

Appendix 1

Initial Review Draft Social Impact Assessment: Bering Sea/Aleutian Islands Halibut Abundance-Based Management of Prohibited Species Catch Limits

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North Pacific Fishery Management Council

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Acronyms and Abbreviations

ACDC	Adak Community Development Corporation
ADFG	Alaska Department of Fish and Game
AEB	Aleutians East Borough
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
AKFIN	Alaska Fisheries Information Network
ANCSA	Alaska Native Claims Settlement Act
APIA	Aleutian Pribilof Islands Association
APICDA	Aleutian Pribilof Islands Community Development Association
BBEDC	Bristol Bay Economic Development Corporation
BIA	Bureau of Indian Affairs
BSAI	Bering Sea/Aleutian Islands
BSIA	best scientific information available
CAS	Catch Accounting System
CBSFA	Central Bering Sea Fishermen's Association
CDQ	Community Development Quota
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFEC	Alaska Commercial Fisheries Entry Commission
COAR	Commercial Operator Annual Report
CP	catcher/processor
CQE	Community Quota Entity
CQN	Chaninik Qaluyat Nunivak
CSIS	Community Subsistence Information System (Alaska Department of Fish and Game)
CV	catcher vessel
CVRF	Coastal Villages Region Fund
DCCED	Alaska Department of Commerce, Community, and Economic Development
DEIS	Draft Environmental Impact Statement
DOR	Alaska Department of Revenue
EBS	Eastern Bering Sea
EDR	Economic Data Report
EIS	Environmental Impact Statement
EO	Executive Order
FCEY	Fishery Constant Exploitable Yield
FLPR	floating processor
FMP	Fishery Management Plan
FR	Federal Register
GOA	Gulf of Alaska
IFQ	individual fishing quota
IPHC	International Pacific Halibut Commission
LLP	License Limitation Program
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
PCFA	principal components factor analysis

PSC	Prohibited Species Catch
RAM	Restricted Access Management
RIR	Regulatory Impact Review
SBPR	shore-based processor
Seattle MSA	Seattle Metropolitan Statistical Area
SHARC	Subsistence Halibut Registration Certificate
SIA	Social Impact Assessment
SWHS	Statewide Harvest Survey
TAC	total allowable catch
TCEY	Total Constant Exploitable Yield
U32	under 32 inches
USFWS	United States Fish and Wildlife Service
VPSO	Village Public Safety Officer
YDFDA	Yukon Delta Fisheries Development Association

1 Executive Summary

This social impact assessment (SIA) evaluates community and regional participation patterns in the Bering Sea/Aleutian Islands (BSAI) Amendment 80 groundfish fishery and the BSAI/Area 4 halibut commercial fishery as well as potential community level impacts from the no-action and action alternatives. Potential impacts to regional subsistence and sport halibut fisheries are also evaluated.

1.1 BSAI Groundfish Fishery Engagement, Dependency, and Vulnerability to Community-Level Impacts of the Proposed Action Alternatives

1.1.1 Alaska Communities

The screening criteria for the selection of Alaska communities for inclusion in the BSAI groundfish component of this SIA were designed to identify Alaska communities that had at least a minimal, ongoing level of engagement in the relevant BSAI groundfish fisheries, as measured by an annual average of one or more active Amendment 80 sector groundfish trawl catcher/processor(s) with a local ownership address that participated in the BSAI groundfish fisheries 2010-2019 inclusive and/or being the location of catcher/processor product transfers. The latter criterion selected for those BSAI communities where, on an annual average basis 2010-2019, 5.0 percent or more of combined state shared fisheries tax revenue (i.e., Fisheries Business Tax revenue [associated with landings at shore-based or stationary floating processing operations] and Fisheries Resource Landing Tax Revenue [associated with product transfers by catcher/processers]) was attributable to Fisheries Resource Landing Tax revenue.

Using these screening criteria, five Alaska communities have been selected for analysis as potentially substantially engaged in, and/or potentially substantially dependent on, the BSAI groundfish fishery sectors most likely to be directly affected by one or more of the proposed action alternatives. These Alaska communities are shown graphically in Table ES-1. Also shown in this table for reference is the level of engagement of these same five communities in the BSAI/Area 4 halibut catcher vessel and shore-based processing sectors. Not shown in this table is the level of engagement of Pacific Northwest communities, including the greater Seattle area, which has the highest level of engagement among all communities in all categories (except being the location of BSAI/Area 4 halibut shore-based processing).

Vulnerability of communities to adverse community-level impacts from the proposed action alternatives is in part a function of dependence of the community on the potentially affected BSAI groundfish Amendment 80 sector fisheries and the economic resiliency and diversity of the community. Dependency is influenced by the relative importance of the relevant BSAI groundfish Amendment 80 fisheries to vessels participating directly in the fisheries in comparison to all area, species, and gear fisheries in which those same vessels participate (community Amendment 80 sector vessel diversity); the relative importance of the relevant BSAI groundfish fisheries to all local ownership address catcher/processor vessels participating in all area, species, and gear fisheries combined (community catcher/processor 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 and community resilience is the specific nature of local engagement in the potentially affected BSAI groundfish Amendment 80 fishery sector 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.

Table ES-1. Graphic Representation of Potentially Affected Alaska BSAI Groundfish Communities Relative Annual Average Engagement in BSAI Groundfish and Halibut Fisheries, 2010-2019

Alaska Community	Relative Community Size	BSAI Groundfish Engagement		BSAI/Area 4 Halibut Engagement	
		Local Ownership Address Amendment 80 CPs	CP Product Transfer Location	Local Ownership Address CVs	Shore-Based Processing Location
Adak	●		○		○
Atka	●		○	●	●
Sand Point	●		●		○
Togiak	●		○	●	
Unalaska/Dutch Harbor	○		●	○	●

Key for Table ES-1

Type/Level of Engagement	●	○	●
Community Size	2010 population = less than 1,000	2010 population = 1,000 – 9,999	2010 population = 10,000 or more
BSAI Groundfish Catcher/Processor Participation	2010-2019 annual avg. = 0.5 – 0.9 vessels	2010-2019 annual avg. = 1.0 – 2.9 vessels	2010-2019 annual avg. = 3.0 or more vessels
BSAI Product Transfer Location Tax Revenues	2010-2019 annual avg. FRLT = 5.0 - 24.9% of FBT+FRLT Total	2010-2019 annual avg. FRLT = 25.0 - 49.9% of FBT+FRLT Total	2010-2019 annual avg. FRLT = 50.0% or more of FBT+FRLT Total
BSAI/Area 4 Halibut Catcher Vessel Participation	2010-2019 annual avg. = 1.0 – 4.9 vessels	2010-2019 annual avg. = 5.0 – 9.9 vessels	2010-2019 annual avg. = 10.0 or more vessels
BSAI/Area 4 Halibut Shore-Based Processing Participation	2010-2019 annual avg. = 0.5 – 0.9 plants	2010-2019 annual avg. = 1.0 – 1.9 plants	2010-2019 annual avg. = 2.0 or more plants

The relative importance of the BSAI Amendment 80 groundfish fisheries likely to be affected by the proposed alternatives 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. These conditions over the period 2010-2019 are summarized by region and community in the following sections, along with potential community level impacts associated with the proposed action alternatives and associated environmental justice concerns, as relevant.

1.1.1.1 Unalaska/Dutch Harbor

Unalaska/Dutch Harbor, 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 from the proposed alternatives through a decline in economic activity related to the Amendment 80 catcher/processor fleet if port calls were to decline as a result of the proposed action. Unalaska/Dutch Harbor, unique among

Alaska communities, also derives substantial public revenues from BSAI groundfish catcher/processors offloading/transferring processed product in the port. Unalaska/Dutch Harbor accounted for two-thirds of all Amendment 80 Alaska port calls during the years 2010-2019. Unalaska/Dutch Harbor could experience indirect impacts from the proposed action alternatives through a decline in economic activity related to the Amendment 80 catcher/processor fleet if product transfers and/or other port calls were to decline as a result of the proposed action; however, there is no straightforward way to quantitatively estimate these impacts.

While Unalaska/Dutch Harbor is clearly the Alaska community most closely associated with activity of the Amendment 80 fleet and therefore potentially the most vulnerable to adverse impacts under the proposed action alternatives, it is also substantially engaged in the commercial directed BSAI/Area 4 halibut fishery, both in terms of its local catcher vessel fleet and local shore-based processing operations and therefore potentially vulnerable to adverse impacts during halibut low abundance conditions under the no-action alternative. Unalaska is not a Community Development Quota (CDQ) community and its local small boat fleet does have access to CDQ halibut as an underpinning of local operations, unlike most halibut-dependent local fleets in the BSAI region.

Potential Environmental Justice Concerns

The demographics of the owners and crew of the specific halibut vessels that would potentially be most likely to experience adverse impacts under the no-action alternative in halibut low abundance conditions are unknown, but a general knowledge of the fleet would suggest that its demographics are largely reflective of the general/residential population of the community as a whole. In contrast, processing workers in Unalaska/Dutch Harbor have tended to be relatively demographically distinct from the rest of the local population. Processing workers are overwhelmingly recruited from outside the community and have tended to include a high proportion of minority workers. Impacts to processing workers could occur as the result of implementation of the no-action alternative during halibut low abundance conditions in the form of reduced income or employment opportunities, depending on how specific plants and, importantly, their delivering fleets, adapt to changing conditions. It is not likely, however, that implementation of the no-action alternative would result high and adverse impacts to processing workers in the form of substantial processor workforce reductions, given the relatively modest level of dependency of the shore-based processing plants in Unalaska/Dutch Harbor on BSAI/Area 4 halibut deliveries compared to those from other BSAI fisheries in which these plants are engaged.

1.1.1.2 Atka and Adak

Direct engagement of both Atka and Adak in the Amendment 80 fishery is limited to locally occurring product transfers, which contribute to local public revenues, and port calls of Amendment 80 vessels that generate local economic activity among support service suppliers, at least in Adak. Like Unalaska/Dutch Harbor, Atka and Adak could experience indirect impacts from the proposed action alternatives if Amendment 80 product transfers were to decline in either community and/or other port calls were to decline in Adak as a result of the proposed action; however, there is no straightforward way to quantitatively estimate these impacts, which could be locally important, if modest in scale in comparison to Unalaska/Dutch Harbor. Atka, as a member of the Aleutian Pribilof Islands Development Association CDQ group, benefits indirectly from the leasing of CDQ quota to the Amendment 80 sector for harvesting. Adak, in contrast, is not a CDQ community.

Both Atka and Adak were the site of locally operating shore-based processors that accepted deliveries of BSAI/Area 4 halibut in most years 2010-2019. While Adak has had challenges in recruiting and retaining a local residential fleet, Atka has historically had a local halibut fleet. However, both communities have had challenges in the processing sector in recent years, with the plant in Adak closing intermittently (most recently in June 2020) and the plant in Atka not having operated since 2017. Under the no-action

alternative, adverse impacts to the BSAI/Area 4 directed halibut fishery under low abundance conditions could make the restart of the Atka and Adak plants and the reestablishment of active local fleets more challenging than would otherwise be the case. Adak shore-based processing has also faced, from the local perspective, a number of fishery management related challenges over the years, compounded by the basic logistical and economic challenges of operating in a local economy that remains in transition from that of relatively large military community to a small civilian community.

Both communities are particularly vulnerable at present to cumulative impacts related to losing working age residents as the local halibut fishery represented, especially in Atka, one of the few private sector income and employment opportunities in the community. The schools in both communities are near minimum enrollment levels needed to qualify for state funding, which complicates residential retention and increases the consequences of not being able to do so.

Potential Environmental Justice Concerns

According to the most recent census, Atka and Adak have populations that are 95 and 82 percent minority, respectively, and both have populations that, as of 2018, had 17.1 and 26.6 percent of their respective populations living below the poverty threshold, which are both considerably higher figure than the Alaska state-wide figure (10.8 percent). Given the nature of potential impacts to both communities summarized above, disproportionate high and adverse impacts to minority and/or low-income populations in both communities are theoretically possible, under both the action alternatives and, under halibut low abundance conditions, the no-action alternative.

Most of Adak's minority residents at the time of the census, however, were processing workers living in group housing and it is likely that processing workers accounted for most of the community's low-income population as well. With the processing plant currently shuttered, those individuals are no longer present in the community. If that situation continues to the time of the ultimate implementation of a selected alternative, both the minority population and the low-income population of Adak may more closely resemble that of the general population of Alaska, meaning that environmental justice concerns may be a non-issue.

1.1.1.3 Togiak

Direct engagement of Togiak in the Amendment 80 fishery is limited to locally occurring product transfers, which contribute to local public revenues, and port calls of Amendment 80 vessels. The contribution to public revenues is relatively modest compared to other sources of general fund revenue and port calls reportedly generate little in the way of support service economic activities as, like Atka, Togiak does not have facilities of the size and scale to regularly support larger vessel operations. Togiak could experience indirect impacts from the proposed action alternatives if Amendment 80 product transfers and/or other port calls were to decline as a result of the proposed action; however, it is assumed that any such impacts would be minor. Togiak, as a member of the Bristol Bay Economic Development CDQ group, benefits indirectly from the leasing of CDQ quota to the Amendment 80 sector for harvesting.

With respect to engagement in and dependency on the BSAI/Area 4 commercial halibut fishery, catcher vessels with Togiak ownership addresses active in the BSAI/Area 4 halibut fishery derived about 83 percent of their total ex-vessel gross revenues 2010-2019 from fisheries other than the BSAI/Area 4 halibut fishery; all commercial fishing vessels with Togiak ownership addresses derived approximately 93 percent of their total ex-vessel gross revenues from fisheries other than the BSAI halibut fishery during this same time period. Given this lack of dependence, Togiak as not as acutely vulnerable in economic terms to community level adverse impacts under the no-action alternative during periods of low halibut abundance as are several other halibut communities. This is not to say that the BSAI/Area 4 halibut fishery is unimportant to Togiak harvesters and/or the shore-based processors in Togiak (and nearby Twin

Hills) as resource that is available during an otherwise slow time and a diversification opportunity in an area that has otherwise been largely dependent on the herring and salmon fisheries

1.1.1.4 Other CDQ Communities

CDQ entities and their constituent communities could be impacted by potential changes to the BSAI groundfish Amendment 80 sector fisheries related to the proposed action alternatives in multiple ways, two of the most direct of which are (1) through their quota holdings in the potentially affected BSAI groundfish multispecies fisheries and (2) through CDQ group investments in direct participation in the potentially affected Amendment 80 sector.

