Fishery

For those BBEDC communities for which subsistence data are available, the community with the largest number of estimated halibut subsistence fishermen was Dillingham, with the average estimated number of halibut fishermen for 2009-2012 at 3.3, with 16.0 estimated average halibut caught, representing 534.5 pounds. Naknek has an average of 3.0 fishermen reported from 2009-2012; however, no halibut were estimated to have been caught from 2009-2012. Data for Aleknagik are only available for 2009 and 2010. In 2009, two halibut fishermen were estimated, with an estimated four halibut caught representing approximately 84 pounds; no halibut fishermen were estimated in 2010 for the community of Aleknagik. No halibut subsistence data are available for any of the YDFDA communities.

3.5.4 Engagement in the Commercial BSAI Groundfish Fishery

Direct BBEDC individual community participation in the BSAI groundfish fishery over the period 2008-2013 was limited to one King Salmon resident-owned BSAI groundfish hook-and-line catcher vessel that participated in the fishery in 2009 only. All ex-vessel gross revenue information related to this catcher vessel activity is confidential.

3.5.5 CDQ Group Direct BSAI Halibut and/or Groundfish Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through CDQ quota ownership in a number of ways as discussed the “Community Development Quota Fisheries” section (Section 4.4.6) of the RIR (a part of the main document to which this community analysis document is appended), like other CDQ entities, BBEDC and YDFDA have invested capital assets as one way to attempt to meet the economic and social goals of the CDQ program.

Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, BBEDC had a 30 percent interest in one BSAI trawl limited access catcher vessel and a 50 percent interest in four other BSAI trawl limited access catcher vessels; and a 50 percent interest in four different longline catcher processors and a 100 percent interest in a fifth longline catcher processor, according to CDQ group annual reports (Northern Economics 2015). Among vessels shown in the 2008-2013 dataset used for analysis as actively participating in the BSAI groundfish fishery, YDFDA had a 75 percent interest in two BSAI trawl limited access catcher vessels; a 41 percent and an 85 percent interest in two different longline catcher processors; and a 26 percent interest in a mothership, according to CDQ group annual reports (Northern Economics 2015).

SECTION 4.0

COMMUNITY-LEVEL IMPACTS

The community-level impacts analysis in this section is guided largely by the National Environmental Policy Act (NEPA); Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Population and Low-Income Populations; and National Standard 8 – Communities under the provisions of the Magnuson-Stevens Fishery Management and Conservation Act (Magnuson-Stevens Act).

- Under NEPA, “economic” and “social” effects are specific environmental consequences to be examined (40 CFR 1502.16 and 1508.8). Economic effects are examined primarily in the RIR, a part of the main document to which this community analysis document is appended, while social effects (and community-level economic effects) are examined primarily in this section of the community analysis.
- EO 12898 (59 FR 7629; February 16, 1994) directs Federal agencies “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” The EO directs the development of agency strategies to include identification of differential patterns of consumption of natural resources among minority populations and low-income populations; Council on Environmental Quality (CEQ) environmental justice guidance under NEPA (CEQ 1997) also specifically calls for consideration of potential disproportionately high and adverse impacts to Indian tribes²³ beyond a more general consideration of potential disproportionately high and adverse impacts to minority populations. This section of the community analysis identifies minority populations and low-income populations potentially subject to high and adverse environmental effects of the proposed action alternatives and identifies potential changes to patterns of subsistence resource use among minority populations and low-income populations that may result from implementation of the proposed action alternatives.
- National Standard 8 (50 CFR 600.345) specifies that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act, take into account the importance of fishery resources to fishing communities by utilizing economic and social data that are based on the best scientific information available in order to (1) provide for the sustained participation of such communities, and (2) to the extent practicable, minimize adverse economic impacts to such communities. Per National Standard 8, the term “fishing community” means a community that is substantially dependent on 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

²³ The term Indian tribe is retained due to its use in both the EO and CEQ guidance; the provisions of the EO and CEQ guidance are understood to apply to Alaska Native tribes in the region potentially affected by the proposed action alternatives.

specific location and share a common dependency on commercial, recreational, or subsistence fishing or directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops). Also per National Standard 8, the term “sustained participation” means continued access to the fishery within the constraints of the condition of the resource.

This section of the community analysis describes the engagement and dependency of fishing communities on the fisheries most likely to be affected by the proposed action alternatives and analyzes the risks to the sustained participation of those fishing communities.

4.1 COMMUNITY ENGAGEMENT, DEPENDENCE, VULNERABILITY, AND RISKS TO FISHING COMMUNITY SUSTAINED PARTICIPATION IN THE BSAI GROUND FISH FISHERIES

Community engagement (participation) in the BSAI groundfish fisheries was detailed in terms of the distribution of sectors across communities in Section 2.0 and by sectors within the context of individual communities in Section 3.0. Vulnerability of communities to adverse community-level impacts from the proposed BSAI halibut PSC limit revisions is in part a function of dependence of the community on the potentially affected BSAI groundfish fisheries and the economic resiliency and diversity of the community. Dependency is influenced by the relative importance of BSAI groundfish fisheries to vessels participating directly in the fisheries in comparison to all area, species, and gear fisheries in which those same vessels participate (community sector vessel diversity); the relative importance of the BSAI groundfish fisheries to all community resident-owned commercial fishing vessels participating in all area, species, and gear fisheries combined (community fleet diversity); and the relative importance of the overall community fishery sector(s) within the larger community economic base both in terms of private sector business activity and public revenues (community economic diversity). Also important to adverse community-level impact outcomes is the specific nature of local engagement in the potentially affected BSAI groundfish fisheries and alternative employment, income, business, and public revenue opportunities available within the community as a result of the location, scale, and relative economic diversity of the community. At their most extreme, potential adverse impacts associated with a proposed action could present a risk to fishing community sustained participation in the BSAI groundfish fisheries.

4.1.1 BSAI Groundfish Fishery Dependency and Vulnerability to Adverse Community-Level Impacts of the Proposed Action Alternatives among Alaska Communities

The relative importance of the BSAI groundfish fisheries likely to be affected by the proposed BSAI halibut PSC limit revisions within the larger local fisheries sector and within the larger local economic base varies widely among the engaged Alaska communities. Similarly, the socioeconomic structure of the engaged communities varies widely along with the relative diversity of their respective local economies.

4.1.1.1 Unalaska and Akutan

Unalaska and Akutan direct engagement in the BSAI groundfish fishery in 2008-2013 was limited to Unalaska resident-owned hook-and-line catcher vessels and BSAI groundfish shore-based processors

operating in both communities. Unalaska and Akutan also derive significant public revenues from local BSAI groundfish landings and related economic activities, and Unalaska benefits from a relatively well-developed support service sector that supports myriad BSAI groundfish fishery-related activities.

Among Alaska communities, Unalaska was, by far, the most heavily engaged community in the BSAI hook-and-line catcher vessel sector in terms of resident vessel ownership. However, according to economic analysis in the RIR in the main document to which this analysis is an appendix, the various BSAI halibut PSC limit reduction levels under Alternative 2 Option 5, which would reduce BSAI halibut PSC limits for hook-and-line catcher vessels, are non-constraining and would have no material impacts on the affected participants, including Unalaska resident-owned hook-and-line catcher vessels.

In terms of potential impacts to locally operating shore-based processors, processors in both communities accepted deliveries of BSAI groundfish every year 2008-2013. As discussed in the economic analysis in the RIR in the main document to which this analysis is an appendix, impacts to shore-based processors would for practical purposes be limited to potential reductions of deliveries of trawl-caught Pacific cod that would vary by the specific BSAI halibut PSC limit revision Alternative 2 option and BSAI halibut PSC limit reduction level selected. As shown in Table 4-1, for shore-based processors accepting BSAI groundfish deliveries in Unalaska and Akutan combined, the ex-vessel gross revenue values of trawl-caught Pacific cod landings accounted for approximately 3.7 percent of the combined ex-vessel gross revenue values from all area, species, and gear type fisheries delivered to these same plants. As shown in Table 4-2, for all shore-based processors in Unalaska and Akutan combined (not just those accepting BSAI groundfish deliveries), the ex-vessel gross revenue values of trawl-caught Pacific cod landings accounted for approximately 3.2 percent of the combined ex-vessel gross revenue values from all area, species, and gear type fisheries delivered to these plants.

In terms of first wholesale gross revenues, according to ADFG Commercial Operators Annual Reports data compiled by AKFIN in 2015, all shore-based processing plants in the communities of Unalaska and Akutan combined had first wholesale gross revenues of approximately \$752.8 million on an average annual basis for 2011-2013. Pacific cod landings from vessels of all gear types, the large majority of which was trawl caught, accounted for first wholesale gross revenues of approximately \$60.9 million on an average annual basis for 2011-2013, or about 8.1 percent of total first wholesale gross revenues for those plants on an average annual basis for those years.

Depending on the Alternative 2 option and BSAI halibut PSC limit reduction level chosen, and behavioral adaptations of the BSAI groundfish trawl catcher vessel fleet that would occur as a result of implementation of BSAI halibut PSC limit revisions, some lesser or greater portion of Pacific cod landings-related first wholesale gross revenues (that is, some lesser or greater portion of 8.1 percent of total first wholesale gross revenues) would be at risk. Unalaska and Akutan (as well as the Aleutians East Borough, of which Akutan is a part) also derive considerable public revenues from fishery landings and local processing activities in the form of revenues derived from landing taxes and a range of other business-related taxes and fees, and potential reductions in landings and processing activity would be

Table 4-1
Shore-Based Processors in Alaska Accepting BSAI Groundfish Deliveries Relative Dependence on
BSAI Trawl-Caught Pacific Cod as Measured by Ex-vessel Gross Revenues by Community 2008-2013*

Geography	Annual Average Number of Processors 2008-2013	Total (All Areas and Species) Ex-vessel Gross Revenues Annual Average 2008-2013 (Dollars)	BSAI Trawl-Caught Pacific Cod Only Ex- Vessel Gross Revenues Annual Average 2008-2013 (Dollars)	BSAI Trawl-Caught Pacific Cod Only Ex- Vessel Gross Revenues as a Percentage of Total Ex- Vessel Gross Revenues Annual Average 2008-2013
Unalaska and Akutan	4.3	\$267,053,739	\$9,749,973	3.7%
All Other Alaska	5.8	\$112,852,957	\$3,083,205	2.7%
Total	10.2	\$379,906,696	\$12,833,178	3.4%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

Table 4-2
All Shore-Based Processors in Alaska Relative Dependence on BSAI Trawl-Caught Pacific Cod
as Measured by Ex-vessel Gross Revenues by Community for All Shore-Based Processors (for Alaska
communities with at least one shore-based processor accepting BSAI groundfish deliveries) 2008-2013*

Geography	Annual Average Number of Processors 2008-2013	Total (All Areas and Species) Ex-vessel Gross Revenues Annual Average 2008-2013 (Dollars)	BSAI Trawl-Caught Pacific Cod Only Ex- Vessel Gross Revenues Annual Average 2008-2013 (Dollars)	BSAI Trawl-Caught Pacific Cod Only Ex- Vessel Gross Revenues as a Percentage of Total Ex- Vessel Gross Revenues Annual Average 2008-2013
Unalaska and Akutan	6.8	\$309,124,127	\$9,749,973	3.2%
All Other Alaska	31.8	\$338,316,044	\$3,083,205	0.9%
Total	38.7	\$647,440,171	\$12,833,178	2.0%

*Note: Catcher vessel (or catcher processor) class vessel deliveries, excluding halibut and sablefish, to shore-based processors (as identified by F_ID and SBPR codes in AKFIN data)
Source: ADFG/CFEC fish ticket data compiled by AKFIN 2015.

accompanied by proportional decreases in related public revenues. Given the relatively low percentage of processing first wholesale gross revenues at risk, however, shore-based processing-related private or public sector community-level impacts for either Unalaska or Akutan would not be anticipated to occur under any of the Alternative 2 options and BSAI halibut PSC limit reduction levels.

In terms of support services, Unalaska, with its relatively well-developed fishery support service sector and its role as the major shipping port of the BSAI area, could experience indirect impacts of BSAI halibut PSC limit revisions through a decline in economic activity related to port calls from the various catcher vessel and/or catcher processor fleets if port calls were to decline as a result of the proposed action; however, there is no straightforward way to quantitatively estimate these impacts. Akutan, with relatively few locally available support services, is not anticipated to be vulnerable to these types of impacts.

Potential Environmental Justice Concerns

In terms of the potential for high and adverse impacts accruing disproportionately to minority populations or low-income populations (which would trigger environmental justice concerns under EO 12898), direct adverse impacts to Unalaska and/or Akutan as a result of the BSAI halibut PSC limit revisions, if any, would be focused on the shore-based processing sector. In both Unalaska and Akutan, processing workers have tended to be relatively distinct demographically in relation to the rest of the local population; processing workers in both communities are overwhelmingly recruited from a labor pool from outside the community, have lived in group quarters supplied on-site by the locally operating processing companies, and have tended to include a high proportion of non-White (and non-Alaska Native) minority workers. Due to the almost exclusive use of group quarters by processing workers in each community (other than some management personnel), it is possible to estimate the minority component of this workforce population. As of 2010, based on a combination of race and ethnicity, 78.1 percent of Unalaska's group quarters population consisted of minority residents and 91.4 percent of Akutan's group quarters population consisted of minority residents. It is not likely, however, that any of the Alternative 2 options or BSAI halibut PSC limit reduction levels would result in any high and adverse impacts to processing workers in the form of substantial processor workforce reductions in income or employment, given the relatively low level of dependency of the shore-based processing plants in these communities on BSAI trawl catcher vessel caught Pacific cod, which would effectively be the only landings that could be adversely affected by any of the proposed BSAI halibut PSC limit revisions. As a result, it is not expected that environmental justice would be an issue of concern for these communities.

4.1.1.2 Adak and Atka

Adak and Atka direct engagement in the BSAI groundfish fishery in 2008-2013 was limited to Adak resident-owned hook-and-line catcher vessels and BSAI groundfish shore-based processors operating in both communities. In past years, Adak has also derived locally significant public revenues from BSAI groundfish landings and related economic activities, and the community is actively seeking to develop a support service sector that supports BSAI groundfish fishery-related activities.

Adak's BSAI groundfish hook-and-line resident-owned catcher vessel sector engagement 2008-2013 was limited to one vessel in 2008, 2009, and 2011, but with the community attempting to foster the growth of a residential fleet from scratch, interviews with local stakeholders suggest that every vessel is seen as important. However, as noted above, the various BSAI halibut PSC limit reduction levels under Alternative 2 Option 5, which would reduce BSAI halibut PSC limits for hook-and-line catcher vessels, are non-constraining and would have no material impacts on the affected participants, including Adak resident-owned hook-and-line catcher vessels.

During the 2008-2013 period, the shore-based processor in Adak accepted BSAI groundfish deliveries every year and the shore-based processor in Atka accepted BSAI groundfish deliveries every year except 2008 and 2009. First wholesale gross revenue data associated with this processing activity are confidential; however, based on a general knowledge of the single processing plants in the two communities, some qualitative generalizations can be made. Historically, the shore-based processing plant in Atka has focused almost exclusively on halibut and sablefish and, as a result, no significant direct impacts to shore-based processing would be anticipated as a result of implementation of any of the Alternative 2 options or BSAI halibut PSC limit reduction levels. Similarly, given the lack of other direct engagement of the community in the BSAI groundfish fishery, no community-level impacts are anticipated for Atka under any of the Alternative 2 options or BSAI halibut PSC limit reduction levels.