Four of the six CDQ groups routinely have their multispecies groundfish CDQ quota by industry partners in the Amendment 80 sector. To the extent that the proposed action alternatives have the potential to reduce royalty payments by Amendment 80 entities to CDQ groups due to increased harvest expenses and/or leave CDQ fish in the water, the harvest of which has been contracted to Amendment 80 entities, CDQ groups, and their constituent communities are at potential risk of adverse impacts under these alternatives. How effectively these risks would be mitigated by adaptive fishing behaviors on the part of the Amendment 80 partners is unknown and it is otherwise not possible to quantify these risks with available data.

A fifth CDQ groups holds partial ownership interest in multiple vessels in the Amendment 80 sector and thus is at some financial risk under the proposed action alternatives, but again this risk is not quantifiable data. This CDQ group, as well as the sixth group, does not routinely use Amendment 80 entities to harvest their multispecies groundfish quota. While potential adverse impacts resulting from the amounts of quota at potential risk are not quantifiable with available data, they are understood to be minimal.

St. Paul has averaged the fourth highest number of port calls of Amendment 80 vessels among Alaska communities on an annual average basis 2010-2019. Available data suggest, however, that these port calls do not involve an amount of revenue from taxable product transfers that is substantial compared to other fishery tax revenue sources. St. Paul also does not appear to experience substantial private sector economic benefits from these port calls, based on a lack of port facilities and support service businesses of a scale capable of supporting relatively large vessels on a routine basis. As a result, no substantial adverse impacts to St. Paul related to any changes to patterns of Amendment 80 port calls resulting from implementation of either of the action alternatives are anticipated.

1.1.2 Pacific Northwest Communities

Given the degree of centralization of ownership of the BSAI groundfish Amendment 80 sector in the Seattle Metropolitan Statistical Area (Seattle MSA), the centralization of the support services provided by Seattle-based firms, and the concentration of Amendment 80 crew member residence in the state of Washington, potential adverse economic impacts associated with proposed action alternatives described in the DEIS to which this SIA is appended would largely accrue to the Seattle MSA in particular and the Pacific Northwest in general, with the limited exceptions described above.

As noted in economic analysis in the DEIS, under the proposed action alternatives, numerous variables would influence the impacts of PSC limit reduction on the Amendment 80 sector during halibut low abundance conditions, including environmental, regulatory, and behavioral variables. While sector participants cannot directly modify environmental or regulatory variables, they can alter behavioral variables through halibut avoidance strategies, all of which come with avoidance costs. These costs are incurred regardless of whether the PSC limit becomes a constraint and cannot be quantified with available data. Other costs associated with PSC reduction include foregone groundfish revenues if halibut becomes constraining. These costs impact gross revenues but quantifying costs of foregone groundfish revenue resulting from PSC reductions would be speculative and highly uncertain.

Potential Environmental Justice Concerns

Although more recent data are not available for the entire sector, to facilitate the social impact assessment for an earlier BSAI halibut PSC limit revisions analysis, employee demographic information-based 2014 Equal Employment Opportunity Commission data were supplied by four firms with catcher/processors operating in the Amendment 80 catcher/processor sector. Together, these firms accounted for more than half of (10 of 18) trawl catcher/processors operating that year (2015) in the BSAI groundfish fisheries. As shown in the supplied data, 66 percent of all employees working on the 10 catcher/processors represented in these data are minority employees. Given these data, if disproportionate high and adverse impacts were to accrue to the Seattle MSA ownership address BSAI Amendment 80 catcher/processor workforce due to implementation of a proposed action alternative, environmental justice would potentially be an issue of concern.

Of potential concern would be loss of income opportunities for crew, with increased expenses in operations with additional halibut avoidance measures, and/or more time away from home with time-consuming and/or labor-intensive measures. Although there are theoretically many more alternate employment and income opportunities for workers in a large urban area than in smaller communities or rural settings, there may not be comparable employment and earning potential ashore as is available to workers aboard these vessels, even in an otherwise robust job market, especially employees who have worked their way up from entry level positions.

1.2 BSAI/Area 4 Halibut Fishery Engagement, Dependency, and Vulnerability to Community-Level Impacts of the Proposed Action Alternatives

1.2.1 Alaska Communities

1.2.1.1 Overview

The initial screening criteria for the selection of Alaska communities for inclusion in this portion of the social impact assessment were designed to identify those Alaska communities that had at least a minimal, ongoing level of engagement in the relevant BSAI/Area 4 halibut fishery, as measured by an annual average harvest engagement of 2.0 or more catcher vessels with local ownership addresses and/or communities with an annual average BSAI halibut processing engagement of 0.5 or more locally operating shore-based processors that accepted BSAI halibut deliveries over the years 2010-2019, inclusive.

Using these initial screening criteria, 29 Alaska communities, 20 of which are in the BSAI region, were selected for analysis as potentially substantially engaged in, and/or potentially substantially dependent on, the BSAI/Area 4 halibut fishery sectors most likely to be directly affected by one or more of the proposed action alternatives communities. Ultimately, a total of 17 of these Alaska communities were considered to be halibut-dependent for the purposes of this analysis and are shown graphically in Table ES-2. Not shown in this table is the level of engagement of Alaska communities outside of the BSAI region or Pacific Northwest communities.

The problematic nature of the no-action alternative for directed halibut fishery participants under halibut low abundance conditions is inherently recognized in the Council's purpose and need statement. The potential for BSAI/Area 4 halibut-related community-level impacts from the proposed action alternatives in any given community is in part a function of present and future dependence of the community on the potentially affected BSAI/Area 4 halibut fisheries. Similar to what was described for BSAI Amendment 80 groundfish

fisheries, dependency on the BSAI/Area 4 halibut fishery is influenced by the relative importance of BSAI/Area 4 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/Area 4 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.

Table ES-2.
Graphic Representation of Potentially Affected Alaska BSAI/Area 4 Halibut-Dependent Communities Annual Average Engagement in BSAI/Area 4 Halibut Fisheries

Community	CDQ Group	Demographic Characteristics				Shore-Based Halibut Processing Location	Catcher Vessel Characteristics		
		Community Size	Proportion of Total Community Population				Number of Halibut CVs with Local Ownership Addresses	Halibut Ex-Vessel Gross Revenues as Percentage of Total Ex-Vessel Gross Revenues	
			Alaska Native	Total Minority	Low-Income			Halibut CVs Only	All Community CVs
Adak	(none)	●	●	●	●	○	●	●	
Atka	APICDA	●	●	●	○	●	●	●	
Akutan	APICDA	○	●	●	○	○	●	●	
St. George	APICDA	●	●	●	●	○	●	●	
Unalaska/ Dutch Harbor	(none)	○	●	○	●	●	●	○	
St. Paul	CBSFA	●	●	●	○	○	●	●	
Hooper Bay	CVRF	○	●	●	●	○	●	Confidential	
Kipnuk	CVRF	●	●	●	●	○	●	●	
Mekoryuk	CVRF	●	●	●	○	○	●	●	

Community	CDQ Group	Demographic Characteristics				Shore-Based Halibut Processing Location	Catcher Vessel Characteristics		
		Community Size	Proportion of Total Community Population				Number of Halibut CVs with Local Ownership Addresses	Halibut Ex-Vessel Gross Revenues as Percentage of Total Ex-Vessel Gross Revenues	
			Alaska Native	Total Minority	Low-Income			Halibut CVs Only	All Community CVs
Toksook Bay	CVRF	●	●	●	●		●	○	
Chefornak	CVRF	●	●	●	○		○		
Newtok	CVRF	●	●	●	●		●		
Nightmute	CVRF	●	●	●	●		●	●	
Quinhagak	CVRF	●	●	●	●		●		
Tununak	CVRF	●	●	●	●		●		
Nome	NSEDC	○	○	○	●	○	○*	●*	
Savoonga	NSEDC	●	●	●	●	○	●	●	

*Note: Nome catcher vessel revenues combined with “all other NSEDC” (excluding Savoonga) to protect data confidentiality. Where halibut ex-vessel gross revenues are shown as lumped for more than one community, data confidentiality restrictions preclude showing data for the individual communities.

Key for Table ES-2

Type/Level of Engagement	●	○	●
Community Size	2010 population = less than 1,000	2010 population = 1,000 – 9,999	2010 population = 10,000 or more
Alaska Native and Total Minority Population Proportion	2010 population = less than 50 percent	2010 population = 50.0 – 74.9 percent	2010 population = 75.0 or more percent
Low-Income Population Proportion	2014-18 population = less than 15 percent	2014-18 population = 15.0 – 24.9 percent	2014-18 population = 25.0 or more percent
BSAI/Area 4 Halibut Shore-Based Processing Participation	2010-2019 annual avg. = 0.5 – 0.9 plants	2010-2019 annual avg. = 1.0 – 1.9 plants	2010-2019 annual avg. = 2.0 or more plants
BSAI/Area 4 Halibut Catcher Vessel Participation	2010-2019 annual avg. = 1.0 – 4.9 vessels	2010-2019 annual avg. = 5.0 – 9.9 vessels	2010-2019 annual avg. = 10.0 or more vessels
BSAI/Area 4 Halibut Ex-Vessel Gross Revenue Proportion	2010-2019 annual avg. = less than 25 percent	2010-2019 annual avg. = 25.0 – 49.9 percent	2010-2019 annual avg. = 50.0 or more percent

It is assumed that the BSAI/Area 4 commercial halibut fishery would potentially benefit in low halibut abundance conditions from implementation of the action alternatives due to the effective redistribution of overall allocations of halibut between the groundfish and directed halibut fisheries that would occur to greater or lesser degrees under the different action alternatives. These beneficial impacts, were they to occur, would be realized in the near-term following action alternative implementation (and the occurrence of low abundance conditions relevant to the design of the alternative) and potentially in the long-term, if low abundance conditions were to persist over time.

It is further assumed that directed BSAI halibut fisheries, including the commercial, subsistence, and sport halibut fisheries, would potentially benefit from implementation of the proposed action alternatives relative to the degree that the BSAI halibut spawning stock biomass itself would potentially benefit in low abundance conditions, if at all, from implementation of the individual action alternatives. These potential benefits, were they to occur, would not be immediately apparent in the relevant halibut fisheries and the full extent of their impact would not be realized for several years.

1.2.1.2 Potential Impacts to Communities Engaged in the Commercial Halibut Fishery

Dependence of the total resident-owned catcher vessel fleet 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 BSAI region community with easily the highest 2010-2019 annual average catcher vessel Area 4 halibut ex-vessel gross revenues, was also one of three communities with virtually complete community fleet dependency on BSAI halibut ex-vessel gross revenues, along with St. George and Savoonga, which have smaller scale community fleets. Among the other communities or small groups of communities for which ex-vessel gross revenue totals can be disclosed, three other communities (Adak/Atka, Akutan, and Mekoryuk) have local ownership address catcher vessels fleets that were 85 percent or more dependent on BSAI halibut ex-vessel gross revenues on an annual average basis for the years 2010-2019, while two others were 25 percent or more dependent (Unalaska/Dutch Harbor and Toksook Bay). In terms of ex-vessel gross revenues to BSAI halibut vessels specifically, among the potentially substantially engaged or substantially dependent halibut communities for which revenues can be disclosed on an individual community or aggregated community basis, nine have dependencies of 90 percent or greater and one is more than 85 percent dependent.

In all but two cases (Adak and Unalaska/Dutch Harbor), potentially substantially engaged or substantially dependent BSAI halibut communities located in the BSAI region itself are member communities of CDQ entities one of which has partial ownership interest in Amendment 80 vessels and four of which routinely lease CDQ quota for harvest to Amendment 80 industry partners. These CDQ entities and their constituent communities would be vulnerable to potential decreases in revenues during low abundance halibut conditions under the proposed alternatives being considered. Ultimately, the level of direct impact to an individual CDQ entity and level of direct or indirect impact to its member communities cannot be quantitatively estimated given the role of individual entity business decision making, among myriad other factors.

While each CDQ entity pursues individual strategies, 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. Different CDQ groups have faced different circumstances and pursued different strategies regarding the establishment or sustainment of an in-region small boat commercial halibut fishery. For those CDQ groups whose experience in, or assessment of, supporting an in-region small boat commercial halibut fishery would indicate that the effort is not or would not be

sustainable, especially under low abundance conditions, it is unknown whether the beneficial impacts that may accrue from implementation of one or more of the proposed alternatives would be sufficient to pass a threshold whereby in-region halibut fisheries would be considered sustainable even in low abundance conditions. For this reason, it is not possible to predict whether implementation of any one of the proposed alternatives would potentially result in a different pattern of in-region CDQ community commercial small boat direct BSAI/Area 4 halibut fishery engagement than is seen at present.

Potential Environmental Justice Concerns

In terms of minority populations, of the 17 potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria, in 2010 minority residents (including Alaska Native residents) accounted for more than 90 percent of the population in 13 communities, between 80 and 90 percent of the population in two communities, and more than 65 percent of the population in the remaining two communities. In terms of low-income populations, of the 17 potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria, as of the 2014-2018 5-Year American Community Survey, only three had a smaller percentage of their residents living below the poverty threshold than the State of Alaska as a whole; five ranged from 30 to just over 50 percent of their residents living below the poverty threshold; and seven had between the state average (10.8 percent) and 30 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 under halibut low abundance conditions, environmental justice would be a concern. Conversely, if these communities were to experience beneficial impacts under the proposed action alternatives, environmental justice would not be an issue of concern.

1.2.1.3 Potential Impacts to Communities Engaged in the Subsistence Halibut Fishery

Subsistence harvest of halibut would not be directly affected by the proposed action alternatives. Unlike the commercial halibut fishery, the subsistence halibut fishery would not benefit from potential reallocations between the BSAI Amendment 80 groundfish fishery and the BSAI/Area 4 commercial halibut fishery under the proposed action alternatives. The IPHC accounts for incidental halibut removals in the groundfish fisheries, recreational and subsistence catches, and other sources of halibut mortality before setting commercial halibut catch limits each year. While subsistence removals are accounted for in setting the commercial halibut catch limits, subsistence halibut harvests are not constrained by this process. There are no caps on removals from Area 4 in the subsistence halibut fishery analogous to quotas established annually for the commercial halibut fishery, nor are there size limits on halibut harvested for subsistence use.

Subsistence halibut harvests (and harvesters) could indirectly benefit from the implementation of the proposed action alternatives if the proposed action ultimately implemented were to result in changes to the spatial distribution of halibut spawning stock biomass, an overall improvement in availability of halibut for subsistence harvest, and/or an accompanying decrease in effort and expense in harvesting halibut for subsistence use (or if the action alternatives were to result in protection of the halibut spawning biomass in a manner that increased accessibility of halibut to subsistence users over the long term).

Beyond direct use of halibut as a subsistence resource, the proposed alternatives could have impacts on other subsistence pursuits. These types of impacts fall into two main categories: impacts to other subsistence pursuits as a result of loss of income from the BSAI groundfish fishery under the action alternatives (or the BSAI halibut fishery under the no-action alternative) and impacts to other subsistence pursuits as a result of the loss of opportunity to use commercial fishing gear and vessels for subsistence pursuits. In general, however, while the indirect impact of the proposed action alternatives on subsistence is difficult to assess for multiple reasons, joint production impacts in particular are likely to be concentrated among small halibut catcher vessel owners under the no-action alternative.

1.2.1.4 Potential Impacts to Communities Engaged in the Sport Halibut Fishery

Similar to the subsistence harvest of halibut, the sport harvest of halibut would not be directly affected by the proposed action alternatives as, unlike the commercial halibut fishery, the sport halibut fishery would not benefit from potential reallocations between the BSAI groundfish fishery and the BSAI commercial halibut fisheries if BSAI halibut PSC limits were reduced under low abundance conditions. Due to the relatively small volume of recreational use in Area 4 and the management under a daily bag limit rather than an area/sector allocation, IPHC accounts for recreational removals using a projection. There are no caps on removals from Area 4 in the sport halibut fishery analogous to quotas established annually for the commercial halibut fishery, but sport effort is constrained in Area 4 by a sport fishing season that extends from February 1 to December 31 and a bag limit of two halibut of any size per person per day unless otherwise specified.

Sport halibut harvests (and the guided and unguided sport halibut fisheries) could indirectly benefit from the implementation of the proposed action alternatives if reducing BSAI halibut PSC limits under low abundance conditions were to ultimately result in an overall improvement in availability of halibut for sport harvest, an accompanying decrease in effort and expense in harvesting halibut for sport use, and/or an increase in interest in halibut sport fishing in the region prompted by an increasing abundance of larger halibut.

1.2.1.5 Potential Cumulative Small/Rural Community and Cultural Context Issues

This SIA 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 engagement and dependency on those fisheries. This approach provides an analysis of anticipated socioeconomic impacts that may accompany implementation of the proposed action alternatives. It should be noted, however, that fishing regulatory actions can result in a wide range of sociocultural impacts in rural fishing communities. For many residents of these communities, commercial fishing is not seen as a stand-alone socioeconomic activity, 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.

The cultural importance of halibut (as a species) and halibut fishing (as a traditional activity) is documented in the anthropological literature for Alaska Native tribal groups throughout Alaska. In addition to being a primary subsistence resource for many coastal groups, halibut feature prominently in legends and parables. It is not uncommon to see halibut iconography in carvings, paintings, and textile handicrafts throughout the region, further suggesting its traditional cultural importance.

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 available literature and recent NPFMC analyses 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 would serve to provide for more opportunities for the success of small-scale commercial halibut fisheries during periods of low resource abundance, overall sustained participation in a range of local fisheries by residents of the smaller communities in particular would be more secure.

1.2.2 Pacific Northwest Communities

The Seattle MSA is also substantially engaged in the BSAI/Area 4 halibut fishery as measured by ownership address of actively participating catcher vessels, among other indicators of engagement. Its engagement in the BSAI halibut fishery is not as dominant relative to that of Alaska communities, however, compared to its relative engagement in the BSAI groundfish fisheries likely to be most directly affected by the proposed action alternatives. No community level adverse impacts related to the BSAI halibut fishery are anticipated to the Seattle MSA under either the no-action alternative or the proposed action alternatives.

2 Overview

This document, a social impact assessment (SIA), is organized as an appendix to a preliminary draft Environmental Impact Statement (DEIS) that analyzes proposed management measures to index Pacific halibut prohibited species catch (PSC) limits in the Bering Sea and Aleutian Islands (BSAI) groundfish Amendment 80¹ sector fisheries to halibut abundance.

As described in Chapter 1 of the DEIS, the objective of modifying PSC limits is to index PSC limits to halibut abundance which may achieve different goals of providing flexibility to the groundfish fisheries in times of high halibut abundance, protecting spawning stock biomass of halibut especially at low levels, and stabilizing in inter-annual variability in PSC limits, all of which may provide additional harvest opportunities in the commercial halibut fishery. Pacific halibut is also utilized in Alaska as a target species in subsistence, personal use, and recreational (sport) fisheries. Halibut is of substantial social, cultural, and economic importance to fishery participants and fishing communities throughout the geographical range of the resource.

Currently, halibut PSC limits in the Amendment 80 sector are a fixed amount of halibut mortality in metric tons. When halibut abundance declines, halibut PSC becomes a larger proportion of total halibut removals and can result in lower catch limits for directed halibut fisheries. Both the North Pacific Fishery Management Council (NPFMC or Council) and the International Pacific Halibut Commission (IPHC) have expressed concern about impacts on directed halibut fisheries under the status quo and identified abundance-based halibut PSC limits as a potential management approach to address these concerns.

The Council's purpose and need statement for this action is:

The current fixed yield-based halibut PSC caps are inconsistent with management of the directed halibut fisheries and Council management of groundfish fisheries, which are managed based on abundance. When halibut abundance declines, PSC becomes a larger proportion of total halibut removals and thereby further reduces the proportion and amount of halibut available for harvest in directed halibut fisheries. Conversely, if halibut abundance increases, halibut PSC limits could be unnecessarily constraining. The Council is considering linking PSC limits to halibut abundance to provide a responsive management approach at varying levels of halibut abundance. The Council is considering abundance-based PSC limits to control total halibut mortality, particularly at low levels of abundance. Abundance based PSC limits also could provide an opportunity for the directed halibut fishery and protect the halibut spawning stock biomass. The Council recognizes that abundance-based halibut PSC limits may increase and decrease with changes in halibut abundance.

As described in Chapter 2 of the DEIS, there are three overarching alternatives under consideration by the Council. These have been developed through multiple discussion papers and Council considerations, and consultation with stakeholders. These alternatives range from status quo with fixed halibut PSC limits by sector to a range of gear-specific PSC limits indexed to BSAI halibut abundance.

This SIA is organized into seven primary sections. Following the Executive Summary (Section 1) and this Overview, these are as follows:

- Section 3 provides the regulatory context of the SIA.
- Section 4 provides introduction and methodology discussions.
- Section 5 provides quantitative indicators of community fishery engagement and dependency for the fisheries most directly relevant to the analysis.

¹ Amendment 80, implemented in 2008, allocates BSAI yellowfin sole, flathead sole, rock sole, Atka mackerel, and Aleutian Islands Pacific ocean perch to the head and gut trawl catcher/processor sector, and allows qualified vessels to form cooperatives.

- Section 6 provides information on the regional and community context of the relevant fisheries.
- Section 7 provides an analysis of regional and community level social impacts by alternative.

Following these sections, lists of references cited and persons consulted are provided (Sections 8 and 9, respectively), along with four attachments referenced in the body of the document (Sections 10.1 through 10.3).

The information contained in this SIA, with a focus on the analysis and conclusions presented in Sections 5, 6, and 7, is summarized in the DEIS.²

² See Section 6.5 (Social and Environmental Justice) of the DEIS to which this SIA is appended.

3 Regulatory Context

This community-level social impact assessment of the proposed action is guided largely by National Standard 8 – Communities under the provisions of the Magnuson-Stevens Act; National Environmental Policy Act (NEPA); and Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Population and Low-Income Populations.

3.1 Magnuson-Stevens Act National Standard 8

National Standard 8 (50 CFR [Code of Federal Regulations] 600.345) specifies that conservation and 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 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. Per the guidelines for National Standard 8:

FMPs [Fishery Management Plans] must examine the social and economic importance of fisheries to communities potentially affected by management measures. For example, severe reductions of harvests for conservation purposes may decrease employment opportunities for fishermen and processing plant workers, thereby adversely affecting their families and communities. Similarly, a management measure that results in the allocation of fishery resources among competing sectors of a fishery may benefit some communities at the expense of others (50 CFR 600.345).

3.2 Social and Economic Analysis Under NEPA

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 Environmental Impact Statement (EIS), the main document to which this community analysis document is appended, while social effects (and community-level economic effects) are examined primarily in this SIA.

3.3 EO 12898 Environmental Justice

EO 12898 (59 Federal Register [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 also specifically calls for consideration of potential disproportionately high and adverse impacts to Indian tribes³ beyond a more general consideration of potential disproportionately high and adverse impacts to minority populations (Council on Environmental Quality 1997).⁴

³ 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.

⁴ Per CEQ guidance on environmental justice, under NEPA, the identification of a disproportionately high and adverse human health or environmental effect (including interrelated social, cultural, and economic effects) on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives, mitigation strategies, monitoring needs, and preferences expressed by the affected community or population. Further, per CEQ guidance, agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. The factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.

4 Introduction and Methodology

4.1 General Approach

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 BSAI halibut abundance-based management (ABM) of PSC limits was utilized. First, tables based on existing quantitative fishery information were developed to identify patterns of participation in the relevant sectors of the groundfish and/or halibut fisheries, i.e., the sectors most likely to be directly affected by one or more of the proposed action alternatives. This is consistent with the portion of the National Standard 8 guidelines that state:

To address the sustained participation of fishing communities that will be affected by management measures, the analysis should first identify affected fishing communities and then assess their differing levels of dependence on and engagement in the fishery being regulated (50 CFR 600.345⁵).

The second approach to producing this community analysis involved selecting a subset of Alaska communities engaged in the relevant BSAI groundfish and/or halibut fisheries for characterization of the community context of the relevant fisheries 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 the communities in the region(s) involved was chosen due to the practicalities of time and resource constraints. This is consistent with the portion of the National Standard 8 guidelines that state:

The best available data on the history, extent, and type of participation in these fishing communities in the fishery should be incorporated into the social and economic information presented in the FMP. The analysis does not have to contain an exhaustive listing of all communities that might fit the definition; a judgment can be made as to which are primarily affected (50 CFR 600.345).

This characterization has been largely undertaken with existing information (as supplemented with phone and email contact with a limited number of individuals). The analysis was also informed by data gathered during limited fieldwork in Unalaska/Dutch Harbor⁶ and Akutan that was undertaken in conjunction with updates of the Council's baseline fishing community profiles of those two communities.

⁵The National Standard 8 guidelines referenced in this SIA, current as of July 16, 2019, are from the Electronic Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600, Subpart D, Section 600.345 (cited as 50 CFR 600.345) are available at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=6b0acea089174af8594db02314f26914&mc=true&r=SECTION&n=se50.12.600_1345 accessed 7/18/19.

⁶In most Council SIAs, the term "Unalaska" is typically used 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 fishery data sources, however, Unalaska and Dutch Harbor fishery statistics are reported separately, as there are separate Unalaska and Dutch Harbor mailing addresses and zip codes. In this SIA, those statistics are combined for reporting as they represent two components of the same community and the term "Unalaska/Dutch Harbor" is consistently used for the community to clearly signify that those separate data values have been combined. It is understood that use of the name "Unalaska" for the community is more technically accurate and otherwise preferred, especially by long-term residents of the community, and no disrespect or discounting of those preferences is implied by the use of the term Unalaska/Dutch Harbor in this document.

4.2 Quantitative Measures of Fishing Community Engagement and Dependency

Summary tables, typically including time series data indicative of fishery engagement and/or fishery dependence⁷ from 2010 through 2019 are presented in Section 5, along with accompanying narrative. This analysis focuses on the distribution of relevant fishery sectors (primarily catcher vessels and associated ex-vessel gross revenues, catcher/processors and associated first wholesale gross revenues, and/or shore-based processors and associated first wholesale gross revenues) across regions and communities and follows annual and average participation indicators.

Within this quantitative characterization of fishery participation, several 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 (CFEC) vessel registration files. Thus, 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.⁸ Further, the community of ownership address 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 with ownership addresses in the Pacific Northwest spend a great deal of time in Alaska ports and hire at least some crew members from these ports. The region or community of ownership address, 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 catcher 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 NPFMC FMP social impact assessment experience (e.g., AECOM 2010) that has indicated the problematic nature of existing homeport data. Similarly, License Limitation Program (LLP) licenses have been assigned to communities based on license ownership address as it appears in the Alaska Regional Office Restricted Access Management (RAM) Program LLP license database used for this analysis.⁹

For shore-based processors, regional or community designation was based on the operating location of the plant (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 established NPFMC FMP social impact assessment practice.

There are, however, considerable 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 one or two shore-

⁷ Dependence on a fishery can be measured in multiple ways and is a complex concept with economic, social, and other dimensions. In the case of the referenced summary tables, the economic dimension of dependence is characterized simply as the proportional contribution of ex-vessel gross revenues or first wholesale gross revenues resulting from engagement in the given fishery relative to the overall ex-vessel gross revenues or first wholesale gross revenues generated by the catcher vessels, catcher/processors, or shore-based processors from their engagement in all species, gear, and area fisheries.

⁸ Importantly, for the purposes of this analysis, vessels may be owned in whole or in part by CDQ groups, but have ownership addresses outside of the involved CDQ regions. Where CDQ ownership of relevant catcher vessels and/or catcher/processors is known, it is specifically referenced in the appropriate regional discussion(s) in Section 6 and cross-referenced in the sector-specific discussions in Section 5.

⁹ A later section of the document (Section 6.8) provides a set of “cross-walk” tables showing the degree of correspondence of community of vessel ownership address to community of vessel homeport as well as community of vessel ownership address to community of LLP license ownership address for Amendment 80 sector for the most recent year for which data are available. Also presented in that section is information on community of crew residence, based on crew license address.

based processors active in a community in a given year. 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 management alternatives being analyzed. In short, the frame of reference or unit of analysis for the discussion in this section is the individual sector, and the analysis looks at how engagement in the fishery most likely to be directly 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.