The shore-based processing plant in Adak, in contrast, has historically been substantially dependent on Pacific cod deliveries (NOAA 2014), although crab and, to a lesser extent, halibut and black cod have also been historically reported as important to the plant (AECOM/EDAW and Northern Economics 2008). According to an interview with an individual with ownership interest in the local shore-based processor in 2008, "...the A season cod is the main source of income for the plant (and raw fish tax revenue for the City of Adak), probably accounting for about 75 percent of annual plant revenue." In 2007, the plant reported having 30 cod vessels make a total of 144 deliveries which, according to this same individual with plant ownership interest, "overwhelms anything else that happens during the rest of the year, not just in terms of volume at the plant, but in terms of crew utilizing local businesses (the fuel dock, the store, the bar): without A season cod, the plant does not survive" (AECOM/EDAW and Northern Economics 2008). While specific volume and value data are confidential, the plant did make Pacific cod delivery figures for 2002-2008 public in previous documents through a waiver of confidentiality (NOAA 2014), which also indicate a heavy dependence on Pacific cod. While the Adak plant has been through many changes since 2008, and although more recent 2008-2013 levels of dependency of the Adak shore-based processing plant on BSAI groundfish landings (specifically on BSAI Pacific cod trawl-caught landings) cannot be quantified due to data confidentiality restrictions, it is generally understood that dependence on Pacific cod has remained very high.

Adak has also been the continuing focus of a concerted effort to grow the fishery (and shipping) support service sector of the local economy, and BSAI groundfish vessel port calls constitute an important economic driver for this sector (NOAA 2014). Given this important, but largely unquantified, continuing level of dependency on BSAI trawl-caught Pacific cod, and the historic fragility/inconsistency of local shore-based processing operations that has proven a challenge in developing a largely fisheries-based

sustainable local economy in the relatively newly reconstituted civilian community, Adak is particularly vulnerable to adverse impacts related to BSAI halibut PSC limit revisions under Alternative 2 Option 2. The level of adverse impact would depend on the nature and success of behavioral adaptations of BSAI groundfish trawl catcher vessels in response to BSAI halibut PSC limit revisions. Specifically, the vulnerability of Adak to adverse impacts related to potential BSAI halibut PSC revisions affecting the BSAI groundfish trawl catcher vessel sector (and thus shore-based processing), may be minimized by differences in halibut bycatch rates between the Aleutian Islands and Bering Sea subareas. With historically lower halibut bycatch rates in the Pacific cod fishery in the Aleutian Islands subarea, if BSAI halibut PSC limits are reduced, BSAI groundfish trawl catcher vessels may have an incentive to concentrate more heavily on the Aleutian Islands subarea, which would likely benefit the community of Adak. On the other hand, the Pacific cod fishery in the Aleutian Islands subarea typically peaks later in the season than does the Pacific cod fishery in the Bering Sea subarea. Absent specific protections that would essentially set aside a separate Aleutian Islands halibut PSC limit, if a reduced BSAI halibut PSC limit is hit during the earlier Pacific cod effort in the Bering Sea subarea and shuts down the later Pacific cod fishery effort in the Aleutian Islands subarea, Adak would experience adverse impacts.

Adak shore-based processing has faced, from the local perspective, a number of fishery management related challenges over the years, including BSAI crab rationalization (AECOM 2010) and Steller sea lion protection measure restrictions (NOAA 2014). This is compounded by the basic challenges of operating in a community that is logistically remote even by Alaska standards and in a local economy that remains challenged by the transition from relatively large military community to a small civilian community.²⁴ In terms of support services, Adak has seen relatively modest development of the fishery support service sector outside of marine fuel supply. However, within its equally modest local economy, marine fuel sales and other support service activity associated with commercial fishing catcher vessel and catcher processor port calls that do occur are important to the community (NOAA 2014). Adak could experience indirect impacts of BSAI halibut PSC limit revisions through a decline in support service activity related to the various catcher vessel and/or catcher processor fleets if port calls were to decline as a result of the implementation of Alternative 2, but there is no straightforward way to quantitatively estimate these impacts. Potential impacts from BSAI halibut PSC limit revisions could be a part of larger cumulative impacts on local fisheries and support sectors, especially if reduced BSAI halibut PSC limits functioned to cause early closures of Pacific cod fishery effort in the Aleutian Islands subarea. Whether adverse

²⁴ There have been a number of federal actions designed to facilitate this transition and foster the growth of a fisheries-based local economy in Adak, including actions that occurred as a part of the Base Realignment and Closure process (that was accompanied by considerable Aleut Corporation investment in the community), an Aleutian Islands pollock directed fishery allocation to the Aleut Corporation for the purposes of economic development in Adak, community quota entity-enabled purchases of IFQ by the Adak Community Development Corporation for the purposes of building and sustaining local fishery engagement, and multiple community protection measure elements of the BSAI crab rationalization program that were either designed or have served to foster or protect sustained participation in local commercial fisheries by the community of Adak. The BSAI crab rationalization program features particularly relevant to Adak included a direct allocation of Western Aleutian Island golden king crab to the community of Adak, a western share landing/processing regional designation that essentially functioned as community protection feature for Adak, and processor quota shares that were initially linked to the community of Adak through community protection restrictions on transfers. More recently, these actions were supplemented by the creation of a separate state waters guideline harvest level Pacific cod fishery to provide long-term economic opportunities for Adak. To date, for a combination of reasons, these actions have made relatively modest contributions to the development of a local fishing economy in Adak (NOAA 2014). To the extent that these efforts at successfully building a local fisheries-based economy would be made more difficult by the proposed action, Adak would experience additional cumulative impacts.

impacts related to PSC limit revisions would represent a significant threshold or tipping point for larger impacts of a cumulative nature remains unknown at this time. If such a threshold or tipping point were reached for Adak, this would represent the only example of potential risk to a fishing community's sustained participation in the BSAI groundfish fisheries foreseeable under any of the BSAI halibut PSC limit revision Alternative 2 options or BSAI halibut PSC limit reduction levels.

Potential Environmental Justice Concerns

Direct adverse impacts to Adak as a result of the BSAI halibut PSC limit revisions, if any, would be focused on the shore-based processing sector. As in Unalaska and Akutan, processing workers in Adak have tended to be relatively distinct demographically in relation to the rest of the local population; processing workers have been overwhelmingly recruited from a labor pool from outside the community, have lived in group quarters supplied on-site by the locally operating processing companies, and have tended to include a high proportion of non-White (and non-Alaska Native) minority workers. Due to the almost exclusive use of group quarters by processing workers in Adak (other than some management personnel), it is possible to estimate the minority component of this workforce population. As of 2010, based on a combination of race and ethnicity, 95.9 percent of Adak's group quarters population consisted of minority residents. To the extent that BSAI halibut PSC limit revisions would adversely impact Adak processing operations and result in a loss of income and employment opportunities, environmental justice would potentially be an issue of concern for the community.

4.1.1.3 King Cove and Sand Point

King Cove and Sand Point have relatively small populations (938 and 976 residents, respectively, in 2010) and the overall economy of each is tied closely to commercial fishing. Each community has a relatively large resident-owned local commercial fishing fleet (70 and 144 vessels, respectively, in 2010) and a single, large multi-species shore-based processing plant operating in the community. In recent years, the top employers in King Cove have included the locally operating shore-based processor, Peter Pan Seafoods; the Aleutians East Borough School District; the City of King Cove; Eastern Aleutian Tribes, which operates the local clinic; and John Gould and Sons Company, Inc., which owns and operates the local True Value store. In recent years, the top employers in Sand Point have included the locally operating shore-based processor, Trident Seafoods; the Aleutians East Borough School District; the City of Sand Point; the Shumagin Corporation, the local ANCSA corporation; and Eastern Aleutian Tribes, which operates the local clinic (AECOM 2013).

King Cove and Sand Point direct engagement in the BSAI groundfish fishery in 2008-2013 was limited to Sand Point resident-owned trawl catcher vessels and BSAI groundfish shore-based processors operating in both communities. Sand Point resident-owned trawl catcher vessel participation in the BSAI groundfish fisheries was limited to one vessel in 2008 and three in 2009, with no Sand Point resident-owned vessels participating in more recent years. Given this low level of engagement, no adverse impacts to either community's resident-owned fleet are anticipated under any of the alternative BSAI halibut PSC limit revisions Alternative 2 options and BSAI halibut PSC limit reduction levels.

Both King Cove and Sand Point shore-based processing plants accepted BSAI groundfish deliveries in each of the years covered by the dataset used for this analysis (2008-2011). All revenue data for both plants are confidential. In previous publicly released statements over the past several years, however, the City of King Cove has characterized King Cove landing tax annual revenues as typically split roughly equally between salmon-, groundfish-, and crab-related revenues, but with substantial year-to-year variation not uncommon (AECOM 2013). The Trident plant in Sand Point has been characterized as more of a “whitefish plant” than other plants in the area, including King Cove, because of a higher dependency on pollock, cod, and halibut and a relatively lower dependency on salmon than those other plants (and a complete lack of dependence on BSAI crab since the implementation of the BSAI crab rationalization program) (AECOM 2013). In general, however, it is known that plants in both King Cove and Sand Point are more oriented toward GOA than BSAI fisheries, including the groundfish fisheries. Further, the economic analysis in the RIR, a part of the main document to which this community analysis document is appended, concludes that for practical purposes only a portion of catcher vessel trawl-caught landings of BSAI Pacific cod would be at risk for shore-based processors for any of the Alternative 2 options and BSAI halibut PSC limit reduction levels being considered. Given a general knowledge of King Cove and Sand Point shore-based processing operations and BSAI trawl catcher vessel Pacific cod delivery patterns, it is assumed that neither the King Cove nor the Sand Point shore-based processor has substantial dependency on BSAI trawl-caught Pacific cod landings relative to landings of all area, gear, and species fisheries combined.

Potential Environmental Justice Concerns

Direct adverse impacts to King Cove and/or Sand Point as a result of the BSAI halibut PSC limit revisions, if any, would be focused on the shore-based processing sector. As in Unalaska, Akutan, and Adak, processing workers in both King Cove and Sand Point have tended to be relatively distinct demographically in relation to the rest of the local population; have been overwhelmingly recruited from a labor pool from outside the community, have lived in group quarters supplied on-site by the locally operating processing companies, and have tended to include a high proportion of non-White (and non-Alaska Native) minority workers. Due to the almost exclusive use of group quarters by processing workers in both King Cove and Sand Point (other than some management personnel), it is possible to estimate the minority component of this workforce population. As of 2010, based on a combination of race and ethnicity, 94.5 percent of King Cove’s group quarters population and 96.9 percent of Sand Point’s group quarters population consisted of minority residents (AECOM 2013). To the extent that BSAI halibut PSC limit revisions would highly and adversely impact King Cove and/or Sand Point processing operations and result in a loss of income and employment opportunities (which is considered unlikely, given a combination of known and assumed processor dependency patterns), environmental justice would potentially be an issue of concern for the community or communities.

4.1.1.4 Petersburg

Petersburg has a relatively good-sized population for an Alaska coastal fishing community (2,948 in 2010) and the overall economy is tied closely to commercial fishing, with a relatively large resident-

owned local fleet and multiple processors operating cold storage facilities and custom packing services. In recent years, the top employers in the community have included a seafood processor, the Petersburg School District, the City of Petersburg, Petersburg Medical Center, and the State of Alaska; the timber industry, previously important to the community, has virtually exited Petersburg in recent years (AECOM 2013). The community also experiences some tourism during the summer months as smaller cruise ships pull into Petersburg and other tourists come to spend time in the area fishing and sightseeing. A number of bed and breakfasts, cabins, lodges, and hotels provide lodging for tourists, and guided fishing and hunting tours are available (PCOC 2011).

Petersburg's engagement in the BSAI groundfish fishery for the years 2008-2013 was nearly exclusively focused on the BSAI groundfish hook-and-line catcher processor sector, with an annual average of four resident-owned hook-and-line catcher processors engaged in BSAI groundfish fishery in 2008-2013. First wholesale gross revenues are confidential for 2008-2009, but for 2010-2013 an annual average of 4.5 Petersburg resident-owned hook-and-line catcher processors accounted for approximately \$20.0 million in first wholesale gross revenues from BSAI groundfish and approximately \$24.1 million in first wholesale gross revenues from all area, species, and gear fisheries combined, for an annual average 83.0 percent dependency on BSAI groundfish first wholesale gross revenues for those particular vessels (which were also the only Petersburg resident-owned catcher processors participating in any fisheries for those years). During this same time period (2010-2013), Petersburg had an annual average resident-owned community catcher vessel fleet of 307.2 vessels, with average annual ex-vessel gross revenues of \$68.0 million. Petersburg's resident-owned BSAI groundfish hook-and-line catcher processors first wholesale gross revenues from BSAI groundfish represented 21.8 percent of the total \$92.1 million combined resident-owned catcher vessel ex-vessel gross revenues and resident-owned catcher processor first wholesale gross revenues on an average annual basis for 2010-2013, which indicates a relatively high level of dependency for the combined community fleet(s).

Potential adverse impacts to Petersburg's resident-owned catcher processor fleet from BSAI halibut PSC limit revisions could be substantial, depending on the Alternative 2 option and BSAI halibut PSC limit reduction level selected, as could impacts to the community resident-owned combined catcher vessel and catcher processor fleets based on historic total gross revenues. According to economic analysis in the RIR in the main document to which this analysis is an appendix, Options 3a and 3b (10 percent and 20 percent BSAI halibut PSC limit reductions on hook-and-line catcher processors, respectively) are non-constraining and would have no material impacts on the affected participants, including Petersburg resident-owned hook-and-line catcher processors. Greater BSAI halibut PSC limit reductions under Options 3c through 3g could, however, adversely impact Petersburg resident-owned BSAI groundfish hook-and-line catcher processors, with the level of impact depending on the specific level of reduction chosen and the individual behavioral responses of the engaged vessels to those PSC limit reductions. Given the community's relative overall dependence on commercial fishing, and the proportion of local fishing gross revenues attributable to the BSAI groundfish hook-and-line catcher processor sector, these impacts of these reductions could potentially be felt at the community level, depending on the magnitude of the reductions and the patterns of revenue flow from these vessels, which are unknown.

Potential Environmental Justice Concerns

Direct adverse impacts to Petersburg as a result of the BSAI halibut PSC limit revisions, if any, would be focused on the hook-and-line catcher processor sector. While only about 21.8 percent of Petersburg's population in 2010 was composed of minority residents, the demographics of the employees of the potentially adversely affected catcher processor fleet are unknown, so it is similarly unknown whether environmental justice issues would be of concern if there were reductions in employment and income within this sector as a result of implementation of the BSAI halibut PSC limit revision Alternative 2 Options 3c through 3g.

4.1.1.5 Anchorage and Kodiak

For Anchorage, the relatively modest level of engagement in the BSAI groundfish fishery combined with the size of the community (approximately 291,000 residents in 2010) and the size and relative diversity of the local economy makes adverse community-level impacts from the proposed BSAI halibut PSC limit revisions unlikely. However, it should be noted that Anchorage's engagement in the BSAI groundfish fishery has been expanding in recent years. For example, there were no Anchorage resident-owned active BSAI groundfish hook-and-line catcher processors in 2008 or 2009, but there were two such vessels in 2010 and three such vessels each year 2011-2013. Anchorage was also the location of the only Alaska resident-owned BSAI groundfish trawl catcher processor, but this was only one vessel and then only in the most recent three data years (2011-2013); it was also the location of a single BSAI groundfish shore-based processor, but only in the three most recent years for which data are available (2011-2013). Whether potential BSAI halibut PSC limit revisions would influence this apparent trend of greater Anchorage involvement in the BSAI groundfish fishery through resident-ownership of vessels and as a location of shore-based processing is unknown.