4.3 The Community Context of Fishery Engagement and Dependency

The communities engaged in the relevant fisheries are numerous and far-flung. Communities (and types of potential impacts) vary based upon the type of engagement of the individual community in the fishery, whether it is through being a community of ownership address of a portion of the catcher vessel fleet; being the location of shore-based processing; being the base of catcher/processor ownership or activity; or being the location of fishery support sector businesses. In short, the second approach employed in this analysis 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 because 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 communities to select for characterization, given the large number of communities participating in the fisheries (especially the BSAI halibut¹⁰ fishery), the desire to focus on the communities most clearly substantially engaged in and/or substantially dependent on the fishery (and therefore most likely to be directly affected by proposed management actions), a recognition that communities with multi-sector activity may be more or less vulnerable to potential adverse impacts related to the proposed fishery management changes based on the particular

¹⁰ In this document, “BSAI halibut fishery” and “BSAI/Area 4 halibut fishery” are used interchangeably as shorthand for directed (commercial) halibut fisheries in 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). For the practical purposes of this SIA, however, over the period 2010-2019, the universe of communities of ownership of the vessels that confined their fishing effort to the portion of Area 4A south of the Aleutian Chain is relatively small, especially for Alaska communities. Among communities in the BSAI region, Unalaska/Dutch Harbor alone was a community of ownership address for vessels active in the directed Area 4 halibut fishery that confined their effort to the portion of Area 4A south of the Chain (i.e., in the GOA management area and outside of the BSAI management area). There was one Unalaska/Dutch Harbor ownership address vessel in this category in each year 2011-2013 and in 2015, two such vessels in 2010 and 2014, and none in any year 2016-2019. Two communities in the GOA region had one local ownership address vessel whose Area 4 directed halibut fishery effort was confined to the portion of Area 4A south of the Aleutian Chain in one year during the period 2010-2019 (Sitka 2010 and Wasilla 2013); a third GOA region community (Kodiak) had one such vessel active in three years (2010, 2017, and 2019) and two vessels active in one year (2016); and a fourth GOA region community (Homer) had one such vessel active in seven years (2010, 2012, 2014-2015, and 2017-2019), two active in one year (2013) and four active in one year (2016). The portion of Area 4B south of the Aleutian Chain is outside of the geographic boundaries of Bering Sea, similar to the situation with Area 4A, however the area south of the Chain in Area 4B is in the Aleutian Islands portion of the BSAI management area, not in the GOA management area.

sectors present specific communities¹¹ and, most importantly based on the purpose and need statement, those communities most likely to directly benefit from intended potential beneficial impacts of the action alternatives.

4.3.1 Alaska BSAI Groundfish Communities

The initial screening criteria for selection of Alaska communities as potentially substantially engaged in and/or potentially substantially dependent on the relevant BSAI groundfish fisheries for characterization in Section 6 originally included those Alaska communities that had at least a minimal, ongoing level of engagement in the relevant fisheries, as measured by one or more of the following indicators in the primary dataset used for analysis (2010-2019):

- An annual average of one or more Amendment 80 sector groundfish trawl catcher/processor(s) with a local ownership address that participated in the BSAI groundfish fisheries over the years 2010-2019 inclusive.

Following SSC, AP, and Council initial review of a preliminary version of this SIA in October 2019, an additional initial screening criterion was added to capture communities potentially substantially engaged in and/or potentially substantially dependent on the relevant BSAI groundfish fisheries based on the community being the location of catcher/processor product transfers. Specifically, the communities screened for were those BSAI communities where, as measured by the following indicator based on Alaska Department of Revenue data:

- An annual average of 5.0 percent or more of combined state shared fisheries tax revenue (i.e., Fisheries Business Tax revenue [associated with landings at shore-based or stationary floating processing operations] and Fisheries Resource Landing Tax Revenue [associated with product transfers by catcher/processers]) was attributable to Fisheries Resource Landing Tax revenue over the years 2010-2019 inclusive.^{12 13}

Using these (revised) initial screening criteria, five communities were provisionally selected for characterization as the Alaska communities potentially substantially engaged in, and/or potentially substantially dependent on, the BSAI groundfish Amendment 80 fisheries and therefore those with the most potential to be directly affected by one or more of the various proposed management alternatives. These communities are shown in Table 1.

¹¹ For example, if multiple fishery sectors present in a community were all adversely affected by a proposed management action, then those combined impacts, at the community level, may be greater than the sum of individual sector impacts as, for example, direct fishery support sector businesses or municipal services are, in turn, adversely affected. Alternatively, if some locally present fishery sectors were adversely affected and some locally present fishery sectors were beneficially affected, then those combined impacts, when aggregated at the community level, may in whole or in part cancel one another out, with the beneficial impacts to some sector or sectors effectively minimizing or offsetting the adverse impacts to another sector or sectors.

¹² As noted in Section 4.5.1, Product Transfer Report data were initially examined for potential use as a dataset to determine patterns of catcher/processers offloads and the relative importance of those offloads across and within port communities, but the utility of these data proved problematic.

¹³ See Table 33 for detailed information on annual average percentages 2010-2019 for all BSAI communities receiving shared Fishery Resource Landing Tax revenue from the Alaska Department of Revenue.

Table 1. Alaska Communities Potentially Substantially Engaged in BSAI Groundfish Amendment 80 Sectors, 2010-2019, as Selected by Initial Screening Criteria

Alaska Community	Amendment 80 CP Ownership Address	CP Product Transfer Location (BSAI Ports Only)
Adak	--	X
Atka	--	X
Sand Point	--	X*
Togiak	--	X
Unalaska/Dutch Harbor	--	X

*Sand Point is included as "BSAI" community for this indicator due to its location within the Aleutians East Borough.

Of these five communities, four (Adak, Atka, Togiak, and Unalaska/Dutch Harbor) were separately selected for characterization as communities potentially substantially engaged in or substantially dependent upon the BSAI/Area 4 halibut fishery, based on initial screening criteria thresholds of participation in the fishery.¹⁴ As such, they could be affected in a number of different ways by any of the alternatives.¹⁵

4.3.2 Alaska BSAI/Area 4 Halibut Communities

The community analysis of potential impacts of the proposed action on Alaska communities engaged in and dependent upon the BSAI halibut fishery focuses on communities in the BSAI region itself (and, to a more limited extent, communities outside of the region that are nonetheless engaged in the BSAI/Area 4 halibut fishery) for two reasons.

- First, a portion of the Council's purpose and need statement for the proposed action notes that *"When halibut abundance declines, PSC becomes a larger proportion of total halibut removals and thereby further reduces the proportion and amount of halibut available for harvest in directed halibut fisheries"* As this action is focused on the BSAI, it assumed that whatever adverse impacts to the directed halibut fishery that would potentially occur under the no-action alternative in periods of halibut abundance decline (or ongoing low abundance conditions) would be most directly experienced in the Area 4 directed halibut fisheries and the communities substantially engaged in or dependent upon those fisheries.
- Second, the purpose and need statement also reads in part: *"The Council is considering abundance-based PSC limits to control total halibut mortality, particularly at low levels of abundance. Abundance based PSC limits also could provide an opportunity for the directed halibut fishery and protect the halibut spawning stock biomass."* It is assumed that whatever beneficial impacts to the directed halibut fishery that would potentially occur under the action

¹⁴ The initial screening criteria for communities potentially substantially engaged in and/or substantially dependent on the BSAI halibut fishery included all communities with a 2010-2019 annual average harvest engagement of 2.0 or more catcher vessels with local ownership addresses active in the BSAI halibut fishery and/or communities with an annual average BSAI halibut processing engagement of 0.5 or more locally operating shore-based processors that accepted BSAI halibut deliveries. A total of 20 communities in the BSAI region itself met one or both of these criteria.

¹⁵ Three of the five communities were characterized in a separate principal components factor analysis (PCFA) exercise as having been highly engaged in the BSAI/Area 4 halibut fishery through harvesting engagement (Togiak), processing engagement (Adak), and/or both (Unalaska/Dutch Harbor) at least one year 2010-2018 (see Section 4.3.2). One other of the five communities was characterized as having either medium or medium-high engagement in BSAI/Area 4 halibut harvesting and/or processing at least one year 2010-2018 as well (Atka, medium harvesting and medium high processing) (see Table 4).

alternatives during halibut low abundance conditions would be first and most directly experienced in the Area 4 directed halibut fisheries and the communities substantially engaged in or dependent upon those fisheries.¹⁶

To determine the communities most engaged in the BSAI halibut fishery (that would then be used to determine in part the focus of the impact analysis in Section 7), staff of the Alaska Fisheries Science Center's (AFSC) Economic and Social Sciences Research Program utilized a set of fisheries involvement indices earlier developed using secondary data to explore the degree to which communities are involved in the BSAI/Area 4 commercial halibut fishery. Section 10.1 (Attachment A) provides complete documentation of the process, but in short, NMFS has developed a framework to create quantitative indices to help understand community well-being and participation in marine fisheries. AFSC staff have adapted this framework to develop a set of performance metrics to track fisheries participation over time using pre-existing data for all communities participating in commercial fisheries. These performance metrics provide information to examine the degree to which Alaska communities participate in different aspects of commercial, recreational, and subsistence fisheries. The analysis presented in Section 10.1 focuses specifically on those communities engaged in BSAI/Area 4 halibut harvesting and processing activities. The purpose of this analysis is to explore the degree to which communities are engaged in BSAI/Area 4 halibut harvesting and processing in Alaska fisheries and how their participation has changed over time. These indices can be used to provide information about the degree to which communities have sustained participation in this fishery over time.

Performance metrics of community participation in Alaska fisheries from 2010-2018¹⁷ are reported. Data were collected for 59 communities or community groupings throughout the U.S. that had either some commercial Area 4 halibut fisheries landings or residents who owned vessels that were used in commercial Area 4 halibut fishing during this period. There were 27 communities that had some Area 4 halibut landings occurring in their community and were included in the commercial processing engagement analysis. In contrast, 54 of the 59 communities had a resident who owned a vessel that participated in commercial Area 4 halibut fishing and therefore were included in the commercial harvesting engagement analysis. To examine the relative harvesting and processing engagement of each community, a separate principal components factor analysis (PCFA) was conducted each year for each category to determine a community's engagement relative to all other Alaska communities. There are nine years in the study and two PCFAs are conducted each year (processing engagement and harvesting engagement) for a total of 18 different PCFAs.

A unique processing index and harvesting index value for each community in each year. These indices are relative scores in that they represent each community's engagement in commercial fisheries within a single year relative to all other communities in that year. Indices are then appended across all years to create a time series of relative engagement in these two aspects of commercial fisheries over time. Communities that scored above one (above one standard deviation from the mean of zero) for any year are classified as highly engaged for that particular year. It is important to note that since these are relative indices, a large change in the total number of active vessels over time will only cause a change in an index if one community loses a larger share of their vessels (or other commercial fisheries activities) than another community. If the change in number of active vessels (or other commercial fishing activities) are

¹⁶ If beneficial impacts to the directed halibut fishery were to occur due to protection of the halibut spawning stock biomass in low abundance conditions, presumably these benefits could potentially be realized in part in directed halibut fisheries outside of the BSAI region to the extent that halibut in the BSAI region subsequently migrate out of the area and recruit into directed halibut fisheries in other regions, as discussed in the EIS to which this SIA is appended. Given the multiple biological, spatial, and temporal uncertainties involved in attempting to link these impacts to specific regions and communities, these types of potential impacts are not further considered in this SIA.

¹⁷ While other indicators presented in this SIA typically span the 2010-2019 era, some of the 2019 data that feed into the performance metrics in this component of the analysis are not yet available. As a result, in this component of the analysis 2018 represents the best/most complete full-year data available.

directly proportional to the existing number of vessels across communities, there will not be a change in the indices over time.

Table 2 shows the 13 communities that were determined to be highly engaged in BSAI/Area 4 commercial halibut harvesting in one or more years, by year, over the period 2010-2018. Table 3 provides similar information for the six communities that were highly engaged in BSAI/Area 4 commercial halibut processing for at least one year 2010-2018. Three of the six communities that appear in Table 3 also appear in Table 2, for a total of 16 unique communities falling into either category.

Table 2. Communities Highly Engaged in BSAI/Area 4 Commercial Halibut Harvesting for One or More Years, 2010-2018

Community/Area	2010	2011	2012	2013	2014	2015	2016	2017	2018
Seattle MSA	4.59	4.55	4.70	4.61	4.67	5.11	4.96	4.86	4.31
Saint Paul Island	1.91	1.81	1.95	2.13	2.71	2.04	1.76	2.37	2.59
Homer	1.22	1.63	2.03	1.55	1.90	2.10	2.40	2.74	3.00
Kodiak	2.30	1.67	1.56	1.79	1.82	1.85	2.33	1.58	1.57
Togiak	-0.05	0.17	0.64	0.15	1.04	1.16	1.22	1.25	1.12
Unalaska/Dutch Harbor	0.97	0.71	0.81	0.84	0.96	1.38	1.14	0.96	1.49
Other Washington	0.67	0.52	0.21	0.30	0.94	0.89	1.02	1.02	1.40
Other States (not AK/WA/OR)	-0.24	-0.26	-0.20	0.08	0.46	0.26	0.47	0.54	1.02
Toksook Bay	1.82	2.13	1.92	1.94	0.49	-0.54	-0.53	-0.53	-0.54
Mekoryuk	1.48	1.44	1.34	1.30	0.90	-0.54	-0.53	-0.53	-0.54
Tununak	1.23	1.28	1.26	1.40	-0.35	-0.54	-0.53	-0.53	-0.54
Savoonga	0.21	0.02	0.54	0.39	1.08	1.02	0.74	0.81	0.42
Juneau	0.28	0.44	0.27	0.25	1.11	0.76	0.63	-0.13	-0.10

Note: Orange shaded cells are index scores above one (highly engaged).
Source: Adapted from Table 70 in Section 10.1.2 (Attachment A)

Table 3. Communities Highly Engaged in BSAI/Area 4 Commercial Halibut Processing for One or More Years, 2010-2018

Community	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unalaska/Dutch Harbor	3.58	3.33	3.80	3.93	4.35	4.39	4.21	4.34	3.93
Akutan	1.42	1.34	1.09	1.32	1.06	0.83	1.39	1.46	1.60
Adak	-0.75	0.14	0.86	0.20	0.22	0.29	0.34	0.34	1.52
Kodiak	0.59	0.35	0.28	0.55	0.75	1.27	1.31	0.66	0.08
Anchorage	-0.50	1.51	1.48	1.03	0.78	-0.20	-0.60	-0.56	-0.29
Saint Paul Island	2.40	2.24	0.81	0.74	0.09	0.40	0.40	0.61	0.50

Note: Orange shaded cells are index scores above one (highly engaged).
Source: Adapted from Table 68 in Section 10.1.2 (Attachment A)

Based on the community engagement index scores for both BSAI/Area 4 commercial halibut harvesting and processing engagement, communities were categorized into low (index scores below the mean of 0), medium (index scores between 0 and 0.5), medium-high (index scores between 0.50001 and 1), and high engagement (index scores above 1) for each year. The number of years a community is in each category for the processing and harvesting engagement indices is presented in Table 4 for all communities that had at least one year 2010-2018 with a medium, medium-high, or high level of engagement in either the harvesting or processing category. There are 31 communities or community groupings shown that had medium, medium-high, or high engagement in either harvesting or processing engagement.

Table 4. BSAI/Area 4 Commercial Halibut Harvesting and Commercial Halibut Processing Level of Engagement by Community and Region, 2010-2018 (Number of Years)

Community*	Region	Group (BSAI Only)	Harvesting Engagement				Processing Engagement			
			Low	Medium	High	High	Low	Medium	High	High
Adak	BSAI	APICDA	9	0	0	0	1	6	1	1
Akutan	BSAI	APICDA	9	0	0	0	0	0	1	8
Atka	BSAI	APICDA	7	2	0	0	3	5	1	0
Saint George Island	BSAI	APICDA	4	5	0	0	0	0	0	0
Unalaska/Dutch Harbor	BSAI	APICDA	0	0	6	3	0	0	0	9
Saint Paul Island	BSAI	CBSFA	0	0	0	9	0	3	4	2
Chefornak	BSAI	CVRF	6	0	3	0	9	0	0	0
Hooper Bay	BSAI	CVRF	7	2	0	0	9	0	0	0
Kipnuk	BSAI	CVRF	5	0	4	0	9	0	0	0
Mekoryuk	BSAI	CVRF	4	0	1	4	9	0	0	0
Newtok	BSAI	CVRF	8	1	0	0	0	0	0	0
Quinhagak	BSAI	CVRF	7	1	1	0	0	0	0	0
Toksook Bay	BSAI	CVRF	4	1	0	4	5	1	3	0
Tununak	BSAI	CVRF	5	0	0	4	6	3	0	0
Nome	BSAI	NSEDC	4	4	1	0	8	1	0	0
Savoonga	BSAI	NSEDC	0	4	3	2	7	2	0	0
Togiak	BSAI	BBEDC	1	2	1	5	9	0	0	0
Twin Hills	BSAI	BBEDC	0	0	0	0	8	1	0	0
Anchorage	GOA		4	5	0	0	5	0	1	3
Homer	GOA		0	0	0	9	8	1	0	0
Juneau	GOA		2	4	2	1	0	0	0	0
King Cove	GOA		0	0	0	0	8	1	0	0
Kodiak	GOA		0	0	0	9	0	3	4	2
Seward	GOA		9	0	0	0	7	1	1	0
Sitka	GOA		2	5	2	0	9	0	0	0
Wasilla	GOA		2	7	0	0	0	0	0	0
Delta Junction	Interior Alaska		5	4	0	0	0	0	0	0
Seattle MSA	Pacific Northwest		0	0	0	9	9	0	0	0
Other Washington	Pacific Northwest		0	2	4	3	8	1	0	0
Oregon	Pacific Northwest		6	3	0	0	0	0	0	0
All Other States	Other		3	4	1	1	0	0	0	0

*Communities not listed had low or no BSAI/Area 4 commercial halibut harvesting and processing engagement in all years, 2010-2018.

Source: Adapted from Table 71 in Section 10.1.3 (Attachment A)

Another component of the community analysis, however, looks at annual halibut harvest engagement for the years 2010-2019 for all communities with an annual average engagement of 2.0 or more catcher vessels with local ownership addresses, which illustrates trend information (see Table 11 in Section 5.2 below). This section also independently evaluates community fleet dependency on halibut on an annual average basis 2010-2019 to the extent data confidentiality constraints allow. This component of the community analysis also looks at annual halibut processing engagement for the years 2010-2019 for all communities with an annual average engagement of 0.5 or more locally operating shore-based processors that accepted BSAI/Area 4 halibut deliveries, which illustrates trend information (see Table 16 in Section 5.3 below). This section also independently evaluates processor dependency on halibut on an annual average basis 2010-2019 to the extent data confidentiality constraints allow. However, given the fewer number of relevant processors, confidentiality restrictions do not permit community-by-community disclosure of processor first wholesale gross revenue information; this section does, however, present aggregated data by year, so overall regional dependency trends are apparent.

It is assumed that Alaska directed halibut fishery dependent communities identified would be those that would potentially benefit the most from the proposed management actions relative to the extent of the effective redistribution of overall halibut allocations between the BSAI groundfish fishery and the BSAI commercial halibut fishery that may occur with the various action alternatives (and to the degree that the BSAI halibut stock itself [spawning stock biomass] would benefit from these proposed actions). Conversely, the BSAI halibut communities identified for characterization are potentially those Alaska communities that would potentially be the most adversely impacted by the no-action alternative under low abundance conditions.

In both the quantitative indicators and regional/community summaries, information is presented on community engagement in the BSAI groundfish and the BSAI commercial and subsistence¹⁸ halibut fisheries, and, to the limited extent data are available, sport halibut fisheries. Among Alaska communities, the patterns of engagement and the nature of engagement in the BSAI groundfish and halibut fisheries are quite different, with the communities engaged in the relevant BSAI groundfish fishery sectors are mostly a subset of a much larger set of communities engaged in the relevant halibut fisheries. Within this general pattern, there is considerable variation by region and, thus, different patterns of the likely distribution of potential beneficial or adverse impacts that may be expected to result from the proposed action alternatives.

4.3.3 The Geography of Community Engagement and Dependency

The location of the Alaska communities listed Table 1 and/or Table 4 and their proximity to the BSAI management areas and the halibut regulatory areas in the BSAI may be seen in Figure 1. This figure also includes:

- Alaska communities mentioned in Section 6.8 as being designated as the homeport of BSAI groundfish Amendment 80 catcher/processors (Table 60) and/or the Alaska communities of ownership address for the LLP licenses used on those vessels in 2019 (Table 61), the most recent year for which data are available.
- Alaska communities shown in the tables of Section 5.2 of this SIA as engaged in the BSAI/Area 4 commercial halibut fishery through being the community of ownership address of an annual average of 2.0 or more catcher vessels active in the fishery for the period 2010-2019 (Table 11) and/or noted in Section 5.3 as the location of one or more shore-based processors that accepted deliveries of BSAI halibut in any year during the period 2010-2019 (Table 16). Additionally, the four Alaska communities noted in the text of Section 5.2 as being engaged in the BSAI/Area 4 commercial halibut fishery through being the community of ownership address of an annual average of 1.0 or more but less than 2.0 catcher vessels active in the fishery for the period 2010-2019 are also shown on the figure.
- Alaska communities noted in the CDQ regional discussions in Section 6 of this SIA as being the address of halibut individual quota shareholders as of 2020, the most recent year for which data are available (see Sections 6.1.5.2, 6.2.5.2, 6.3.5.2, 6.4.5.2, and 6.5.2.1).

Figure 1 does not include additional Alaska communities of residence of crew members aboard Amendment 80 catcher/processors noted Section 10.2 (Attachment B).

¹⁸ In federally managed waters within and offshore of Alaska, residents of communities in areas of Alaska determined as rural by the Federal Subsistence Board have preferential subsistence-use access to a range of resources, including halibut, over Alaska residents of areas determined as non-rural. Communities or areas of Alaska determined as non-rural include: Anchorage; the Fairbanks North Star Borough; the Homer, Kenai, and Seward Areas within the Kenai Peninsula Borough; Valdez; the Wasilla/Palmer Area within the Matanuska/Susitna Borough; the Juneau Area, and the Ketchikan Area (see https://www.doi.gov/sites/doi.gov/files/uploads/non_rural_areas_statewide.pdf, accessed 5/23/2020).

The location of the Seattle Metropolitan Statistical Area (Seattle MSA) may be seen in Figure 2. This figure also includes:

- Washington communities mentioned in the text and tables of Section 5.1 of this SIA as having at least minimal direct involvement in the BSAI groundfish Amendment 80 sector through being the community of ownership address of relevant catcher/processors active in the fishery in one or more years 2010-2019 (Table 7).
- Washington communities mentioned in Section 6.8 of this SIA as being designated as the homeport of relevant BSAI groundfish Amendment 80 catcher/processors (Table 60) and/or the communities of ownership address for the LLP licenses used on those vessels in 2019 (Table 61), the most recent year for which data are available.
- Washington communities noted in the tables and/or text in Section 5.2 of this SIA as engaged in the BSAI/Area 4 commercial halibut fishery through being the community of ownership address of an annual average of 2.0 or more catcher vessels active in the fishery for the period 2010-2019 (the Seattle MSA [Table 12] and the cities of Seattle and Everett, both of which are within the Seattle MSA). Additionally, the five Washington communities noted in the text of Section 5.2 as being engaged in the BSAI/Area 4 commercial halibut fishery through being the community of ownership address of an annual average of 1.0 or more but less than 2.0 catcher vessels active in the fishery for the period 2010-2019 are also shown on the figure.

Figure 2 does not include additional Washington communities of residence of crew members aboard Amendment 80 catcher/processors noted in Section 10.2 (Attachment B).

Figure 1. Map of Selected Alaska Communities, Federal Fishery Management Areas, and International Pacific Halibut Commission Regulatory Areas

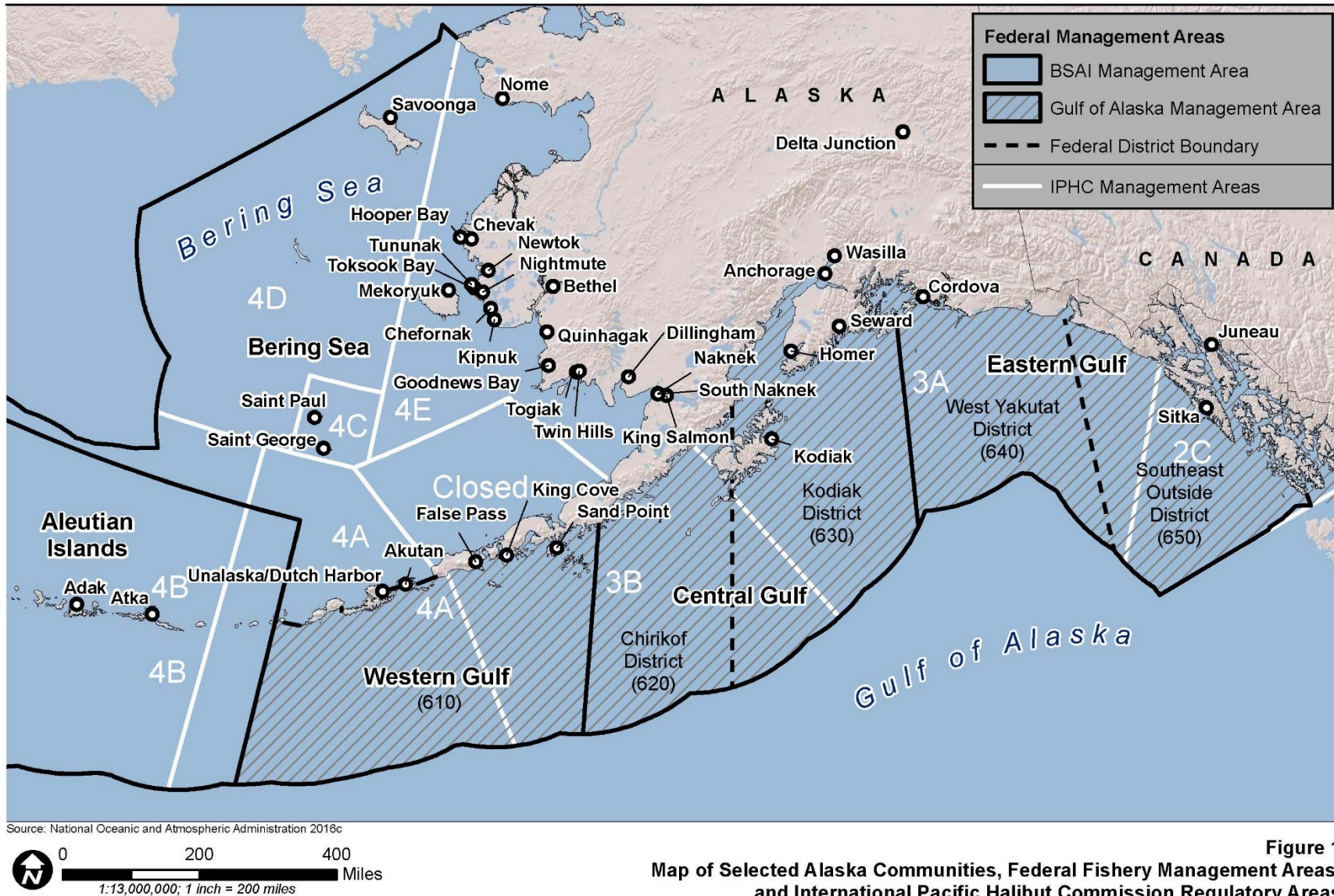


Figure 1
Map of Selected Alaska Communities, Federal Fishery Management Areas,
and International Pacific Halibut Commission Regulatory Areas