For Kodiak, the relatively modest level of engagement in the BSAI groundfish fishery combined with the size of the community (approximately 6,100 residents in 2010), size and relative diversity of the local economy in general, and the fishery-based component of the local economy in particular, makes adverse community-level impacts from the proposed BSAI halibut PSC limit revisions unlikely. Kodiak engagement in shore-based processing of BSAI groundfish landings was limited to one processor in the most recent three years for which data are available (2011-2013); participation of two Kodiak resident-owned BSAI groundfish hook-and-line catcher vessels in 2008 and 2010 and one vessel in 2009 (and none more recently), and more substantial participation of Kodiak resident-owned BSAI groundfish trawl catcher vessels. Information in first wholesale gross revenues associated with BSAI groundfish shore-based processing in Kodiak are confidential, but a general knowledge of the local processing industry would suggest that these revenues would be insignificant, and BSAI trawl-caught Pacific cod-related revenues in particular have been essentially non-existent at the local shore-based processing sector level. As noted above, the various BSAI halibut PSC limit reduction levels under Alternative 2 Option 5, which would reduce BSAI halibut PSC limits for hook-and-line catcher vessels, are non-constraining and would have no material impacts on the affected participants, including Kodiak resident-owned hook-and-line catcher vessels.

It is important to note, however, that impacts to Kodiak resident-owned trawl catcher vessels could be substantial at the operational level, depending on the BSAI halibut PSC limit revision Alternative 2 Option 2 BSAI halibut PSC limit reduction level selected. Kodiak, with an annual average of 5.8 resident-owned BSAI groundfish trawl catcher vessels during 2008-2013, easily had the largest concentration of ownership of such vessels in Alaska. Kodiak was the only Alaska community with resident ownership of BSAI groundfish trawl catcher vessels in the most recent three years for which data are available (2011-2013) and Kodiak residents owned all but one active Alaska resident-owned BSAI groundfish trawl catcher vessels in 2008 and 2009. As shown in Table 2-1d, in the years 2009 and 2011-2013 combined (the only years that data confidentiality restrictions permit calculation) an annual average of 6.3 active Kodiak resident-owned BSAI groundfish trawl catcher vessels accounted for approximately \$5.5 million in ex-vessel gross revenues from BSAI groundfish and approximately \$14.1 million in ex-vessel gross revenues from all area, species, and gear fisheries combined, for an annual average 39.2 percent dependency on BSAI groundfish ex-vessel gross revenues for those particular vessels. This relatively high dependency makes these vessels vulnerable to potential adverse impacts to the BSAI trawl catcher vessel sector that could come about as a result of BSAI groundfish PSC limit revisions. On a community-level basis, however, for these same years (2009 and 2011-2013), as shown in Table 2-1d, Kodiak had a resident-owned fleet of 267 commercial fishing catcher vessels with total ex-vessel gross revenues of approximately \$124.2 million on an annual average basis, which translates to an overall Kodiak resident-owned catcher vessel fleet dependency on BSAI groundfish ex-vessel gross revenues of approximately 4.4 percent. This relatively low community-level catcher vessel fleet dependency and apparent lack of community shore-based processor dependency makes adverse community-level impacts unlikely for Kodiak, no matter which BSAI halibut PSC limit revision Alternative 2 options or BSAI halibut PSC limit reduction levels are chosen.

Potential Environmental Justice Concerns

Direct adverse impacts to Kodiak as a result of the BSAI halibut PSC limit revisions, if any, would be focused on the BSAI groundfish trawl catcher vessel sector. Although systematically collected demographic and income information on individual fishery participants by sector is not readily available, previous work (AECOM 2010, 2013) and a working familiarity with this sector does allow for at least some general characterizations for minority population engagement. Historically, Kodiak commercial fishing vessel owners and crew have tended to mirror the general population of the community (or, if anything, be demographically less diverse in non-Alaska Native minority representation than the general population). It is assumed that environmental justice would not be an issue of potential concern for the community.

4.1.1.6 Other Alaska Communities

Beyond the communities already listed in this section, no other Alaska communities have consistently substantial engagement in and dependency on the BSAI groundfish fishery. According to the 2008-2013 data used for this analysis, additional BSAI trawl catcher vessel resident ownership was limited to Sand Point during 2008 (one vessel) and 2009 (three vessels) only. Additional BSAI hook-and-line catcher vessel resident ownership was limited to 11 communities that all averaged one or less vessels engaged in

the fishery on an annual average basis 2008-2013 (Anchor Point, Cordova, Homer, Juneau, Ketchikan, King Salmon, Mekoryuk, Nikolaevsk, Port Lions, Sitka, and Willow). In any event, according to economic analysis in the RIR in the main document to which this analysis is an appendix, the various BSAI halibut PSC limit reductions under Alternative 2 Option 5, which would reduce BSAI halibut PSC limits for hook-and-line catcher vessels, are non-constraining and would have no material impacts on the affected participants, including the resident-owned hook-and-line catcher vessels from these communities. Additional BSAI groundfish hook-and-line catcher processor resident ownership was limited to Seward (one vessel) during 2010 and 2011 only. Additional shore-based processors in False Pass, Nome, Seward, and Toksook Bay accepted BSAI groundfish deliveries during 2008-2013, but this occurred only in one year in False Pass (2009), Seward (2013), and Toksook Bay (2013). In the case of Nome, BSAI groundfish deliveries were taken at one shore-based processor yearly 2008-2010 and in 2012; while first wholesale gross revenues related to this activity are confidential, it is generally known that this plant focuses heavily on the halibut and crab fisheries, such that groundfish-related revenues are an insignificant part of the overall operation. Based on a general knowledge of the industry, it is assumed that deliveries of trawl-caught BSAI Pacific cod in particular to shore-based plants in any of these four communities would be unlikely. As a result of low BSAI groundfish fishery engagement and dependency levels, no substantial adverse impacts from any of the BSAI halibut PSC limit revisions under the Alternative 2 options or BSAI halibut PSC limit reduction levels are anticipated for any of these communities.

4.1.2 BSAI Groundfish Fishery Dependency and Vulnerability to Adverse Community-Level Impacts of the Proposed Action Alternatives among Communities in the Pacific Northwest

Among communities outside of Alaska, engagement in the BSAI groundfish fisheries likely to be affected by the proposed BSAI halibut PSC limit revisions are highly concentrated in the Pacific Northwest states of Washington and Oregon, and specifically in the Seattle MSA, with a secondary concentration in the BSAI groundfish trawl catcher vessel fleet in Newport, Oregon.

The Seattle MSA, with a population of over 3.4 million persons in 2010, is at once the community most substantially engaged in many of the important North Pacific fisheries in general and the BSAI groundfish fishery in particular (as measured by absolute participation numbers of vessels and crew, as well as volume and value of landings from those vessels). Conversely, this area is among the least substantially dependent of the engaged communities on those fisheries based on the relative number of fishing jobs and economic value of those fisheries when compared to the size of the overall Seattle metropolitan labor pool and the scale, diversity, and resilience of its economy. For many of the fisheries off Alaska, especially the industrial-scale fisheries such as the BSAI groundfish fishery, it could be stated, paradoxically perhaps, that the major BSAI fisheries in their present configurations are more dependent upon Seattle than Seattle is dependent upon the fisheries. Regardless, a central part of Seattle's identity has always been as a fishing community, and there are still distinct areas within the Seattle MSA where concentrations of businesses and infrastructure are focused on the area's large and wide-ranging fleet and the support of that fleet and of the fishing industry in general. From an outside perspective, the Seattle fleet(s) and support operations might be considered components of interest-based rather than place-based

communities; from the Seattle perspective, however, Seattle has been and remains a place-based North Pacific fishing community (NOAA 2014).

While community-level dependence on the BSAI groundfish fisheries is not a salient issue for the Seattle MSA or Newport, adverse impacts of some of the proposed BSAI halibut PSC limit revisions under the various Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels would be profound in terms of potential loss of revenues to individual operations and sectors and potential loss of income and/or employment to relatively large numbers of individuals.

- In the BSAI groundfish trawl catcher vessel sector, for the years 2008-2013, on an average annual basis, Washington and Oregon residents owned 91.6 percent of all vessels in the sector; of the vessels owned by residents of these two states, Seattle MSA resident owners accounted for 76.4 percent and Newport resident owners accounted 12.6 percent of these vessels. Seattle MSA resident-owned vessels alone accounted for 80.7 percent of all ex-vessel gross revenues of all BSAI groundfish trawl catcher vessels on an annual average basis during this time period, while Newport resident-owned vessels accounted for another 6.9 percent, for an annual average total of 87.6 percent of all ex-vessel gross revenues for the sector accruing to vessels owned by residents of these two communities. Seattle MSA resident-owned BSAI groundfish trawl catcher vessels are 93.8 percent dependent on these BSAI groundfish as measured by a percentage of all ex-vessel gross revenues for these same vessels; the analogous figure of Newport resident-owned vessels is 79.3 percent.
- In the BSAI groundfish trawl catcher processor sector, for the years 2008-2013, on an average annual basis, Seattle MSA resident-owned vessels accounted 89.0 percent of all the vessels in the sector and for 92.2 percent of all BSAI groundfish trawl catcher processor sector first wholesale gross revenues. In terms of vessel dependency as measured by percentage of total first wholesale gross revenues, among Seattle MSA resident-owned BSAI groundfish trawl catcher processors, BSAI groundfish first wholesale gross revenues accounted for 94.7 percent of the total first wholesale gross revenues for these same vessels for all area, species, and gear fisheries combined.
- In the BSAI groundfish hook-and-line catcher processor sector, for the years 2008-2013, on an average annual basis, Washington resident-owned vessels accounted for 82.4 percent of all vessels in the sector. Seattle MSA residents owned 88.6 percent of these Washington-owned vessels and these Seattle MSA resident-owned vessels accounted for 68.2 percent of all BSAI groundfish hook-and-line catcher processor first wholesale gross revenues on an average annual basis over this time period. In terms of vessel dependency as measured by percentage of total first wholesale gross revenues, among Seattle MSA resident-owned BSAI groundfish hook-and-line catcher processors, BSAI groundfish first wholesale gross revenues accounted for 84.1 percent of the total first wholesale gross revenues for these same vessels for all area, species, and gear fisheries combined.

Additionally, the Seattle MSA is the location of regional or company headquarters for a number of the processing firms engaged in the BSAI groundfish fisheries. It is also the assumed ownership base for

inshore floating processors and floating domestic motherships that do not have ownership location assigned in the 2008-2013 primary database used for this analysis. Further, the Seattle MSA has extensive fishery support services available, including some types or scale of services unavailable anywhere in Alaska. The region is an important supplier of logistical services to the fleet, including corporate headquarters support, shipyard services, other repairs and maintenance, and supplies, as well as other services support, including the provision of financial, legal, and other services; marketing; and product shipment and storage (NOAA 2014).

Given the degree of centralization of ownership of the directly engaged BSAI groundfish fishery sectors in the Seattle MSA and the centralization of the support services provided by Seattle-based firms, potential adverse impacts associated with proposed BSAI halibut PSC limit revisions described in the RIR in the main document to which this community analysis is an appendix would largely accrue to the Seattle MSA in particular and the Pacific Northwest in general, with the limited but notable exceptions described in Section 4.1.1. As noted in the RIR analysis, potential reductions in revenues as quantified in terms of forgone discounted present value (and assumed accompanying employment and income impacts) would be profound for some sectors for some Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels.

Potential Environmental Justice Concerns

In terms of absolute numbers (based on existing participation/engagement patterns), whatever adverse impacts related to BSAI groundfish trawl catcher vessel, trawl catcher processor, and hook-and-line catcher processor direct employment and income that would occur as the result of implementation of proposed BSAI halibut PSC limit revisions would largely accrue to the Seattle MSA. It is assumed that fishery-wide catcher vessel skippers and crew are more-or-less representative of the general population of community of vessel ownership where crew recruiting likely takes place, so environmental justice concerns would not be likely. For catcher processor crew, however, a different set of assumptions are used.

While no recent information from secondary sources on sector-wide catcher processor crew demographics is readily available for this community impact analysis, an earlier (and now dated) Steller sea lion protection measure social impact assessment (NMFS 2001) indicated that the workforce population of the BSAI groundfish catcher processor sector was substantially different demographically from the overall greater Seattle area, based on 2000 U.S. Census data for the community and on industry self-reported information for the same year. While the greater Seattle area was 23 percent minority in 2000, the catcher processor workforce was 63 percent minority, according to industry data. The minority component of the various entity workforces within this sector was largely composed of individuals of Hispanic or Asian ancestry. Industry-provided data indicated that, in 2000, individual reporting entities were anywhere from about 36 percent minority to about 86 percent minority (NMFS 2001).

Although more recent data are not available for the entire sector, to facilitate this specific analysis, employee demographic information-based 2014 Equal Employment Opportunity Commission (EEOC)

data were supplied by four firms with catcher processors operating in the Amendment 80 catcher processor sector. Based on location of ownership information in the 2008-2013 fishery dataset being used for economic analysis in the EA/RIR/Initial Regulatory Flexibility Analysis and this community analysis appendix to that document, the vessels owned and operated by these firms have all been attributed to the Seattle MSA. Together, these firms accounted for more than half of (10 of 18) trawl catcher processors operating this year (2015) in the BSAI groundfish fisheries that would be subject to BSAI halibut PSC limit revisions proposed under one or more of the Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels being considered for implementation under the proposed action alternative being analyzed.

The demographic data supplied by these firms are presented in Table 4-3. As shown in that table, 66 percent of all employees working on the 10 catcher processors represented in these data are minority employees. Minority representation is substantially higher for two of the job categories (factory foreman/quality control and processing labor/galley crew/cleaning, both around 75 percent), and in all but two job categories (captains and engineers) minority employees represented greater than 50 percent of all employees in that category. In contrast, minority representation in the general Seattle MSA 2010 population was 32 percent (1,099,535 minority residents out of a total population of 3,439,809 residents). Given the demographic characteristics summarized here, if significant adverse impacts were to accrue to the Seattle MSA-owned BSAI groundfish catcher processor workforce due to implementation of the proposed BSAI halibut PSC limit revision alternatives, environmental justice would potentially be an issue of concern.

4.2 POTENTIAL COMMUNITY-LEVEL IMPACTS TO BSAI HALIBUT FISHERY DEPENDENT COMMUNITIES

4.2.1 Overview

The potential for community-level impacts from the proposed BSAI halibut PSC limit revisions in any given community is in part a function of present and future dependence of the community on the potentially affected BSAI halibut fisheries. Similar to what was described for BSAI groundfish fisheries, dependency on the BSAI halibut fishery is influenced by the relative importance of BSAI halibut fisheries in the larger community fisheries sector(s), as well as the relative importance of the overall community fishery sector(s) within the larger community economic base (both in terms of private sector business activity and public revenues). Also important to community-level impact outcomes is the specific nature of local engagement in the potentially affected BSAI halibut fisheries and alternative employment, income, business, and public revenue opportunities available within the community as a result of the location, scale, and relative economic diversity of the community.