Figure 2. Map of Selected Washington Communities

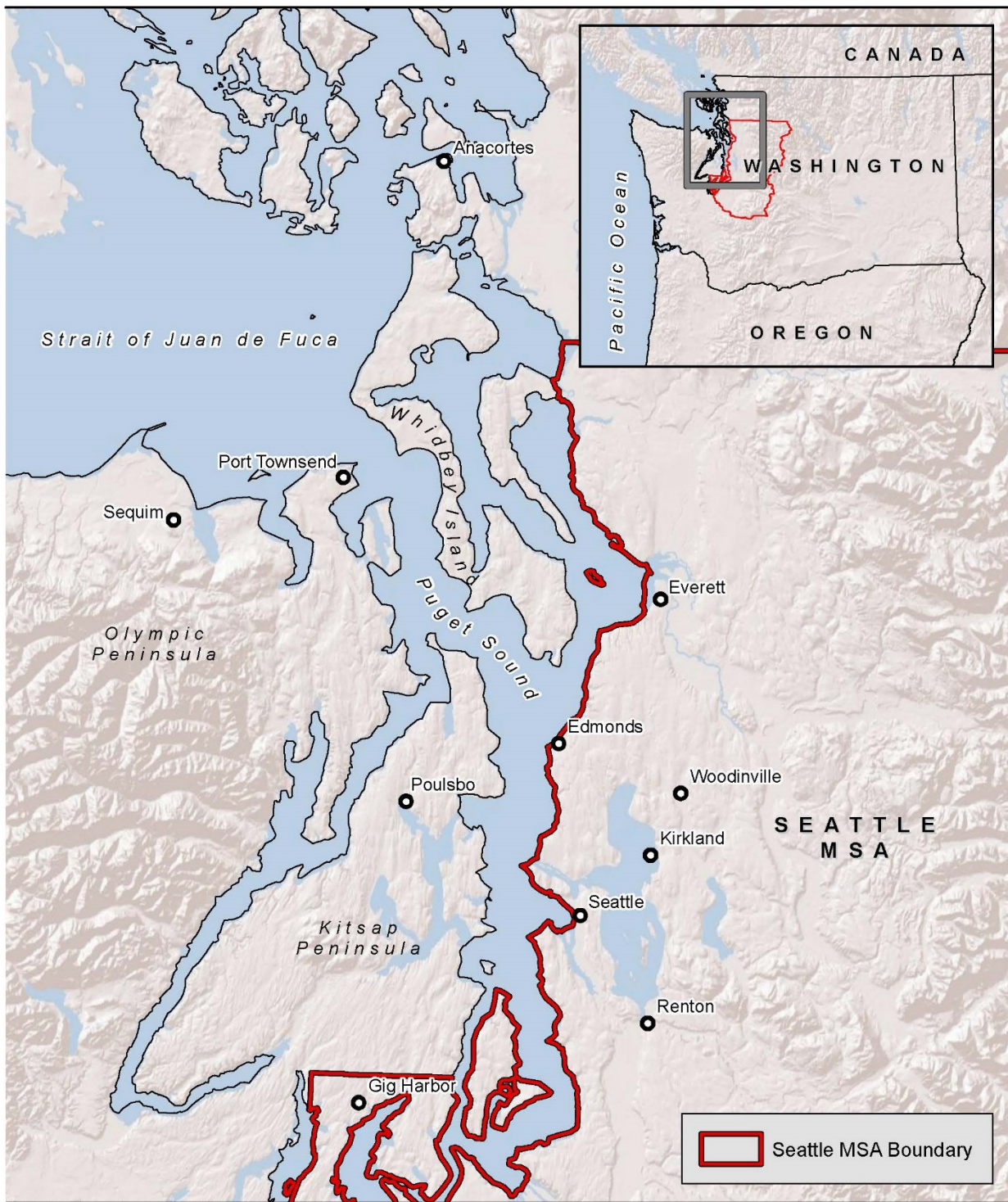


Figure 2
Map of Selected Washington Communities

4.4 Analysis of Alternatives

Section 7 provides a summary of potential community-level impacts by alternative. The analysis in that section is driven by the following components of the National Standard 8 guidelines:

- *The analysis should discuss each alternative’s likely effect on the sustained participation of these fishing communities in the fishery.*
- *The analysis should assess the likely positive and negative social and economic impacts of the alternative management measures, over both the short and the long term, on fishing communities. Any particular management measure may economically benefit some communities while adversely affecting others. Economic impacts should be considered both for individual communities and for the group of all affected communities identified in the FMP.¹⁹*
- *A discussion of social and economic impacts should identify those alternatives that would minimize adverse impacts on these fishing communities within the constraints of conservation and management goals of the FMP, other national standards, and other applicable law (50 CFR 600.345).*

With respect to environmental justice foundational data presented by community in Section 6, for a minority population to be identified as one of potential concern, the proportion of minority residents in the geography being analyzed would need to be meaningfully greater than that of the general population and/or greater than 50 percent of the total population in the geography being analyzed. For a low-income population to be identified as of potential concern with respect to environmental justice analysis, the proportion of low-income residents in the geography being analyzed would need to be meaningfully greater than that of the general population. For analysis of Alaska, Washington, and Oregon communities (or groupings of communities), the general population(s) used as a benchmark are the total populations of their respective states, as shown in Table 5.

Table 5. States of Alaska, Washington and Oregon Selected Demographic Indicators

Geography	2010 Decennial Census Data				2018 American Community Survey Data				
	Total Population	Alaska Native/ Native American 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)
State of Alaska	626,932	14.1%	37.1%	1.8%	\$35,874	\$76,715	167,633	\$90,284	10.8%
State of Washington	5,894,121	1.5%	27.5%	0.5%	\$36,888	\$70,116	1,813,296	\$84,182	11.5%
State of Oregon	3,421,399	1.4%	21.5%	0.7%	\$32,045	\$59,393	1,005,869	\$72,823	14.1%

*Defined as all persons other than those self-identified as being in both "white" and "non-Hispanic" census categories.

**Group quarters is defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.

***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2014-2018 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of \$25,926 in 2019.

Source: US Census 2010; US Census 2019.

¹⁹ This portion of the National Standard 8 guidelines also includes the following: "Impacts of both consumptive and non-consumptive uses of fishery resources should be considered." There are no known non-consumptive uses of BSAI non-CDQ Amendment 80 sector caught Pacific cod that would be relevant to this analysis. This topic is not considered further in this SIA.

4.5 Data that would have been Useful but were Not Available

4.5.1 Useable Product Transfer Report Data to Establish Community Location and Relative Importance of Relevant Catcher/Processor Offloads

Communities may derive substantial benefits from being the location of catcher/processor offloads of product from the fisheries that may be affected by the proposed action alternatives. These potential benefits include shared state Fishery Resource Landing Tax revenues as well as support service provision related economic activity that may accompany catcher/processor port calls, such as fuel purchases, services related to crew changes, cold storage use, longshoring and stevedore services, logistical support services, and harbor services, among others. While no systematically collected time series data are available for fishery support service activities in the relevant fishing communities, as noted in Section 4.5.3, it would be useful to be able to gauge the relative importance of individual ports in overall patterns of catcher/processor offloads of product processed from the specific fisheries in question as well as the relative importance of those offloads to other economic activities within specific ports. Product Transfer Reports, required to be completed for such offloads and submitted to NOAA Fisheries Office of Law Enforcement, were identified as a potential key data source for identifying spatial patterns and order of magnitude attributes of these offloads. While Product Transfer Report data were obtained, it does not appear that the analysts can use these data to accurately estimate amounts of relevant offloads. One primary problem is with apparent errors in weights variously reported in pounds, metric tons, and kilograms. Specifically, a not uncommon apparent error are data entries that appear to have been made kilograms but with the units noted as metric tons, greatly overestimating the weight offloaded. To address in part the lack of useful Product Transfer Report data, the present analysis uses Alaska Department of Revenue Fishery Resource Landing Tax shared revenue data to identify Bering Sea/Aleutian Islands communities where relevant catcher/processor offloads likely take place.²⁰ It is important to note, however, that both Product Transfer Report data and Alaska Department of Revenue Fisheries Resource Landing Tax shared revenue data do not contain key fishery specific data that would be useful for the current analysis, including the time of catch, location of catch, or program designation of the catch (e.g. American Fisheries Act [AFA]/Amendment 80/CDQ).

4.5.2 First Wholesale Value of Products Produced by BSAI Shore-Based Processors for Species Other Than Groundfish

Alaska Fisheries Information Network (AKFIN) staff have provided data to show the relative economic importance of species (and single species harvested in different area and gear fisheries) processed by shore-based processing plants that take deliveries of BSAI/Area 4 halibut. This shore-based processor “diversity” information is intended, in part, to provide quantitatively based insight into the level of engagement in and/or dependency on a particular fishery by shore-based processors operating in a given community or group of communities, as measured by gross or, better, net revenues.

Ideally, these comparisons of relative engagement/dependency would be made at the first wholesale level and reflect net income to the affected processors. However, at least two limitations in the available data prevent that approach. The first limitation is the lack of complete fixed cost and variable cost information to deduct from the gross revenue to calculate the gross margin. If only variable cost data were available,

²⁰ With regard to the relationship between Product Transfer Reports and the information reported to the Department of Revenue for taxation purposes, one firm contacted noted that they use an access database for fishery resource landing tax reports. Locations are drawn from what is reported on a trip basis on the Product Transfer Reports, while quantities of production are drawn from internal production reports that are generated on a daily basis.

the contribution margin, or dollar contribution per unit, could be calculated. The lack of both types of cost data prevent the calculation of any measure of economic efficiency within or between sectors.

The second limitation results from a lack of comparable first wholesale gross revenue values across all species. AKFIN has reliable estimates of first wholesale gross revenues for groundfish species, but first wholesale gross revenue estimates for halibut, crab, herring, and salmon are less reliable. To generate the latter estimates, AKFIN staff must use value data from Commercial Operator Annual Report (COAR) forms and landings information from eLandings data. Previous attempts to generate comparable information by species have not provided results deemed sufficiently reliable for routine use in the analysis of management actions. Therefore, AKFIN staff provide comparisons of ex-vessel expenditures (i.e., ex-vessel gross revenues received from the processor by vessels making deliveries at the processor) by species/fishery for shore-based processor diversification comparisons in the absence of more useful data. Comparing ex-vessel value at the processor level, however, reflects a cost to the processor and not income. As a result, the comparison should be considered a very rough proxy for the analysis of the relative importance of each species or species group to the economic viability of processing firms and, by extension, to the communities in which they operate.

4.5.3 Systematically Collected Time Series Data on Fisheries Support Service Sector Entities and Community Patterns of Catcher Vessel, Catcher/Processor, and Shore-Based Processor Expenditures

No systematically collected time series data are available for fishery support service activities in the relevant fishing communities. While comprehensive fishing community profiles of Adak, Unalaska/Dutch Harbor, Akutan, King Cove, Kodiak, Sand Point, St. George, and St. Paul are available and contain detailed information on fishery support service businesses, these profiles are now dated to varying degrees.²¹ Compiled in part using ethnographic research in each community, these profiles include operational profiles and qualitative employment information for attempted 100 percent samples of locally identified direct fishery support service businesses in all communities except Kodiak, where representative samples were sought.

If systematically collected time series data on catcher vessel, catcher/processor, and shore-based processor support service expenditures by community and type of service provider were available, more accurate social and economic analyses of sector and community impacts would be possible, including a more accurate picture of local multipliers for fishery related expenditures. Additionally, this type of information would help in associating vessels with particular communities based on quantitative data for the purposes of social impact assessment as a supplement to, if not a replacement for, assigning vessels to communities based on for example, ownership address, homeport, or LLP license ownership address as proxies for revenue flows.

As previously noted (Section 4.5.1), in the case of Amendment 80 vessels, useable Product Transfer Report data are not available. Port call data are available, as shown in Table 6, but no information is available on the nature and magnitude of local expenditures related to these port calls.²²

²¹ While no updated community profiles are yet available, supplemental information was collected in Unalaska/Dutch Harbor and Akutan in July 2019 and informed this analysis.

²² While St. Paul is shown in Table 6 as having the fourth largest number of Amendment 80 port calls among Alaska communities on an annual average basis 2010-2019, it does not appear in Table 1 as a catcher/processor product transfer location. This is because in the case of St. Paul, Fishery Resource Landing Tax revenues were less than five percent of the combined total of Fishery Business Tax + Fishery Resource Landing Tax revenue distributed to the

Table 6. Amendment 80 Catcher/Processor Port Calls, 2010-2019

Community	2010	2011	2013	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)
Adak	36	19	23	21	15	20	32	46	42	36	29.0	11.6%
Atka	0	0	0	0	0	6	6	1	5	0	1.8	0.7%
Sand Point*	0	1	1	0	0	1	0	0	0	0	0.3	0.1%
St Paul	4	2	3	24	3	8	0	1	7	3	5.5	2.2%
Togiak	0	0	0	0	16	35	36	20	40	36	18.3	7.3%
Unalaska/Dutch Harbor	186	214	196	181	156	165	154	151	131	154	168.8	67.3%
Kodiak	0	1	0	0	0	0	0	0	0	0	0.1	0.0%
Other/Unknown	54	58	56	18	25	10	11	10	11	13	26.6	10.6%
Transfer at Sea	4	0	0	0	0	0	1	0	0	0	0.5	0.2%
Total	284	295	279	244	215	245	240	229	236	242	250.9	100.0%

*Sand Point is grouped with the "BSAI" communities for this indicator due to its location in the Aleutians East Borough.

Source: Observer report data summarized by AKFIN.

4.5.4 Crew Employment and Income Data for Halibut Catcher Vessels and Halibut Shore-Based Processors

Economic Data Report (EDR) data are available for the BSAI groundfish Amendment 80 sector vessel crew employment and earnings and are utilized in this analysis. However, no EDR or similar data on catcher vessel crew employment and earnings are available for BSAI/Area 4 halibut fishery, nor are employment and earnings data for shore-based processors accepting deliveries of BSAI/Area 4 halibut. This lack of data represents a substantial impediment to a comprehensive analysis of the human dimensions of the fishery and the community footprint of potential social impacts associated with the proposed management actions.

4.5.5 Current Data on Subsistence Harvest and Use of Halibut

Subsistence use of halibut (and Pacific cod) has deep roots and remain important parts of the social, cultural, and economic fabric of life in the communities of the BSAI region. Halibut (and Pacific cod) shows up as a resource in the archaeological record and patterns of use continue to evolve. In several of the communities of central focus for the BSAI groundfish portion of this analysis (Unalaska/Dutch Harbor, Atka, and Togiak), commercial and subsistence fisheries are intertwined. For example, while multiple species are still retained for subsistence or personal use from commercial catch, recent work (Reedy-Maschner and Maschner 2012) finds a substantial amount of a range of wild foods formerly harvested are now purchased or increasingly purchased. Pacific cod in particular is often purchased from processors after being de-wormed (Reedy 2016). Some of these purchases are from processors operating in the community, while others are not.

For the BSAI/Area 4 halibut portion of the analysis, there is clear regional variation in the amounts of halibut harvested for subsistence relative to the amounts of all fish harvested for subsistence. For example, Alaska Department of Fish and Game (ADFG) Community Subsistence Information System (CSIS) data suggest that in the Pribilof communities of St. George and St. Paul, which bridge the Aleutian

community by the Alaska Department of Revenue on an annual average basis 2010-2019 (i.e., the screening criteria for inclusion in Table 1).

Pribilof Islands Community Development Association (APICDA) and Central Bering Sea Fishermen’s Association (CBSFA) regions, respectively, halibut is in the mid-80s as a percentage of pounds of all subsistence fish harvested. For other key communities in the APICDA region, analogous halibut as a percentage of all subsistence fish harvested figures range from the mid-20s to the mid-40s (Table 32; see Table 39 for St. Paul) In contrast, the analogous figures for key communities in the Coastal Villages Region Fund (CVRF), Norton Sound Economic Development Corporation (NSEDC), and Bristol Bay Economic Development Corporation (BBEDC) regions, with one exception, range from 12 to 7 percent (Table 47), to 8 percent (Table 53), to less than one percent (Table 58), respectively, with the exception being the CVRF community of Mekoryuk at 36 percent. It is critical to note, however, that CSIS type of data do not exist for multiple communities and that much of the available data are now dated (some of it being more than 30 years old).

It is also important to note that often percentage of subsistence harvest figures are of limited utility when a relatively low-volume resource may be of critical importance at a particular time of year or at particular points of longer relative scarcity/abundance cycles of other resources. While there are no direct impacts anticipated to halibut subsistence because of the proposed alternatives, indirect and/or cumulative impacts could occur. Further, baseline information on the retention of subsistence halibut from commercial fisheries harvest in some of the key commercial fishing communities relevant to the proposed management actions is unavailable. Together, this lack of data limits the ability to fully analyze potential interactive commercial and subsistence fishery impacts of the proposed fishery management alternatives.

4.5.6 Local Knowledge and Traditional Knowledge

Per National Standard 2 – Scientific Information (a)(6)(ii)(C):

Relevant local and traditional knowledge (e.g., fishermen’s empirical knowledge about the behavior and distribution of fish stocks) should be obtained, where appropriate, and considered when evaluating the BSIA [best scientific information available] (50 CFR 600.315²³)

There are no known peer-reviewed, published sources of local knowledge (LK) or traditional knowledge (TK) that would directly inform the analysis of the management actions being analyzed in this document, based in part on the nature of the proposed management action alternatives. Specifically, the action alternatives would in part, under conditions of low halibut abundance, effectively reallocate halibut away from PSC use in the BSAI groundfish Amendment 80 sector and toward use as quota in the directed commercial halibut fishery for the benefit of the participants in that fishery (and potentially facilitate access to more halibut for subsistence use from catch retained from commercial fishing, among other means). Regional small boat halibut fisheries are one of the intended beneficiaries of the action alternatives being considered. Any adverse impacts to regional small boat halibut fisheries from potential increases in halibut PSC limits under conditions of high abundance would presumably be offset by those abundance conditions themselves. The problematic nature of the no-action alternative for directed halibut fishery participants under halibut low abundance conditions is inherently recognized in the Council’s purpose and need statement. In short, the nature of the proposed action alternatives makes determining appropriate potential sources of LK or TK that would inform management decision making on the action alternatives challenging. That is not to say that LK and/or TK that could inform the analysis of impacts of the proposed management actions on specific communities or sets of communities does not exist. Rather,

²³ The National Standard 2 guidelines referenced in this SIA, current as of April 29, 2020, are from the Electronic Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600, Subpart D, Section 600.315 (cited as 50 CFR 600.315) are available at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=6b0acea089174af8594db02314f26914&mc=true&r=SECTION&n=se50.12.600_1315 accessed 5/4/2020.

that detailed information is not currently known to have been documented or have been otherwise readily available to or accessible by the study team.²⁴

The Bering Sea FEP core document was approved by the Council in December 2018, and Action Module 4 (LK, TK, and subsistence) was prioritized at that time. For this module, the intent was to create a clear set of directions for the Council regarding best practices for solicitation and consideration of LK and TK, and for identifying how impacts to subsistence are best understood and incorporated into analyses.²⁵ The intent is not data collection but rather best practice protocols that can be applied to improve ongoing Council decision making. The Council clarified that the Action Module is intended to produce work products within a two- to three-year timeframe, thus, in the near future, it is likely the Council will be increasingly receiving information from LK and TK sources in management action analyses.

Specifically, the Council also endorsed the draft Action Module workplan in principle, as revised in response to Council, Ecosystem Committee, and Scientific and Statistical Committee comments in June 2019. The Taskforce for this Action Module was formed after a solicitation for nominations in October 2019, and includes representatives from Alaska Native Organizations, Tribes, Bering Sea communities, and researchers with expertise in LK, TK, and subsistence issues. In February 2020, the Council revised the purpose and [goals](#) of the LK, TK and Subsistence Action Module. The [revision authorizes](#) the LK, TK, and Subsistence Taskforce to develop protocols for identifying, analyzing, and incorporating LK, TK, and subsistence information rather than highlighting impacts to subsistence resources and users.

²⁴ There is some limited general spatial information available on halibut commercial and subsistence fishing areas as well as areas of potential growth for commercial halibut fishery based on interviews in the Bering Straits region (Bering Sea Elders Advisory Group, 2011). Additionally, the Kawerak Subsistence Program produced a Bering Strait Region Local and Traditional Knowledge Pilot Project report (Ahmasuk, et al, 2008) that included tabular information on estimated harvest and use of non-salmon fish (including halibut) by community as well as availability of non-salmon fish (including halibut) by community, but that information is now considered out of date by current staff. Kawerak has produced a more recent report on local ecological knowledge of non-salmon fish used for subsistence in the Bering Strait Region (Raymond-Yakoubian, 2013) and this report includes information on how the 2009-2010 fishing season compared to previous years by community; percentage of surveyed households by community that tried to harvest, harvested, used, gave away, or received non-salmon fish, including halibut, during the 2009-2010 survey period; and total estimated harvest of non-salmon fish by community 2009-2010. While the information on halibut specifically is not especially detailed, this report does contain some contextual narrative that is not present in the other reports mentioned.

²⁵ In February 2020, the Council revised the goal of this Action Module in the workplan, but not in the Core FEP document. In the workplan, the revised goal is to develop protocols to identify and incorporate LK, TK, and subsistence information into Council analyses.

5 Quantitative Indicators of Community Fishery Engagement and Dependency

The sections below provide quantitative participation information, within the bounds of confidentiality restrictions, for the communities most directly engaged in and dependent on relevant sectors with the BSAI groundfish and halibut fisheries. Specifically, Sections 5.1 through 5.3 include a series of tables containing a range of quantitative information describing the distribution of sector-specific community engagement (or participation) in and dependency (or reliance) on the directed commercial BSAI groundfish and/or halibut fisheries for the following sectors:

- BSAI groundfish Amendment 80 sector catcher/processors (Section 5.1)
- BSAI halibut catcher vessels (Section 5.2)
- BSAI shore-based processors operating in Alaska accepting BSAI halibut deliveries (Section 5.3)

Additionally, this section also summarizes community and regional engagement in the BSAI halibut subsistence fishery (Section 5.4) and the BSAI sport halibut fishery (Section 5.5).

This information is summarized, on a regional/community basis, in the region/community specific discussions in Section 6 of this document.

5.1 BSAI Groundfish Amendment 80 Sector Trawl Catcher/Processors

The following series of tables provide a series of quantitative indicators of Amendment 80 sector engagement in and dependency on the BSAI groundfish fishery, by community and/or regional geography of ownership address depending on data confidentiality restrictions, as noted in the following paragraphs.²⁶

Table 7 provides a count, by community of ownership address and year (2010-2019), of BSAI Amendment 80 groundfish trawl catcher/processors for the Seattle MSA, all other Washington communities, and “all other states” (all states other than Alaska, Washington, and Oregon) combined, along with annual average counts and percentages and the total number of unique vessels. There were no BSAI Amendment 80 catcher/processors with Alaska or Oregon ownership addresses active during the 2010-2019 period. As shown, the largest component of fleet ownership during any given year is, by far, the Seattle MSA, which included all vessels with Washington ownership addresses in the most recent nine years for which data are available (annually averaging over 80 percent of all participating vessels), followed by “all other states” combined (annually averaging under 20 percent of all participating vessels). Within the Seattle MSA, three different cities appear as ownership addresses in the 2010-2019 data. Renton appears as an ownership address for three vessels in 2011, four vessels in each year 2012-2016, and two vessels in 2017, while two vessels with Kirkland ownership addresses appear in the data each year 2013-2019. Seattle itself otherwise accounts for the balance of Seattle MSA ownership addresses for 2010-2019. In the most recent three years for which data are available, vessels with “all other states” ownership addresses accounted for about one-quarter of the active Amendment 80 fleet.

Table 8 provides BSAI Amendment 80 groundfish trawl catcher/processor first wholesale gross revenue information by community of ownership address and year (2010-2019) to the extent possible within data

²⁶ It is also important to note that ownership of Amendment 80 vessels active in the fisheries relevant to this analysis in one or more years over the 2010-2019 period has included ownership in part by the NSEDC CDQ group (5 different vessels, see Table 54).

confidentiality restrictions, along with annual averages in terms of dollars and percentages. This table clearly shows the concentration of the fleet first wholesale gross revenues in the Seattle MSA (annually averaging 80 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 9 provides information on BSAI Amendment 80 groundfish 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 annual average 2010-2019 total first wholesale gross revenues, was about 80 percent for Seattle MSA ownership address vessels. BSAI Amendment 80 groundfish catcher/processers with Washington ownership addresses outside of the Seattle MSA and in all other states combined showed about 97 percent dependency on the relevant fishery.

Table 10 provides information on “community catcher/processor fleet” dependency on BSAI Amendment 80 groundfish first wholesale gross revenue compared to all other areas, gear types, and species fished by the “community catcher/processor fleet” to the extent possible given data confidentiality restrictions (with the “community catcher/processor fleet” defined as all commercial catcher/processers with ownership addresses in the communities with at least one vessel active in the BSAI Amendment 80 sector at any time 2010-2019). BSAI Amendment 80 groundfish first wholesale gross revenues accounted for approximately one-quarter of Seattle MSA “community catcher/processor fleet” first wholesale gross revenues on an annual average basis over the years 2010-2019, while they accounted for nearly the entire “community catcher/processor fleet” total for all other participating communities, with this difference due, no doubt, to the much larger and more diversified catcher/processor fleet in the Seattle MSA.

Table 7. Individual Amendment 80 Trawl Catcher/Processors by Community of Vessel Historical Ownership Address, 2010-2019 (number of vessels)

Geography	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Total Unique CPs 2010-2019 (number)
Seattle MSA	16	17	16	15	15	15	16	14	14	15	15.3	80.53%	19
Sequim	1	0	0	0	0	0	0	0	0	0	0.1	0.53%	1
Washington Total	17	17	16	15	15	15	16	14	14	15	15.4	81.05%	20
All Other States Total	3	3	3	3	3	3	3	5	5	5	3.6	18.95%	5
Grand Total	20	20	19	18	18	18	19	19	19	20	19.0	100.00%	24

*Seattle MSA includes all communities in King, Pierce, and Snohomish counties (Kirkland, Renton, and Seattle are represented as active in the 2010-2019 data).

Note: Due to CP ownership movement between communities over the years shown, total unique CPs per community or state may not sum to state or grand totals.

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive_BLEND_CA

Table 8. BSAI Amendment 80 Trawl Catcher/Processor First Wholesale Gross Revenues by Community of Vessel Historical Ownership Address, 2010-2019 (millions of 2018 real dollars)

Geography	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (\$ millions)	Annual Average 2010-2019 (percent)
Seattle MSA	\$272.64	\$325.18	\$336.71	\$258.31	\$269.55	\$247.16	\$263.54	\$259.59	\$270.81	\$232.72	\$273.62	80.45%
Other WA and Other States	\$51.15	\$59.97	\$60.82	\$49.27	\$47.38	\$43.29	\$42.96	\$99.77	\$108.64	\$101.82	\$66.51	19.55%
Grand Total	\$323.79	\$385.15	\$397.53	\$307.58	\$316.93	\$290.45	\$306.50	\$359.36	\$379.44	\$334.54	\$340.13	100.00%

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive_BLEND_CA

Table 9. BSAI Groundfish Trawl Catcher/Processor First Wholesale Gross Revenue Diversification by Community of Vessel Historical Ownership Address, All Communities, 2008-2019 (millions of 2018 real dollars)

Geography	Annual Average Number of BSAI Amendment 80 Trawl CPs 2010-2019	BSAI Amendment 80 Trawl CPs Annual Average First Wholesale Gross Revenues from BSAI Trawl-Caught Groundfish Only 2010-2019 (\$ millions)	BSAI Amendment 80 Trawl CPs Annual Average Total First Wholesale Gross Revenues from All Area, Gear, and Species Fisheries 2010-2019 (\$ millions)	BSAI Amendment 80 Trawl CPs BSAI Trawl-Caught Groundfish First Wholesale Gross Revenue as a Percentage of Total First Wholesale Gross Revenue Annual Average 2010-2019
Seattle MSA	15.4	\$273.62	\$340.38	80.39%
Other WA and Other States	3.6	\$66.51	\$68.34	97.31%
Grand Total	19.0	\$340.13	\$408.72	83.22%

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive_BLEND_CA

Table 10. BSAI Amendment 80 Catcher/Processor and All Catcher/Processor First Wholesale Gross Revenue Diversification by Community of Vessel Historical Ownership Address, 2008-2019 (millions of 2018 real dollars)

Geography	Annual Average Number of BSAI Amendment 80 Trawl CPs 2010-2019	Annual Average Number of All Commercial Fishing CPs in those Same Communities (the "Community CP Fleet") 2010-2019	All Commercial Fishing CPs Annual Average First Wholesale Gross Revenues from BSAI Trawl-Caught Amendment 80 Only 2010-2019 (\$ millions)	All Commercial Fishing CPs Annual Average Total First Wholesale Gross Revenues from All Area, Gear, and Species Fisheries 2010-2019 (\$ millions)	All Commercial Fishing Amendment 80 CPs BSAI Trawl-Caught Groundfish First Wholesale Gross Revenue as a Percentage of Total First Wholesale Gross Revenue Annual Average 2010-2019
Seattle MSA	15.4	50.3	\$273.62	\$1,115.06	24.54%
Other WA and Other States	3.6	3.6	\$66.51	\$68.34	97.31%
Grand Total	19.0	53.9	\$340.13	\$1,183.41	28.74%

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive_BLEND_CA

5.2 BSAI/Area 4 Halibut Catcher Vessels

The following tables 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 BSAI halibut catcher vessels with local ownership addresses, as noted in the following paragraphs. For Alaska communities, overall community catcher vessel fleet dependency is also shown to the extent possible within data confidentiality restrictions.