It is assumed that directed BSAI halibut fisheries, including the commercial and subsistence halibut fisheries, would potentially benefit from the various proposed BSAI halibut PSC limit revision Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels relative to the degree that the BSAI halibut stock itself would potentially benefit from these proposed actions (and the effective redistribution of overall allocations between sectors that may occur with the various alternatives). Within

**Table 4-3
Demographic Information by Job Category for Ten Amendment 80 BSAI Groundfish
Trawl Catcher Processors Owned by Four Seattle MSA-Based Firms, 2014**

Job Categories	Total Employees	Non-Hispanic or Latino Employees (by Race)						Hispanic or Latino Employees (any Race)	Total Minority Employees*	
		White	Black or African American	Native Hawaiian or other Pacific Islander	Asian	American Indian or Alaska Native	Other Race or Two or More Races		Number	Percent
Captains	31	31	0	0	0	0	0	0	0	0.0%
Mates and deck crew/purser	147	71	1	36	13	0	3	23	76	51.7%
Engineers	86	65	2	4	4	1	0	10	21	24.4%
Factory foreman/quality control	94	24	3	29	13	0	4	21	70	74.5%
Processing labor/galley crew/cleaning	776	189	89	153	69	1	16	259	587	75.6%
Cook	50	23	4	5	2	1	0	15	27	54.0%
Total	1,184	403	99	227	101	3	23	328	781	66.0%

*Note: Total minority consists of all individuals except those self-identified as being both White and non-Hispanic or Latino.

Source: Industry-supplied spreadsheet generated off of 2014 EEOC data, received by AECOM via email 4/29/2015.

a very few Alaska communities, beneficial impacts to these directed halibut fisheries would, in some measure, potentially serve to offset adverse impacts to BSAI groundfish fisheries resulting from the proposed BSAI halibut PSC limit revisions at the community level if not at the individual or sector operational level within the same communities. The communities most heavily engaged in the relevant BSAI groundfish fisheries, however, are not often the communities most heavily engaged in/dependent upon the directed BSAI halibut fisheries. Further, it is important to note that there would be differences in the timing of adverse and beneficial impacts. While to the extent that they would be felt, impacts to communities engaged in the BSAI groundfish fisheries would be immediate and adverse; potential impacts to communities engaged in the BSAI halibut fisheries, to the extent that they would be felt, would not (except for a de-facto reallocation of halibut between fisheries) be immediately apparent and the full extent of their beneficial impact would unrealized for several years.

This potential differential distribution of adverse and beneficial impacts is expected to vary within and among communities, but the greatest overlap of potential negatively affected and positively affected populations would most likely occur within the very small community fishing fleet of Adak, the much larger community fishing fleet of Kodiak, and within the shore-based processing sector in Unalaska, Akutan, and Adak. Among these four communities, however, the mix of local engagement in the varied BSAI groundfish and BSAI halibut sectors differs substantially. For example, Adak as a community is much more heavily dependent on local processing operations than on its very small resident-owned fleet, and that processing is much more heavily dependent on BSAI groundfish than it is on BSAI halibut. In the case of Kodiak, on a total resident-owned community catcher vessel fleet basis, the total ex-vessel gross revenues for BSAI groundfish and BSAI halibut were roughly similar on an annual average basis over 2008-2013, but presumably Kodiak would additionally benefit over the long run from gains in the GOA halibut fishery as well as gains in the BSAI halibut fishery.

Especially when including communities outside of Alaska, it is also likely that the potential beneficial impacts to commercial halibut fishery participants would be relatively modest in absolute economic terms compared to potential negative impacts to BSAI groundfish fishery participants likely to be the most directly affected by the proposed BSAI halibut PSC limit revisions, at least over the short term, as discussed in the economic analysis in the RIR in the main document to which this community analysis is appended. These figures, of course, do not take into account a range of social and economic impacts on both the operational and community levels that would extend beyond gross revenue changes that may be experienced by direct sector participants. Particularly important is the fact that they do not take into account the sociocultural as well as the socioeconomic importance of the halibut fishery, across its multiple sectors, to numerous Alaska communities, especially small, remote, primarily indigenous communities, and the direct and indirect benefits that would accrue to these communities as a result of sustaining and improving the overall vitality of the BSAI halibut fisheries over the long run.

4.2.2 Distribution of Potential Beneficial Impacts to the Halibut Fishery Across BSAI Communities

In general, the potential beneficial impacts to the various halibut fisheries would be spread more widely among Alaska communities than would be the potential adverse impacts to the groundfish fisheries.

While there are many more Alaska communities directly engaged in the BSAI halibut fisheries than in the BSAI groundfish fisheries in general, the communities that are assumed to have the greatest potential for realizing substantial beneficial impacts under the proposed action alternatives are those 15 communities identified as halibut-dependent communities in Section 1.0.

It is important to note that as described in detail in the “Catch and Revenue in the Commercial Fisheries for Pacific Halibut in the BSAI” section (Section 4.5.1) of the RIR in the body of the main document to which this community analysis is appended, commercial halibut fisheries in Alaska have not been in equilibrium, with substantial reductions in the net weight pounds of halibut IFQ and CDQ harvests seen in recent years. As reported in that section, between 2003 and 2013, there was a 60 percent decrease in the reported net weight pounds of halibut harvested in Alaska according to AKFIN data, with roughly 19 percent of the net weight pounds of harvested by IFQs and CDQs in Alaska being harvested in the Area 4 in 2013, a proportion that has stayed relatively stable over the past decade. Between 2012 and 2013 there was a 24 percent decrease in the reported net weight of IFQ and CDQ halibut harvests in Area 4. Ex-vessel revenues and crew payments (influenced both by volume of harvest and price per pound received by the vessel) by region within Area 4 are also shown in that same section of the RIR. While price may fluctuate due to many factors, it is assumed that trends of decline in volume of some amount (or lack of increase to former levels) would continue under the no-action alternative, resulting in negative impacts to BSAI halibut-dependent communities. Conversely, it is assumed that beneficial impacts would accrue to BSAI halibut-dependent communities in relation to rebounding accessibility to commercially viable halibut stocks.

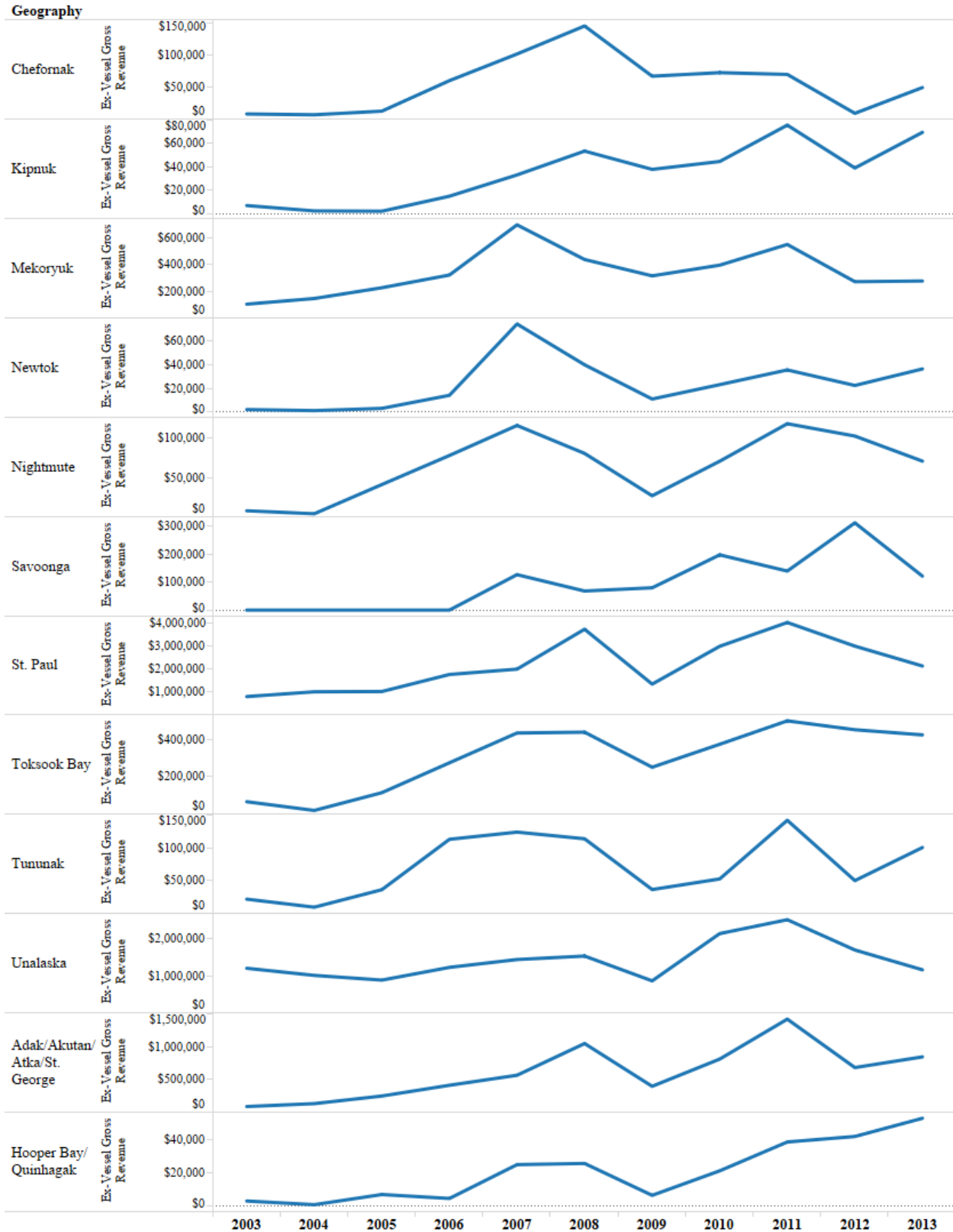
4.2.3 Potential Beneficial Impacts to BSAI Communities Engaged in the Commercial Halibut Fishery

Section 3.0 of this community analysis provided a set of brief characterizations of the regional and community context of engagement and dependency of Alaska communities on the relevant BSAI groundfish and halibut fisheries, with particular attention given to BSAI commercial halibut-dependent communities. As summarized in that section, 15 communities are considered dependent on the BSAI halibut fishery.

Figure 2 shows BSAI halibut harvest ex-vessel values for resident-owned vessels for BSAI halibut-dependent communities for which data are not confidential, by year, for 2003-2013. As shown, trends vary by community, but a general drop-off in the most recent years is apparent for several communities.

As noted in Section 3.0, dependence of the total resident-owned catcher vessel fleet (all resident-owned commercial fishing vessels, not just resident-owned vessels that participated in the halibut fishery) for these communities varied widely, as the fleets of some communities are more exclusively focused on the halibut fishery than are others. St. Paul, the community with the highest 2003-2013 annual average catcher vessel halibut ex-vessel gross revenues by far (at over \$2 million, more than twice that of the next closest community), was also the community with the second-highest percentage of community fleet

Section 4.0 Community-Level Impacts



Source: ADFG/CFEC fish ticket data compiled by AKFIN, 2015.

Figure 2
BSAI Halibut Catcher Vessels Ex-vessel Gross Revenues for BSAI Halibut-Dependent Communities, by Community of Vessel Owner, 2003-2013 (dollars)

dependency on BSAI halibut ex-vessel gross revenues (96.9 percent).²⁵ The only community with a higher local fleet dependency on BSAI halibut ex-vessel gross revenues was Savoonga (at 100 percent), which had an annual average of ex-vessel gross revenues for all resident-owned commercial fishing vessels combined of approximately \$95,000 (or about 4.3 percent of the analogous value seen for St. Paul). Among the communities for which revenue totals can be disclosed on an individual community basis, three other communities (Mekoryuk, Nightmute, and Tununak) have resident-owned catcher vessels fleets that were more than 50 percent dependent on BSAI halibut ex-vessel gross revenues on an annual average basis for the years 2003-2013, while four others were 20 percent or more dependent. In terms of ex-vessel gross revenues to BSAI halibut vessels specifically, among the halibut-dependent communities for which revenues can be disclosed on an individual community basis, nine have dependencies of 90 percent or greater and one is more than 80 percent dependent, with the remaining community halibut fleet being over 60 percent dependent on BSAI halibut ex-vessel gross revenues alone.

As described in Section 3.0, in most cases, BSAI halibut-dependent communities are member communities of CDQ entities that receive substantial benefit from direct investment in commercial fishing operations. Many of these operations are directly involved in the harvesting and/or processing of BSAI groundfish and would be subject to BSAI halibut PSC limit revisions being considered. While each CDQ entity manages their investments differently, one primary goal of the CDQ program is to encourage individual entities to use the returns from their engagement in commercial fishing to support regional economic growth, including the direct reinvestment in commercial fisheries, the support of community development activities, and the creation/maintenance of commercial fishing support infrastructure in member communities. Based on economic effects examined the RIR, a part of the main document to which this community analysis document is appended, impacts to CDQ fisheries under the various alternatives would be less constraining than for some other sectors.²⁶ Specifically, within the various BSAI halibut PSC limit reduction levels under Alternative 2 Option 6, only a BSAI halibut PSC limit reduction of 35 percent (or more) would be likely to constrain this fishery in the future (unless the fishery continues its current rate of growth). Were greater reductions to take place, it is likely that various CDQ entities would experience fewer returns on their investments with regard to those vessels, processing entities, and other industry

²⁵ In a number of ways, St. Paul may be seen as still under transition from a federal government institution-based community and economy to a more typical “civilian” community and economy, like Adak, but with the transition occurring over a much longer period of time. In 1983, Congress passed the Fur Seal Act Amendments, which ended government control of the commercial seal harvest (which had effectively been the only local economic driver for over 100 years) and the effective federal domination of daily life on the island. Some transition funding was provided to promote the local development of a self-sufficient, enduring, and diversified economy not dependent on commercial sealing, and most of the funding was used to upgrade inadequate community infrastructure, including major investments in the harbor, but this funding proved inadequate over the longer term. Federal withdrawal took place without commercial sealing continuing at least for some time during a transitional phase-out period, state assumption of the harbor project, or substantial continuing funding available for economic development and diversification, all key assumptions for a self-sustaining local economy (EDAW/AECOM and Northern Economics 2008). It was during this time that the local commercial halibut fishery, which got its start in 1981, became a central focus of local fishery-based economic development efforts (which were later substantially bolstered by the CDQ program), a position it retains to date (along with local seafood processing capacity that is self-sustaining over the long term, materially aided by regionalization community protection measures incorporated into the BSAI crab rationalization program, which also serves to benefit the local halibut fleet). To the extent that these efforts at successfully building and sustaining a local fisheries-based economy would be made more difficult by the proposed action, St. Paul would experience additional cumulative impacts.

²⁶ See the section titled “Summary of Impacts Affecting CDQ Participants” (Section 4.13.1) of the RIR portion of the main document to which this community analysis is appended for comprehensive overview of potential CDQ impacts associated with Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels.

partnerships that may be adversely affected with regard to their CDQ fishery pursuits; investments by CDQ groups in sectors that pursue non-CDQ fisheries as well as CDQ fisheries would be constrained in a manner similar to any other entity in those sectors. Conversely, CDQ entities have also invested in commercial halibut harvesting and processing activities and these investments would likely experience beneficial effects as a result of the BSAI halibut PSC reductions. Ultimately, the level of direct impact to an individual CDQ entity and level of indirect impact to its member communities would depend on the individual levels of investment, range of investments with regard to fishery and geography, and overall financial management of other investments outside of commercial fishing. For those CDQs for whom the proposed Alternative 2 options, sub-options, and BSAI halibut PSC limit reduction levels would create an adverse overall impact to their investments, a decrease in CDQ investment returns could potentially result in regional declines in community development and/or infrastructure investment in CDQ member communities. Other CDQ entities, however, may find that benefits to the BSAI halibut fishery may increase overall investment value, potentially resulting in regional increases in community development and/or infrastructure investment in CDQ member communities.

Potential Environmental Justice Concerns

The BSAI halibut-dependent communities that would potentially experience high and adverse impacts under the no-action alternative, and that would potentially benefit the most from the action alternative, include communities with high proportions of minority populations and high proportions of low-income populations.

In terms of minority populations, of the 15 BSAI halibut-dependent communities, in 2010 minority residents (including Alaska Native residents) accounted for more than 90 percent of the population in 12 communities, between 80 and 90 percent of the population in two communities, and more than 65 percent of the population in the remaining community. In terms of Alaska Native populations specifically:

- Of the 15 communities identified as BSAI halibut dependent communities, 13 are members of CDQ groups.
- Of the 13 BSAI halibut-dependent communities that are also CDQ communities, Alaska Native residents make up over 90 percent of the total population in 10 of the communities and over 80 percent of the total population in another two communities.
- In the other BSAI halibut-dependent CDQ community, and in the two BSAI halibut-dependent non-CDQ communities, Alaska Native residents make up between five and six percent of the total population of these communities.

In terms of low-income populations, of the 15 identified BSAI halibut-dependent communities, as of 2010:

- One had 50 percent or more of its residents living below the poverty threshold.
- Two had between 40 and less than 50 percent of their residents living below the poverty threshold.

- One had between 30 and less than 40 percent of their residents living below the poverty threshold.
- Two had between 20 and less than 30 percent of their residents living below the poverty threshold.
- Six had between 10 and less than 20 percent of their residents living below the poverty threshold.
- Three had less than 10 percent of their residents living below the poverty threshold.

Given these demographics, if these communities were to experience disproportionate high and adverse impacts under the no-action alternative, environmental justice would be a concern. Conversely, if these communities were to experience beneficial impacts under the action alternative, environmental justice would not be an issue of concern.

4.2.4 Potential Beneficial Impacts to BSAI Communities Engaged in the Subsistence Halibut Fishery

Locally important subsistence halibut fishing takes place in many BSAI communities not directly engaged in the relevant BSAI groundfish fisheries (or, in a number of cases, even the commercial BSAI halibut fisheries); in a few cases, however, the communities most heavily engaged in the BSAI groundfish fisheries are the communities most engaged in the subsistence halibut fishery. For example, Unalaska and Akutan, two of the communities most heavily engaged in the relevant BSAI groundfish fisheries, represent two of the three highest annual average halibut subsistence harvest communities within the limitations of the available data; Unalaska appears in the data as having the highest harvest level in the state each year 2009-2012. It is important to remember, however, that halibut subsistence data for BSAI communities are very limited, so caution should be used in interpreting these data. Further, subsistence harvest levels are influenced by myriad factors in addition to stock abundance but, at the highest level of generalization, it is assumed that the BSAI halibut PSC limit revisions being considered would result in beneficial impacts over the long run to communities engaged in the subsistence halibut fisheries in both the BSAI and GOA, but the magnitude of those beneficial impacts is unknown.

4.2.5 Potential Cumulative Small/Rural Community and Cultural Context Issues

This community analysis has largely focused on community impacts associated with the implementation of proposed BSAI halibut PSC limit revisions through the use of quantitative fishery information and through characterizations of a number of Alaskan regions and communities that describe the magnitude of social- and community-level engagement and dependency on those fisheries. This approach provides a relatively comprehensive analysis of anticipated socioeconomic impacts that could occur as a result of BSAI halibut PSC limit revisions. It should be noted, however, that fishing regulatory actions can result in a wide range of social and sociocultural impacts in rural fishing communities. For many residents of these communities, fishing is not seen as merely a commercial venture, but an integral part of self-identity. This relationship is compounded for those residents who come from families with multi-generational experience in commercial and/or subsistence fishing, particularly for those Alaska Native

residents for whom fishing is part of a larger, integrated traditional subsistence and economic sustenance practice rooted in thousands of years of history. A number of researchers have explored the relationship between contemporary fishery management actions (e.g., IFQ, catch-shares, rationalization, limited entry, etc.) and the sociocultural impacts that can result, including impacts to identity. The following survey of existing literature is not meant to be comprehensive, but is instead included here to indicate the types of research being conducted within the Bering Sea on these issues and the potentially interactive nature of the present proposed management actions with other management actions that have taken place in recent years.

Courtney Carothers, PhD, has focused regularly on marine resource conservation and management in Alaska in her academic work. In “Fishing Rights and Small Communities: Alaska Halibut IFQ Transfer Patterns” (Carothers et al. 2010), the authors discuss quota share emigration and how halibut IFQ has resulted in small rural fishing communities (especially those with populations of 1,500 or less, including those bordering the Bering Sea) having disproportionately lost fishing rights and how Alaska Native communities are more likely to sell than buy quota. Since quotas have an attached monetary value, many small community residents tend to sell their quotas in tough financial times. The authors also discuss how the quota share market behavior is linked to these small rural fishing communities through the redistribution process of the community selling their quota shares to larger communities, or collectives. The authors describe how, in order to make the program more equitable, the NPFMC started the “Community Purchase Program” for 42 communities of 1,500 people or less.

In her article in *Marine Policy* entitled, “A survey of US halibut IFQ holders: Market participation, attitudes, and impacts” (2013), Dr. Carothers attempts to quantify perceptions of halibut IFQ holders and presents the results of a recent survey. She states that there are clear relationships in how the halibut IFQ program is perceived based on income, residency, and ethnicity. She found that older individuals, individuals who make less money, and indigenous fishermen are less likely to buy quota from other fishermen. Additionally, residents of small fishing communities (including those along the Bering Sea) are least likely to support IFQ management policies. On the whole, survey respondents stated that negative impacts of IFQ programs included limits on access, job loss, inequities experienced by rural fishermen and crew, the creation of a “privileged class” of fishermen, and negative environmental impacts (Carothers 2013).

Focusing specifically on Aleut and Alaska Native fisheries, Katherine Reedy-Maschner, PhD, discusses similar issues. She recently published an ethnographic view of Alaska Native fisheries and the attitudes and beliefs of those that fish the fishery (Reedy-Maschner 2010). Dr. Maschner suggests that Alaska Native fishermen’s views on marine resources and management can be at odds with environmentalists and conservation/management programs because their use of the marine environment differs from that of at least some other commercial fishermen. She finds that a number of programs more broadly targeted at commercial fishermen in general do not take into account the particular context and operational realities of a substantial portion of Alaska Native fishing operations and suggests that some programs serve to undercut the ability of Alaska Native fishermen to follow traditional cultural patterns of marine resource utilization.

Emilie Springer's thesis, *Through a Cod's Eye: Exploring the Social Context of Alaska's Bering Sea Groundfish Industry*, is another example of the kind of research being done that looks at broader social issues and effects of marine resource management (2007). Springer discusses how fishermen of groundfish in the Bering Sea (specifically cod), describe their participation in commercial fishing. Springer presents Bering Sea cod fishermen as a representative sample of individuals in other groundfish fisheries, as well as Bering Sea crab fisheries and Alaska state water fisheries. With the exception of vessels using pot gear, Springer notes that, during the 1990s, fishermen in the Bering Sea cod fleet experienced a number of changes, including those resulting from the CDQ program, the License Limitation Program, and Stellar sea lion protection measures. Springer suggests that, as a result of those changes, the fleet matured and opportunities for new, young fishermen were reduced as the fleet was able to fish on a more consistent schedule.

Other recent articles have been largely critical of fishery management regimes in Alaska and how they have disproportionately affected Alaska Native communities. Richmond (2013) noted that data show that only a handful of communities have been able to purchase halibut IFQ due to the high cost of shares, the limited availability of shares on the open market, and the lack of viable financing opportunities to purchase them. Additionally, the requirement that individuals be residents in a community to be eligible to lease quota prevents wider participation in the program by affiliated kin who may not retain eligible-community residency due to a range of factors. Loring (2012) presented similar conclusions in a recent article in *Conservation Biology*, positing that fishery management in Alaska does not adequately take into consideration the sociocultural systems that surround the resource and thus "assumes the necessity of trade-offs between biological and social goals."

The intersection of fishery management and subsistence resource use has also been a topic of recent research in the Bering Sea. For example, Fall *et al.* (2013) documented subsistence activities in the Bering Sea communities of Akutan, St. Paul, Togiak, Emmonak, and Savoonga. They found that survey respondents provided a range of personal, economic, and environmental explanations for recent changes in their subsistence harvesting activities. One trend seen in the data suggested that participation in subsistence fishing relied on involvement in commercial fishing, as earnings from commercial fishing helped pay for subsistence activities and commercial vessels were commonly used for subsistence activities. Reedy-Maschner and Maschner (2012) have also found that fishermen who participate in commercial fishing are often the most important providers in subsistence networks in their local community. As involvement in commercial fishing changes in small, rural Alaskan communities through the implementation of various management regimes, the level of access to subsistence resources can change. Reedy and Maschner (2014) found that households that have recently lost direct access to subsistence resources due to policy changes, permit loss, or increased expenses, have created complex adaptive networks of distribution to maintain access. As they state, referencing crab as an example subsistence species, "The social, emotional, and monetary value of crab is still high, but the legal and physical ability to acquire it and share it has changed for [Aleut] men," forcing households to purchase traditional subsistence species from local shore-based processors or via other means. Reedy and Maschner's social network analysis for the subsistence cod fishery suggests that the loss of important key

nodes heavily involved in the distribution of cod to local households would substantially alter access in the region and that the network itself is extremely vulnerable to perturbations (2014).

While sustained participation of fishing communities in the BSAI groundfish or BSAI halibut fisheries would not appear to be directly at risk from implementation of the proposed action or alternatives, the literature reviewed in this section, along with recent NPFMC analyses, including the recently completed GOA halibut PSC limit revisions community analysis (AECOM 2013), underlines the fact that the proposed action is not taking place in isolation. Existing trends suggest that sustained participation in a range of commercial fisheries by residents of small communities in the region has become more challenging in recent years, with less inherent flexibility to adjust to both short- and long-term fluctuations in resource availability (as well as to changing markets for seafood products). This flexibility is widely perceived in the communities as a key element in an overall adaptive strategy practiced in subsistence and economic contexts in the region for generations. This strategy involves piecing together individual livings (and often local economies) with an employment and income plurality approach. This plurality approach is particularly important given that the availability of non-fishing alternatives for income and employment are limited and, like the natural resources (and market factors) that underpin commercial fishing opportunities, tend to be subject to both short- and long-term fluctuations. This ongoing fluctuation in non-fishing opportunities further reinforces the importance of flexibility in the pursuit of a range of commercial fishing opportunities to enable individuals and communities the ability to successfully combine fishing and non-fishing as well as commercial and subsistence pursuits considered critical to long-term socioeconomic and sociocultural survival if not stability. To the extent that the proposed alternatives (including the no-action alternative) would serve to further restrain that flexibility, overall sustained participation in a range of local fisheries by residents of the smaller communities in particular would be made all the more challenging.

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**APPENDIX C
ATTACHMENT 1**

**A METHODOLOGY TO DETERMINE BSAI
HALIBUT DEPENDENT COMMUNITIES**

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A Methodology to Determine BSAI Halibut Dependent Communities

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Introduction

The National Marine Fisheries Service (NMFS), Alaska Fisheries Science Center's Economic and Social Sciences Research Program has developed a set of fisheries involvement indices using secondary data to explore the degree to which Alaska communities are involved in fisheries (Kasperski and Himes-Cornell, 2014). NMFS social scientists in other regions of the U.S. are conducting similar research to better assess which communities are involved in commercial, recreational, and subsistence fisheries (Jepson and Colburn, 2013). The prior analyses typically focus on overall involvement in fisheries, rather than focusing on a specific fishery or issue. The analysis presented here examines community involvement in a specific fishery in the North Pacific: the Bering Sea and Aleutian Islands (BSAI) halibut Individual Fishing Quota (IFQ) fishery. To conduct this analysis, information was gathered on communities throughout Alaska that participate in the fishery. The purpose of this analysis is to explore the degree to which communities are involved in the BSAI halibut IFQ fishery and which communities may be impacted by changes in fisheries management. This analysis considers two basic types of halibut fishery involvement (commercial processing and commercial harvesting) and creates numerical indices of engagement, reliance, and dependence for each category of halibut fishery involvement.

Engagement represents the scale of the industry in the community, reliance represents the importance to the community of the industry in terms of numbers per resident, and dependence represents how important halibut is to the overall fishing portfolio of the community using the halibut share of community totals. By separating commercial processing from commercial harvesting, the indices presented here show the importance for those communities that may not have a large amount of BSAI halibut landings in their community, but have a large number of fishermen and vessel owners that participate in the BSAI halibut fishery in the community. These indicators give policy makers and communities themselves a quantitative measure of current community involvement in the BSAI halibut IFQ fishery which will help provide information about which communities will likely be the most affected by changes in fisheries management.

The analysis was conducted in two stages. In the first stage, indices of commercial halibut fishery involvement across the state were created for all Alaska communities that had some participation in halibut fisheries. The communities were then given a score of 1 if their index score was greater than one standard deviation above the mean index score value. This enables the

adding of different index scores together, but comes at the cost of removing the relative importance among highly involved communities. These binary (0 and 1) scores are then added together to come up with a community's statewide halibut dependence score based on all halibut activities in the state. In the second stage, the list statewide halibut dependent communities is cross referenced with communities that either had greater than 25% of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25% of processed pounds in the community from BSAI halibut. These communities are deemed BSAI halibut dependent communities and are reported in Table 1 along with their binary fishery involvement scores for each index.

Methods

The first step in the analysis involves estimating measures of halibut fishery involvement for communities in Alaska using total statewide halibut data to determine a statewide halibut dependence score. These halibut fishery involvement indices are based upon all statewide halibut activities, not just those in the BSAI region. This was due to the AKFIN Community Profile dashboard data only including statewide totals (for which it was designed) and there was not enough time to develop new database and conduct the present analysis.

The data used to create the statewide halibut fishery involvement indices were collected from state and federal sources using AKFIN's Community Profiles dashboard. The values for each variable in each community are defined as the mean over the period of 2009 to 2013, and the variables are separated into two categories of halibut fishery involvement: commercial processing and commercial harvesting. The commercial processing category includes the number of vessels landing halibut in community, the net pounds of halibut landed in community, the ex-vessel value of halibut landed in community, the wholesale value of halibut landed in community, and the number of processors processing halibut in community. The commercial harvesting category includes the number of vessels landing halibut owned by residents of community, the number of residents that own vessels landing halibut, the net pounds of halibut landed by vessels owned by residents of community, the ex-vessel value of halibut landed by vessels owned by residents of community, and the number of Alaska Commercial Fisheries Entry Commission (CFEC) halibut permits owned by residents of community. These two categories are then further broken down into indices of engagement, reliance, and dependence for each category for a total of 6 independent indices of halibut fishery involvement. Quantitative indices of each community's engagement in, and reliance and dependence upon commercial processing and commercial harvesting are estimated, where community engagement is represented by their actual values of a variable, the reliance is represented by their per capita (divided by population) equivalent, and dependence is measured as halibut's share of the community's total value.

Six separate principal component factor analyses were conducted for each index of halibut fishery involvement to determine a community's relative engagement, reliance, and dependence for commercial processing and harvesting. The principal components factor analysis reduces a large number of correlated variables into a set of fewer, linearly independent factors (Kim and Mueller, 1978). In this case, only single factor is retained for each principal component factor analysis so that the variables included in the index represent a single concept of halibut fishery involvement. These factors are used to create quantitative indices that bring together information from several variables that can help represent specific concepts of halibut fishery involvement. Six principal component factor analyses are included in this study to create six indices of halibut fishery involvement for each community: commercial processing engagement, commercial processing reliance, commercial harvesting engagement, and commercial harvesting reliance. All results presented have an Armor's theta reliability score above 0.90, indicating a high level of reliability (Armor, 1974). Factor scores for each community were created for each halibut fishery involvement index using the regression method by summing the standardized coefficient score multiplied by the included variables. These index scores were then converted to binary variable (0 or 1), where a 1 indicates that the community's index score was greater than one standard deviation from the mean index score and that community is deemed to be highly involved in that particular aspect of the halibut fishery. These binary scores are then summed for each community to create a statewide halibut dependence score.

The second step used to create the set of BSAI halibut dependent communities was to cross reference the list of communities that were deemed to be highly involved in any aspect of the statewide halibut fishery (those with a statewide halibut dependence score greater than zero) with those communities that either had greater than 25% of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25% of processed pounds in the community from BSAI halibut. Only communities that satisfied both criteria (statewide halibut dependence score greater than 0 and either had greater than 25% of total community ex-vessel revenue or pounds landed from BSAI halibut) are deemed BSAI halibut dependence communities. The 25% rule was determined based on the observed values of those communities with statewide halibut dependence scores greater than zero to include all communities with substantial ties to the BSAI halibut fishery. In fact, the remaining communities with statewide halibut dependence scores greater than 0 are all located in the Gulf of Alaska (GOA), with the exception of False Pass where BSAI halibut makes up a very small percentage of total processed weight in the community, and the first community excluded by using the 25% rule only has 5.77% of community vessel owner ex-vessel revenue from BSAI halibut.

Results

The six principal component factor analyses were designed to each result in a single factor solution using variables that are all highly correlated with one another and can be summarized by a single index score representing a single concept of halibut fisheries involvement. These

indices describe the engagement, reliance, and dependence of each community to each category of halibut fishery involvement in a robust and statistically meaningful way. Table 2 presents the factor loadings, total variance explained, Armor's theta, and sample size for all of the variables included in each of the three commercial processing principal components factor analyses. Table 3 provides the same information for the three commercial harvesting principal component factor analyses. The sample sizes change for each factor analysis because only communities with some positive value for any of the variables in the analysis were included.

Table 1 reports the binary scores for each of the halibut fishery involvement indices for those communities with statewide halibut dependence scores greater than zero and either had greater than 25% of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25% of processed pounds in the community from BSAI halibut. This list includes 15 communities that are all located in the BSAI region of Alaska. All but two communities scored highly on commercial harvesting dependence with the exception of Kipnuk and Unalaska/Dutch Harbor which were highly involved in commercial harvesting reliance and commercial processing engagement, respectively.

Commercial Processing Engagement, Reliance, and Dependence Indices

Commercial processing engagement represents the scale of the commercial halibut fishing and processing industry in the community. The commercial processing engagement index contains the number of vessels landing halibut in community, the net pounds of halibut landed in community, the ex-vessel value of halibut landed in community, the wholesale value of halibut landed in community, and the number of processors processing halibut in community and explains 89% of the variance in the variables. Commercial processing reliance represents the importance to the community of the commercial fishing and processing industry in terms of values per person and the commercial processing reliance index explains 70% of the variance in the variables. Commercial processing dependence represents how important halibut is to the overall fishing portfolio of the community. The commercial processing dependence index contains the number of vessels landing halibut as a % of total vessels owned by residents of community, the number of residents that own vessels landing halibut as a % of total vessels owned by residents of community, the net pounds of halibut landed as a % of total pounds landed by vessels owned by residents of community, the ex-vessel value of halibut landed as a % of total ex-vessel value by vessels owned by residents of community, and the number of CFEC halibut permits as a % of total CFEC permits owned by residents of community and explains 85% of the variance in the variables.

Commercial Harvesting Engagement, Reliance, and Dependence Indices

Commercial harvesting engagement represents the number of halibut fishermen and commercial halibut fishing vessel owners in the community. The commercial harvesting engagement index

contains the number of vessels landing halibut owned by residents of community, the number of residents that own vessels landing halibut, the net pounds of halibut landed by vessels owned by residents of community, the ex-vessel value of halibut landed by vessels owned by residents of community, and the number of CFEC halibut permits owned by residents of community and explains 92% of the variance in the variables. Commercial harvesting reliance represents the importance to the community of the halibut fishermen and commercial halibut fishing vessel owners in the community in per capita terms, and explains 81% of the variance in the variables. The commercial harvesting dependence index contains the number of vessels landing halibut as a % of total vessels owned by residents of community, the number of residents that own vessels landing halibut as a % of total vessels owned by residents of community, the net pounds of halibut landed as a % of total pounds landed by vessels owned by residents of community, the ex-vessel value of halibut landed as a % of total ex-vessel value by vessels owned by residents of community, and the number of CFEC halibut permits as a % of total CFEC permits owned by residents of community and explains 83% of the variance in the variables.

Discussion and Conclusion

This study creates six indices of commercial halibut fishery involvement across the state for all Alaska communities that had some participation in halibut fisheries looking at both processing and harvesting involvement in the fishery. Communities were given a score of 1 in Table 1 if their index score was greater than one standard deviation above the mean index score value which enables the adding of different index scores together to come up with a community's statewide halibut dependence score based on all halibut activities in the state. Communities are deemed BSAI halibut dependent communities if they have a statewide halibut dependence score greater than zero and either had greater than 25% of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25% of processed pounds in the community from BSAI halibut. The list of BSAI halibut dependent communities is provided in Table 1 and includes 15 communities in the BSAI region of Alaska.

One complicating feature in the analysis is that the six halibut fishery involvement indices were created based on all statewide halibut data because of time constraints while only the BSAI halibut fishery dependent communities are really of interest. This results in a two step approach and may exclude some communities that may have scored highly on a BSAI halibut fishery involvement index but did not score highly on a statewide halibut fishery involvement index. The prime example of this is Nome which is a regional hub and has substantial BSAI halibut landings in the community and by vessel owners in the community but those values were not high enough to be above one standard deviation from the mean for any statewide halibut fishery involvement index and was therefore excluded from the list of BSAI halibut dependent communities based on the methodology presented here.

This analysis has developed a methodology to determine which Alaska communities are dependent on the BSAI halibut fishery and would likely be impacted by changes in fisheries management. The approach presented here represents a quantitative method for incorporating multiple data sources across commercial processing and harvesting involvement into measurable concepts of fishing engagement, reliance, and dependence at the community level.

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Tables

Table 1: Commercial processing and harvesting engagement, reliance, and dependence indices of statewide halibut fishery involvement for communities that scored above one standard deviation of the mean for any halibut fishery involvement index and either had greater than 25% of ex-vessel revenue of vessel owners in the community from BSAI halibut or greater than 25% of processed pounds in the community from BSAI halibut.

Community	Commercial Processing Engagement	Commercial Processing Reliance	Commercial Processing Dependence	Commercial Harvesting Engagement	Commercial Harvesting Reliance	Commercial Harvesting Dependence	Statewide Halibut Dependence Score
Mekoryuk	0	0	1	1	1	1	4
Atka	0	0	1	0	1	1	3
Savoonga	0	0	0	0	1	1	2
Tununak	0	0	0	0	1	1	2
Hooper Bay	0	0	0	0	1	1	2
Chefornak	0	0	0	0	1	1	2
Toksook Bay	0	0	0	0	1	1	2
St. Paul	0	0	1	0	0	1	2
St. George	0	0	0	0	1	1	2
Kipnuk	0	0	0	0	1	0	1
Adak	0	0	0	0	0	1	1
Unalaska/Dutch Harbor	1	0	0	0	0	0	1
Akutan	0	0	0	0	0	1	1
Newtok	0	0	0	0	0	1	1
Nightmute	0	0	0	0	0	1	1

Table 2: Statewide commercial processing involvement indices with factor loadings, total variance explained, Armor's theta, and sample size.

	Factor Loading	Total Variance Explained	Armor's Theta	Sample Size
Commercial Processing Engagement				
Number of vessels landing halibut in community	0.907	89%	0.97	52
Net pounds of halibut landed in community	0.973			
Ex-vessel value of halibut landed in community	0.977			
Wholesale value of halibut landed in community	0.922			
Number of processors processing halibut in community	0.924			
Commercial Processing Reliance				
Number of vessels landing halibut in community per capita	0.771	70%	0.90	51
Net pounds of halibut landed in community per capita	0.982			
Ex-vessel value of halibut landed in community per capita	0.979			
Wholesale value of halibut landed in community per capita	0.949			
Number of processors processing halibut in community per capita	0.323			
Commercial Processing Dependence				
Number of vessels landing halibut as a % of total vessels making landings in community	0.921	85%	0.96	52
Net pounds of halibut as a % of total landings in community	0.971			
Ex-vessel value of halibut as a % of total ex-vessel value landed in community	0.971			
Wholesale value of halibut as a % of total wholesale value of all species landed in community	0.904			
Number of processors processing halibut as a % of total processors in community	0.839			

Table 3: Statewide commercial harvesting involvement indices with factor loadings, total variance explained, Armor's theta, and sample size.

	Factor Loading	Total Variance Explained	Armor's Theta	Sample Size
Commercial Harvesting Engagement				
Number of vessels landing halibut owned by residents of community	0.966	92%	0.98	111
Number of residents that own vessels landing halibut	0.968			
Net pounds of halibut landed by vessels owned by residents of community	0.939			
Ex-vessel value of halibut landed by vessels owned by residents of community	0.938			
Number of CFEC halibut permits owned by residents of community	0.981			
Commercial Harvesting Reliance				
Number of vessels landing halibut owned by residents of community per capita	0.925	81%	0.94	109
Number of residents that own vessels landing halibut per capita	0.933			
Net pounds of halibut landed by vessels owned by residents of community per capita	0.840			
Ex-vessel value of halibut landed by vessels owned by residents of community per capita	0.843			
Number of CFEC halibut permits owned by residents of community per capita	0.962			
Commercial Harvesting Dependence				
Number of vessels landing halibut as a % of total vessels owned by residents of community	0.954	83%	0.95	111
Number of residents that own vessels landing halibut as a % of total vessels owned by residents of community	0.942			
Net pounds of halibut landed as a % of total pounds landed by vessels owned by residents of community	0.909			
Ex-vessel value of halibut landed as a % of total ex-vessel value by vessels owned by residents of community	0.934			
Number of CFEC halibut permits as a % of total CFEC permits owned by residents of community	0.802			

**APPENDIX C
ATTACHMENT 2**

**TOTAL POPULATION AND NUMBER OF FISHERMEN
PARTICIPATING IN THE AREA 4 HALIBUT FISHERY AND
ALL FISHERIES COMBINED BY COMMUNITY, 1980-2011:
CDQ REGIONS, UNALASKA, AND ADAK**

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Total Population and Number of Fishermen Participating in the Area 4 Halibut Fishery and All Fisheries Combined by Community, 1980-2011: CDQ Regions, Unalaska, and Adak

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In addition to catcher vessel-related activity described in the main community analysis document (Proposed BSAI Halibut PSC Limit Revisions: Community Analysis) to which this document is an attachment (Attachment 2), community engagement in and dependency on the Area 4 halibut harvest sector can be gauged by looking at the number of commercial fishermen with permits in the halibut fishery compared to the number commercial fishermen with permits in all fisheries. This attachment includes a series of figures focused on communities that are part of the Western Alaska Community Development Quota (CDQ) Program, along with the non-CDQ communities of Unalaska and Adak. Each figure shows the total number of people fishing with commercial halibut permits (i.e., halibut fishermen), the total number of all people participating in any commercial fishery (i.e., all fishermen), and community population. Data are presented for the years 1980 through 2011, allowing for recognition of trends in participation by community fishermen as well as trends in community population.

The data presented in these figures are based on Commercial Fisheries Entry Commission (CFEC) permit information by U.S. Census area/Alaskan city and were compiled and presented by Northern Economics Inc. (NEI). Some CFEC data are not disclosed in order to protect confidential data. NEI has developed a proprietary algorithm that estimates confidential data based generally on the average of undisclosed data per person over the borough or census area for a given fishery. To avoid double counting of fishermen, CFEC data for "All Fisheries Combined" is used to determine the total number of fishermen in each community. Population data for each community are based on U.S. Department of Labor estimates that have been collected by NEI over the course of many years.

The reader should note that:

- The population scale (primary y axis) varies for each community in order to improve overall aesthetics.
- The number of fishermen scale (secondary y axis) is generally fixed to show a minimum of 0 and a maximum of 60. In those instances where the secondary y axis is different, the chart has a slight tan shade to indicate the difference.
- Data were gathered in 2013 and may not reflect changes made to the data since they were downloaded and compiled.

Figure 1. Aleutian Pribilof Island Community Development Association (APICDA)

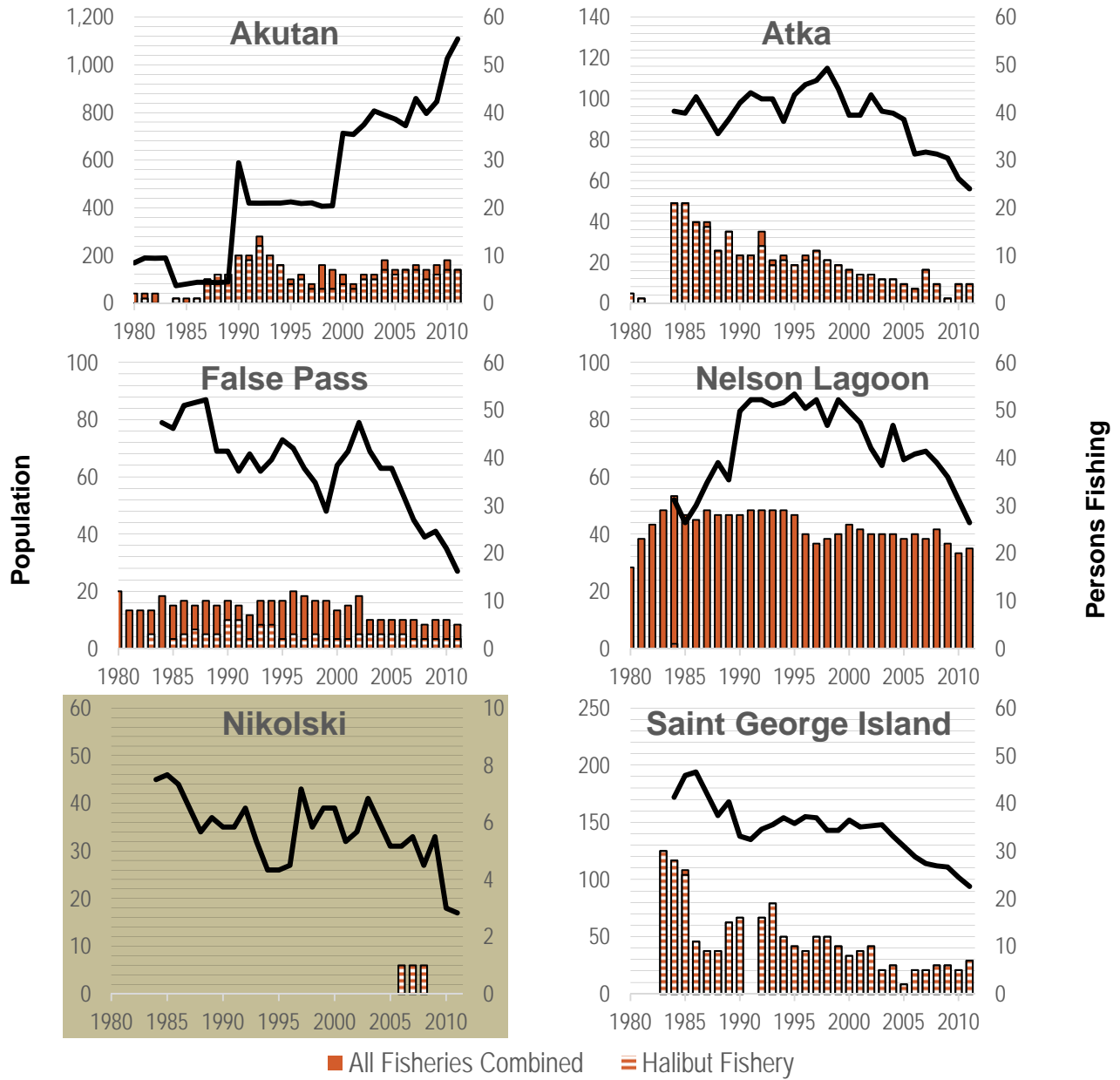
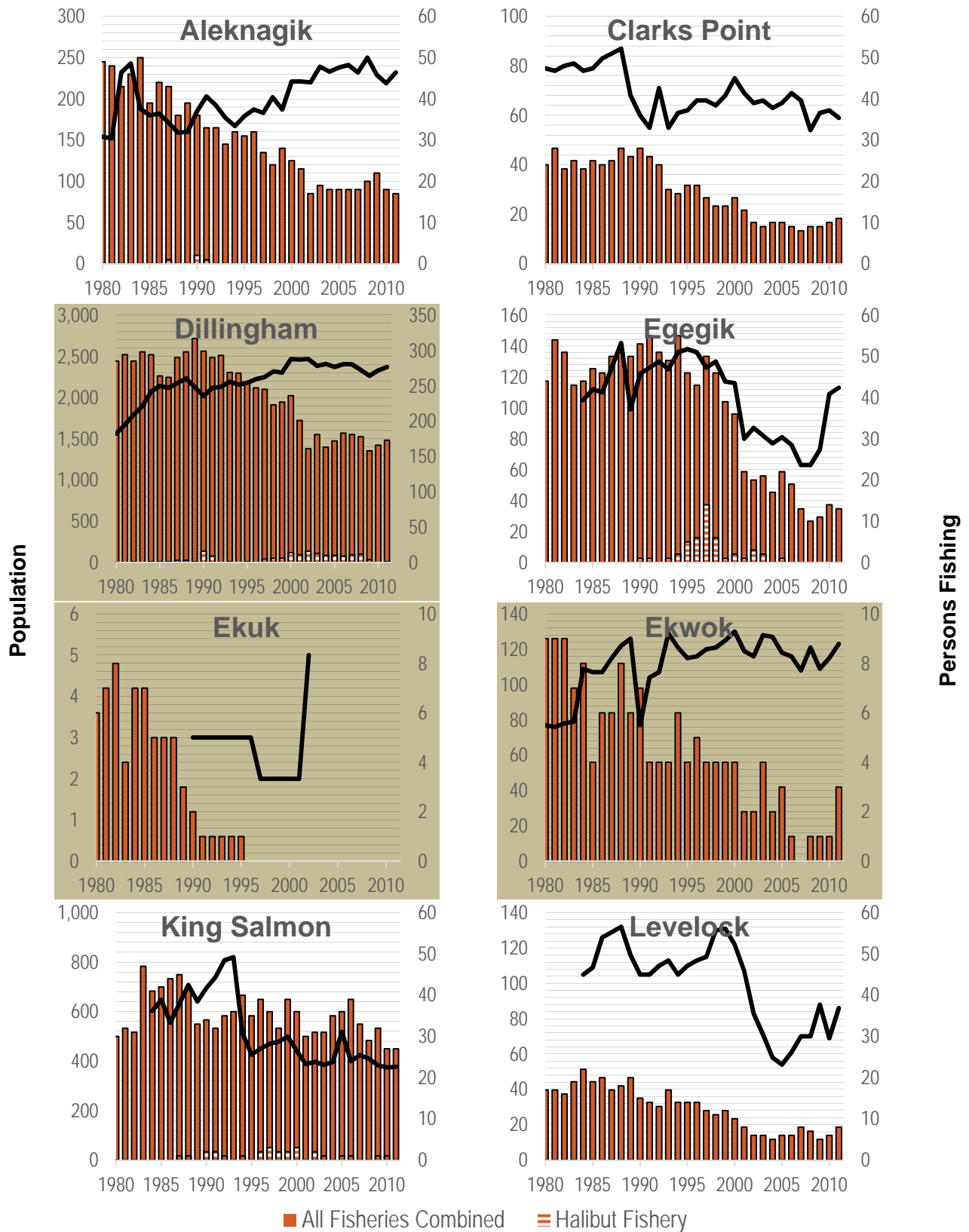


Figure 2. Bristol Bay Economic Development Corporation (BBEDC)



Appendix C Attachment 2: Area 4 Halibut Fishery Participation

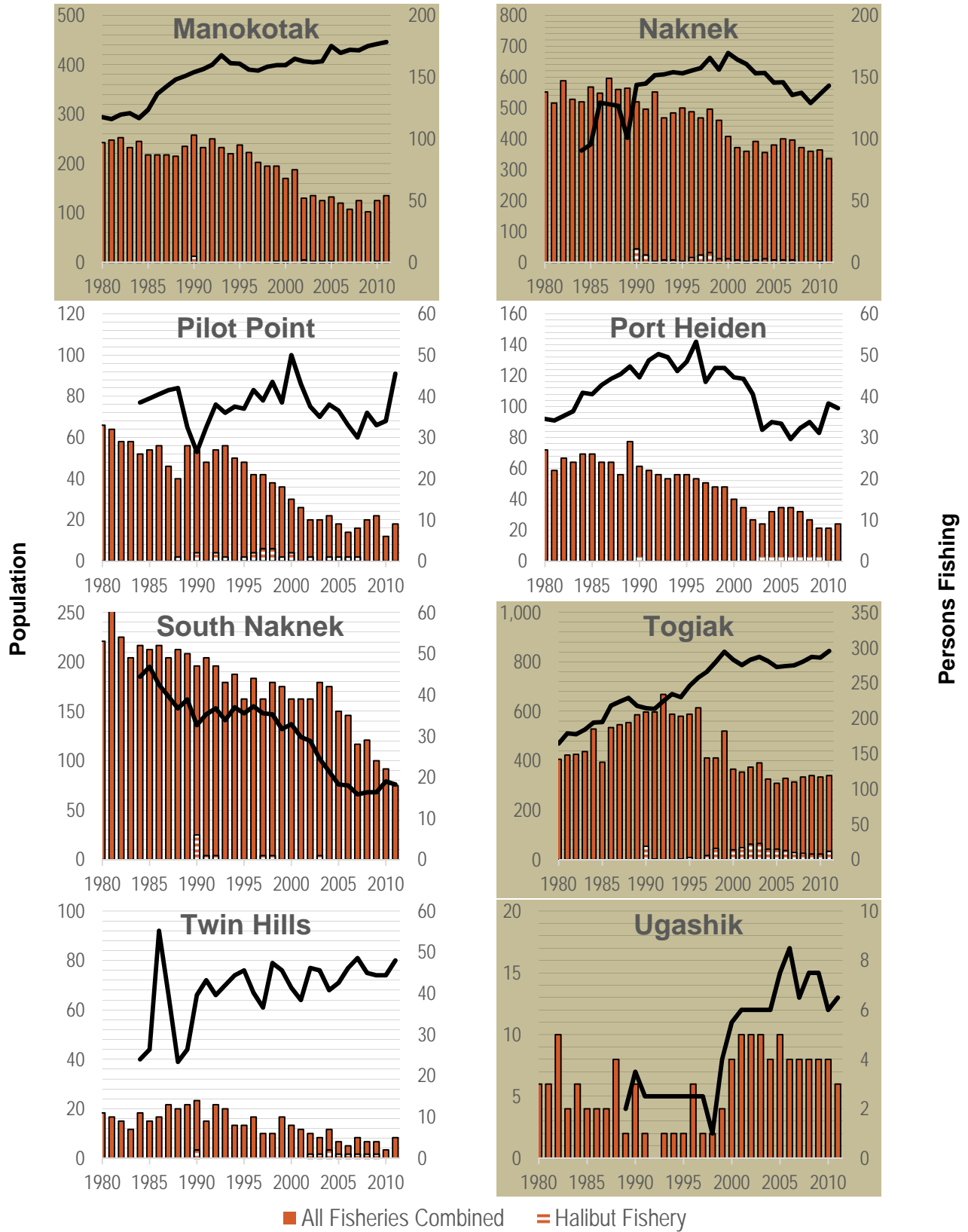
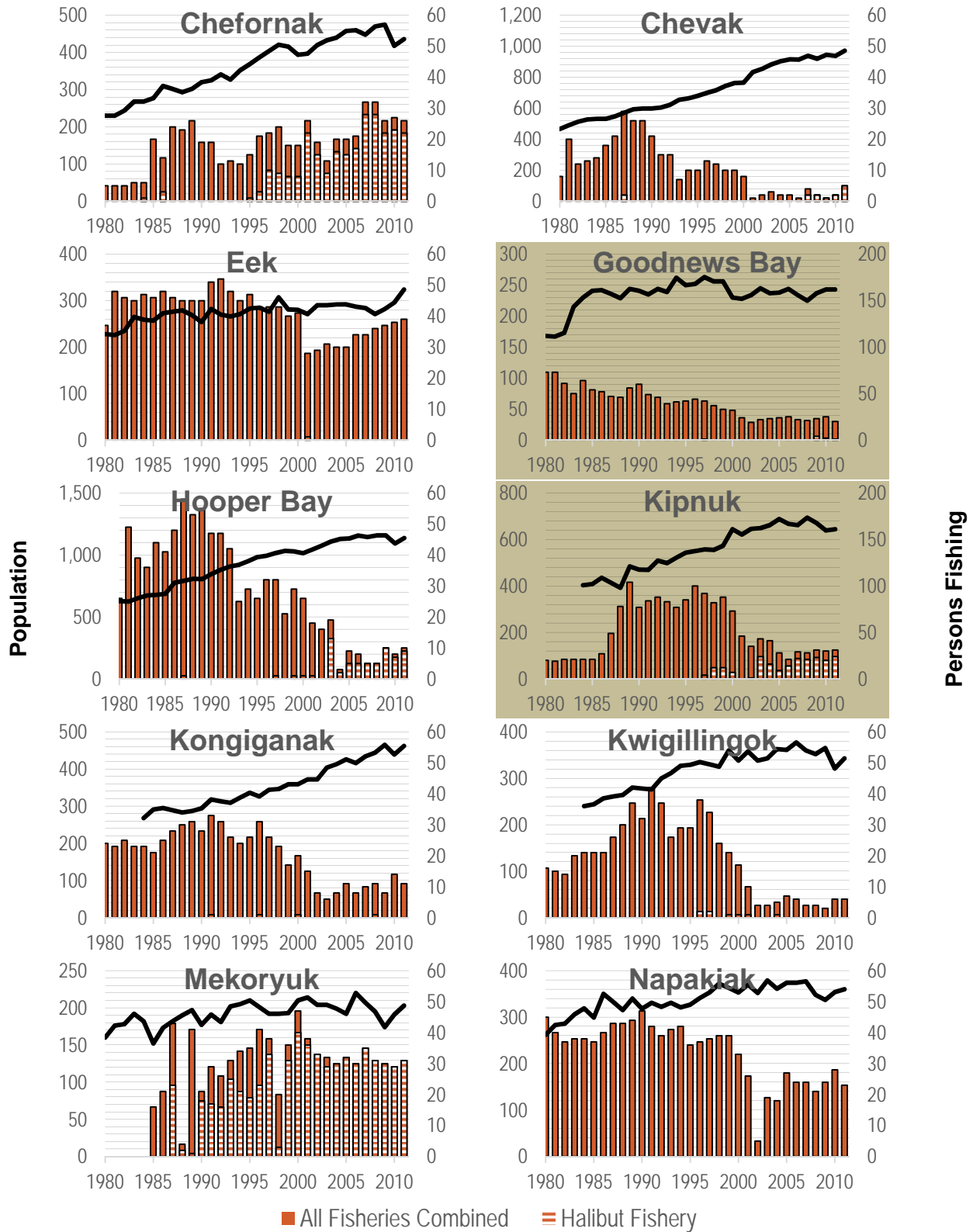


Figure 3. Coastal Villages Region Fund (CVRF)



Appendix C Attachment 2: Area 4 Halibut Fishery Participation

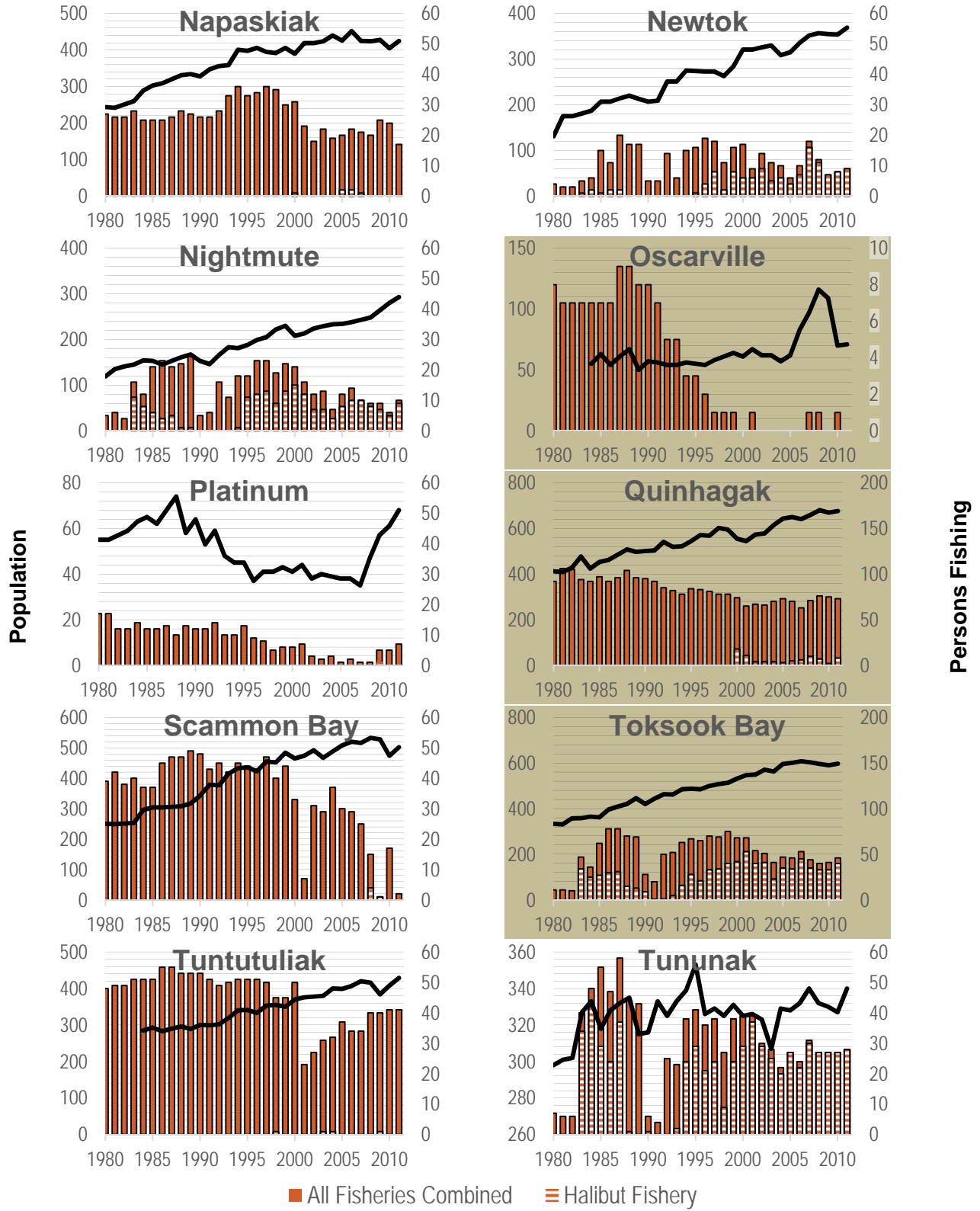
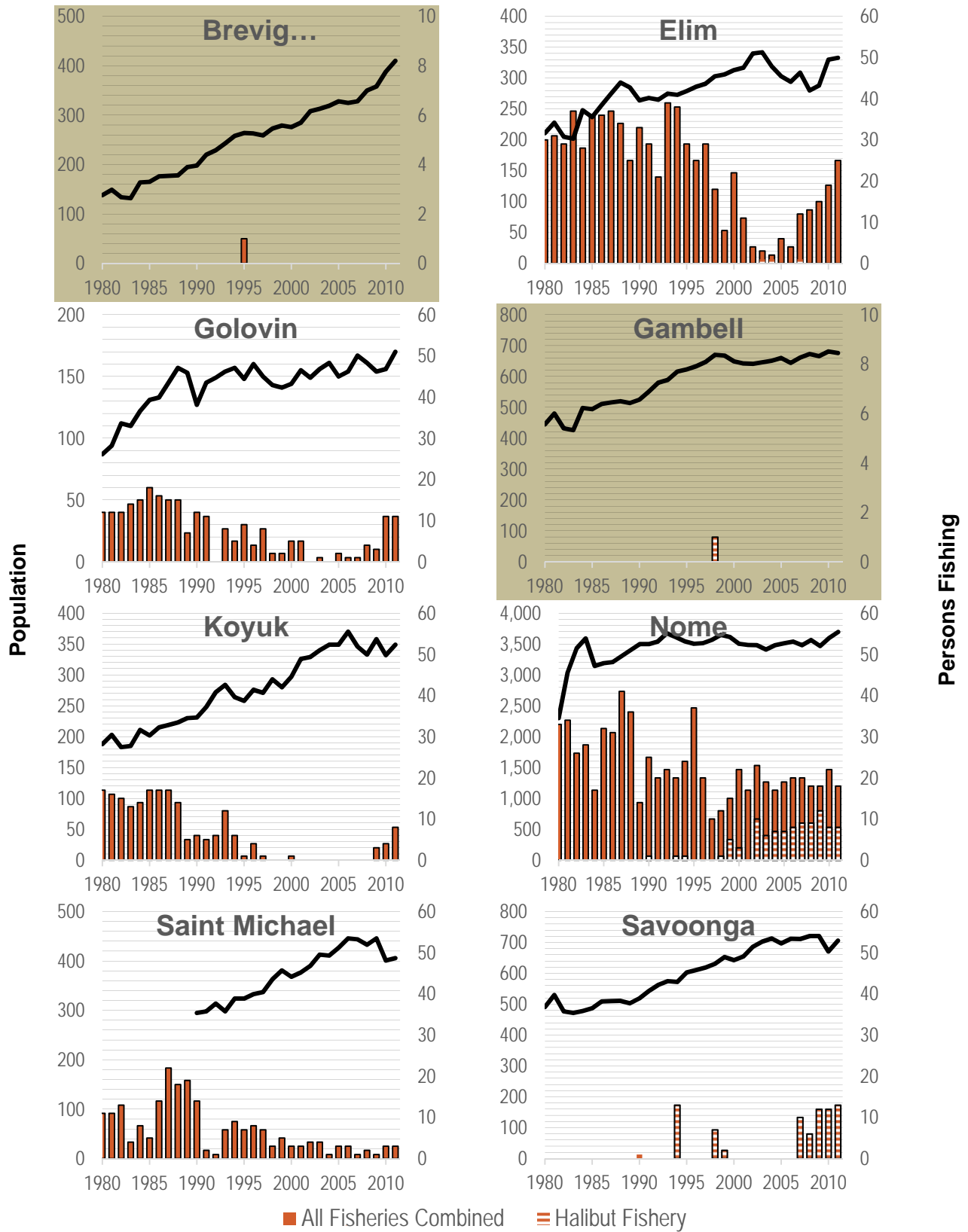


Figure 4. Norton Sound Economic Development Corporation (NSEDC)



Appendix C Attachment 2: Area 4 Halibut Fishery Participation

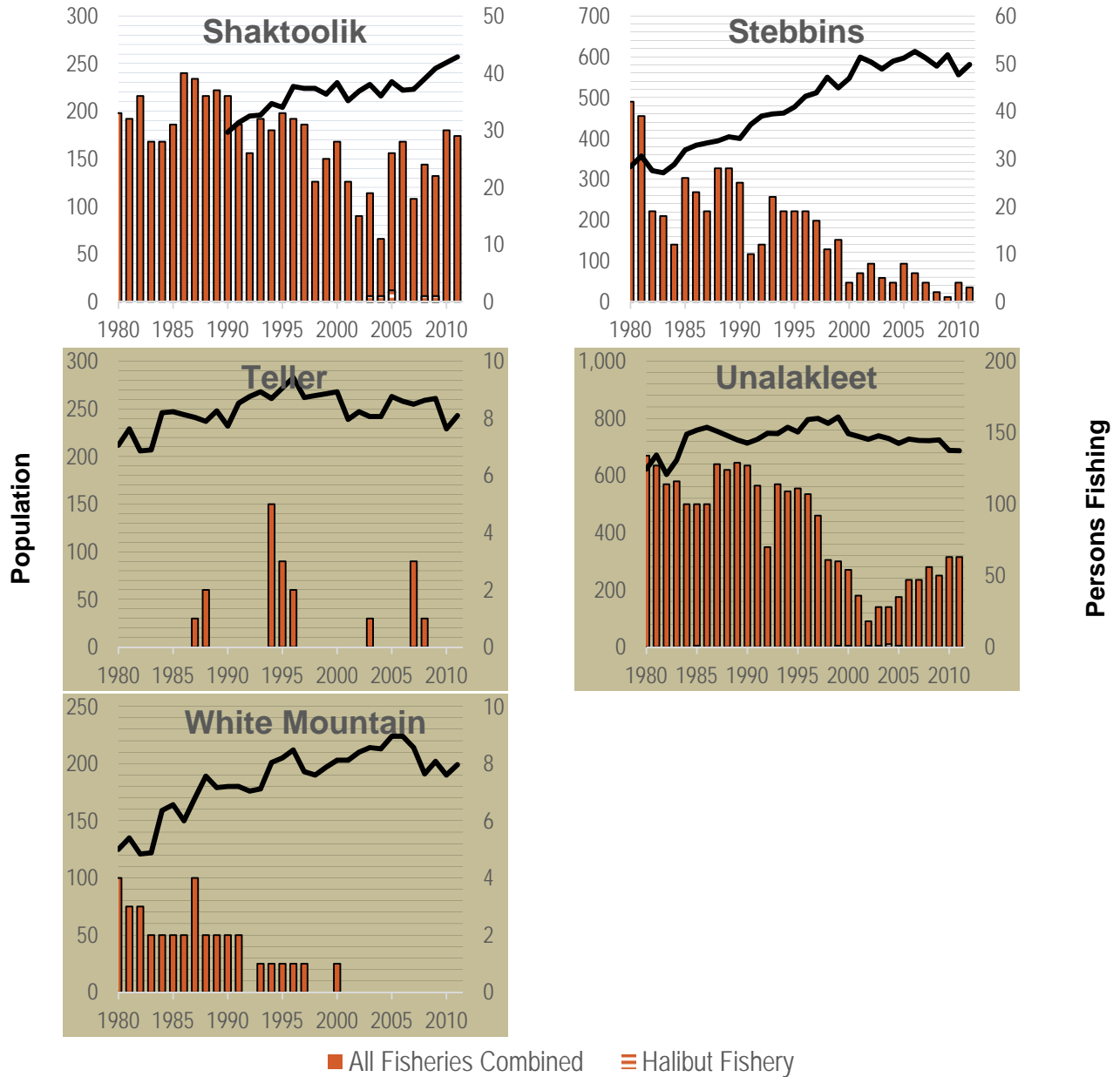


Figure 5. Yukon Delta Fisheries Development Association (YDFDA)

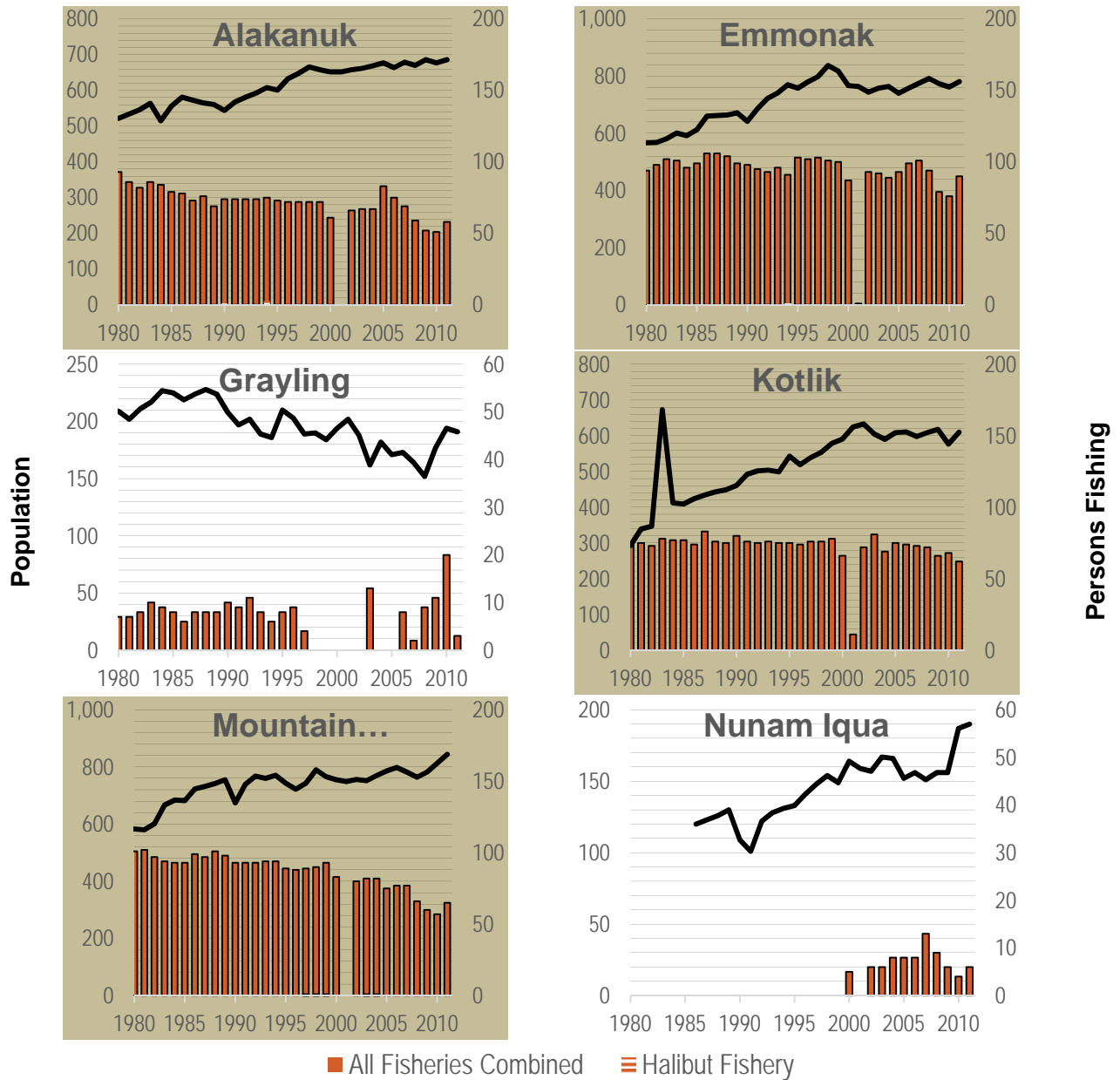


Figure 6. Other Communities

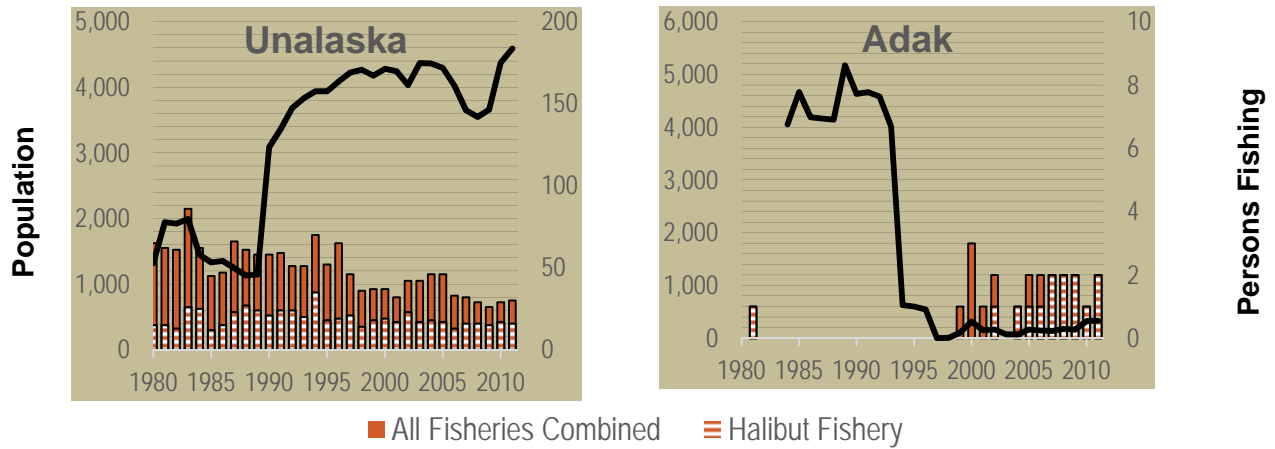


Figure 7. Central Bearing Sea Fisherman's Association (CBSFA)