Table 11 provides a count, by community of ownership address and year (2010-2019), of BSAI halibut catcher vessels for all Alaska communities with annual average participation of 2.0 or more vessels for this time period, plus Adak; Table 12 provides similar information for 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 in these two tables, vessel ownership among states is heavily concentrated in Alaska, while within Alaska ownership is distributed across numerous communities. In addition to the 25 Alaska communities named in the table, four Alaska communities²⁷ saw an average of at least 1.0 but less than 2.0 vessels participating annually; another 21 Alaska communities appear in the data as participating in fishery at least a minimal level sometime during this time span (i.e., from 0.1 to 0.9 vessels, inclusive, on an annual average basis). As discussed in Section 6, marked downward trends in catcher vessel participation are seen in recent years in multiple Alaska communities and regions, none more obvious than among the communities within the CVRF region.

The only communities outside of Alaska with an annual average 2010-2019 of 2.0 or more catcher vessels with local ownership addresses active in the BSAI/Area 4 halibut fishery are the cities of Seattle and Everett, Washington (averaging 11.0 and 2.3 active vessels per year, respectively), both of which are in the Seattle MSA. Four other communities within the Seattle MSA (Edmonds, Gig Harbor, and Woodinville) and two other Washington communities outside of the Seattle MSA (Port Townsend and Poulsbo) had an annual average 1.0 or more but less than 2.0 vessels with local ownership addresses active in the fishery on an annual average basis 2010-2019. A total of 17 other Washington and three Oregon communities appear in the data as active in the fishery, each with an annual average level of engagement of less at 1.0 active catcher vessels per year. Other states represented in the data include California, Colorado, Florida, and Utah, each with state-wide annual average engagement levels 2010-2019 of less than 2.0 vessels.

Table 13 provides BSAI halibut catcher vessel ex-vessel gross revenue information by ownership address community and year (2010-2019) 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 Anchorage/Wasilla/Palmer, Homer, Juneau/Douglas/Sitka,²⁸ and Kodiak, four communities or groups of communities located in the GOA region,²⁹ along with St. Paul and Unalaska/Dutch Harbor in the BSAI region. This table clearly shows the concentration of the fleet ex-vessel values within Alaska compared to other states and within in the Seattle MSA for states outside of Alaska.

²⁷ Chevak (CVRF region), Cordova and Seward (GOA region), and Delta Junction (Interior region).

²⁸ As noted in Section 4.3.2, Anchorage, Wasilla/Palmer, Homer, and Juneau/Douglas have been determined as non-rural areas by the Federal Subsistence Board for the purposes of subsistence resource management.

²⁹ While among the top communities in terms of local ownership address total catcher vessel halibut ex-vessel gross revenues, BSAI halibut ex-vessel gross revenues account for less than four percent of total community fleet all area, species, and gear type fisheries ex-vessel gross revenues combined for each of these communities or groups of communities (and less than three percent in two of the four communities or groups of communities), as shown in Table 15.

Table 14 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 ranging between 85 and 100 percent is seen for halibut is seen in multiple communities across four Alaska regions.

Table 15 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 with ownership addresses in 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 local ownership address BSAI halibut catcher vessel participating in any year 2010-2019.) As shown, community fleet dependency on BSAI halibut for four of the six highest BSAI halibut ex-vessel gross revenue producing Alaska communities of Anchorage/Wasilla/Palmer, Homer, Juneau/Douglas/Sitka, and Kodiak ranges between 2.1 and 3.5 percent; for the other two relatively high-producing Alaska communities of St. Paul and Unalaska/Dutch Harbor, dependency of the overall local fleet was 99 percent and 38 percent, respectively. Among some communities with lower halibut harvest levels (and smaller community fleets), local fleet dependency on halibut was also high (e.g., Adak/Atka 86 percent, St. George 100 percent, and Savoonga 100 percent). The CVRF region communities represent a special case, with discontinuation of participation in the fishery partway through the 2010-2019 period, as discussed in Section 6.3.

Table 11. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, Alaska Communities, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
APICDA	Adak*	1	1	1	1	0	1	0	0	0	1	0.6	0.3%	3
APICDA	Akutan	4	3	5	3	4	3	3	1	1	1	2.8	1.6%	6
APICDA	Atka	3	3	4	5	5	4	3	3	0	0	3.0	1.7%	7
APICDA	Saint George Island	3	6	6	4	6	5	5	4	5	5	4.9	2.7%	8
APICDA	Unalaska/Dutch Harbor*	10	9	9	8	6	7	7	5	8	7	7.6	4.2%	16
APICDA	Regional Subtotal	21	22	25	21	21	20	18	13	14	14	18.9	10.5%	39
CBSFA	Saint Paul Island	18	18	17	16	16	13	12	14	14	12	15.0	8.3%	24
CVRF	Chefornak	23	21	8	20	2	0	0	0	0	0	7.4	4.1%	34
CVRF	Hooper Bay	7	9	9	11	0	0	0	0	0	0	3.6	2.0%	14
CVRF	Kipnuk	20	24	20	19	0	0	0	0	0	0	8.3	4.6%	37
CVRF	Mekoryuk	28	29	24	24	12	0	0	0	0	0	11.7	6.5%	34
CVRF	Newtok	8	8	8	10	1	0	0	0	0	0	3.5	1.9%	17
CVRF	Nightmute	5	8	7	4	2	0	0	0	0	0	2.6	1.4%	10
CVRF	Quinhagak	2	8	9	16	0	0	0	0	0	0	3.5	1.9%	18
CVRF	Toksook Bay	33	39	30	31	8	0	0	0	0	0	14.1	7.8%	54
CVRF	Tununak	27	29	26	28	2	0	0	0	0	0	11.2	6.2%	41
CVRF	All Other CVRF Region	5	6	9	15	0	0	0	0	0	0	3.5	1.9%	16
CVRF	Regional Subtotal	158	181	150	178	27	0	0	0	0	0	69.4	38.5%	275
NSEDC	Nome	8	8	7	4	5	5	5	7	6	5	6.0	3.3%	13
NSEDC	Savoonga	11	10	14	13	13	13	10	10	7	10	11.1	6.2%	34
NSEDC	All Other NSEDC Region	0	0	2	0	1	0	0	0	0	1	0.4	0.2%	4
NSEDC	Regional Subtotal	19	18	23	17	19	18	15	17	13	16	17.5	9.7%	51
BBEDC	Dillingham	0	1	2	3	2	2	2	3	4	4	2.3	1.3%	10
BBEDC	Togiak	8	12	16	10	13	13	14	13	12	13	12.4	6.9%	31
BBEDC	All Other BBEDC Region	2	0	3	1	0	1	3	5	4	6	2.5	1.4%	15
BBEDC	Regional Subtotal	10	13	21	14	15	16	19	21	20	23	17.2	9.5%	56
GOA	Anchorage	2	2	3	2	1	3	2	2	2	2	2.1	1.2%	6
GOA	Homer	12	14	15	13	11	11	12	15	15	14	13.2	7.3%	30
GOA	Juneau/Douglas	5	5	4	4	4	4	4	1	1	0	3.2	1.8%	7
GOA	Kodiak	16	12	13	11	10	10	13	11	10	11	11.7	6.5%	24
GOA	Sitka	7	8	5	2	2	3	3	3	3	3	3.9	2.2%	9
GOA	Wasilla	1	3	3	2	2	2	2	2	2	2	2.1	1.2%	4
GOA	All Other GOA Region	5	5	6	3	3	4	3	3	4	3	3.9	2.2%	17
GOA	Regional Subtotal	48	49	49	38	34	37	39	37	37	35	40.3	22.4%	97
Interior	Regional Subtotal	2	2	1	1	2	2	2	2	2	3	1.9	1.1%	4
ALASKA	State Subtotal	276	303	286	285	134	106	105	104	100	103	180.2	100.0%	541

*Denotes communities within a CDQ region that are not themselves CDQ communities. Communities listed by name include those with an annual average of at least 2.0 vessels with local ownership addresses active in the fishery, plus Adak, which was identified by the community dependency exercise as a BSAI halibut dependent community based on a combination of factors.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 12. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, All Regions, 2008-2019 (number of vessels)

Region	Community*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
Alaska	(see previous table)	276	303	286	285	134	106	105	104	100	103	180.2	85.4%	541
	Seattle MSA	25	25	22	24	19	20	21	18	18	15	20.7	9.8%	36
	Other Washington	7	7	5	5	5	5	5	5	3	4	5.1	2.4%	10
Washington	State Subtotal	32	32	27	29	24	25	26	23	21	19	25.8	12.2%	44
Oregon	State Subtotal	3	3	2	2	1	1	1	1	0	0	1.4	0.7%	5
Other States	Subtotal	2	2	4	4	4	3	4	4	5	5	3.7	1.8%	7
Grand Total		313	340	319	320	163	135	136	132	126	127	211.1	100.0%	587

*The only communities outside of Alaska with an annual average of at least 2.0 vessels with local ownership addresses active in the fishery are the cities of Seattle and Everett, Washington (averaging 11.0 and 2.3 active vessels per year, respectively). A total of 15 communities within the Seattle MSA and a total of nine other Washington communities were active in the fishery with at least one vessel in one year 2010-2019. A total of three Oregon communities appear in the data as well (Gold Beach, Waldport, and Warrenton). Other states at least minimally represented in the data include CA, CO, FL, and UT.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 13. BSAI Halibut Catcher Vessels Ex-Vessel Gross Revenues by Community of Vessel Historical Ownership Address, 2010-2019 (thousands of 2018 real dollars)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (\$ thousands)	Annual Average 2010-2019 (percent)
APICDA	AdakAtka**	\$561	\$989	\$507	\$648	\$156	\$380	\$196	*	*	*	\$358	1.4%
APICDA	Akutan	\$264	\$397	\$196	\$71	\$88	\$114	\$99	*	*	*	\$142	0.5%
APICDA	Saint George Island	\$106	\$214	\$50	\$198	\$238	\$229	\$168	*	*	*	\$192	0.7%
APICDA	Unalaska/Dutch Harbor	\$2,462	\$2,834	\$1,877	\$1,261	\$1,164	\$1,847	\$1,608	\$1,880	\$1,407	\$1,561	\$1,790	6.8%
CBSFA	Saint Paul Island	\$3,426	\$4,527	\$3,300	\$2,300	\$2,015	\$1,712	\$1,662	\$1,881	\$1,485	\$1,496	\$2,380	9.0%
CVRF	Hooper Bay	\$23	\$25	\$24	\$25	\$0	\$0	\$0	\$0	\$0	\$0	\$10	0.0%
CVRF	Kipnuk	\$51	\$85	\$43	\$75	\$0	\$0	\$0	\$0	\$0	\$0	\$25	0.1%
CVRF	Mekoryuk	\$453	\$618	\$299	\$301	\$59	\$0	\$0	\$0	\$0	\$0	\$173	0.7%
CVRF	Toksook Bay	\$429	\$562	\$499	\$460	\$100	\$0	\$0	\$0	\$0	\$0	\$205	0.8%
CVRF	All Other CVRF	\$256	\$433	\$233	\$346	\$56	\$0	\$0	\$0	\$0	\$0	\$132	0.5%
NSEDC	Savoonga	\$227	\$157	\$345	\$151	\$193	\$53	\$132	\$146	\$176	\$347	\$193	0.7%
NSEDC	Nome & All Other NSEDC	\$253	\$484	\$267	\$95	\$145	\$191	\$239	\$569	\$212	\$405	\$286	1.1%
BBEDC	Togiak	\$106	\$213	\$193	\$146	\$124	\$165	\$223	\$270	\$152	\$105	\$170	0.6%
BBEDC	Dillingham & All Other BBEDC	*	*	\$13	\$19	*	\$72	\$158	\$148	\$105	\$168	\$87	0.3%
GOA	Anchorage/Wasilla/Palmer**	\$1,653	\$5,140	\$2,151	\$1,017	\$1,325	\$1,530	\$2,301	\$2,158	\$1,212	\$1,554	\$2,004	7.6%
GOA	Homer	\$2,719	\$4,998	\$3,697	\$1,767	\$1,743	\$2,286	\$2,950	\$3,323	\$2,248	\$1,955	\$2,768	10.5%
GOA	Juneau/Douglas/Sitka**	\$3,800	\$6,405	\$2,838	\$1,122	\$2,050	\$1,986	\$1,874	\$830	\$608	\$535	\$2,205	8.4%
GOA	Kodiak	\$4,837	\$5,379	\$2,887	\$2,287	\$1,759	\$2,087	\$2,594	\$2,119	\$1,588	\$1,568	\$2,710	10.3%
Other GOA/Other AK	All Other GOA & All Other AK	*	*	\$1,151	\$709	*	\$1,290	\$1,358	\$1,293	\$1,150	\$994	\$1,264	4.8%
Alaska	State Subtotal	\$23,593	\$35,626	\$20,568	\$12,997	\$11,965	\$13,941	\$15,562	\$15,007	\$10,648	\$11,281	\$17,119	65.0%
Washington	Seattle MSA	\$9,252	\$12,470	\$8,514	\$4,696	\$4,166	\$5,635	\$6,162	\$5,512	\$3,051	\$3,600	\$6,306	23.9%
Washington	Other Washington	\$2,771	\$4,080	\$2,032	\$1,403	\$1,327	\$1,435	\$1,540	\$1,266	\$724	\$1,523	\$1,810	6.9%
Washington	State Subtotal	\$12,024	\$16,550	\$10,547	\$6,099	\$5,493	\$7,070	\$7,702	\$6,778	\$3,775	\$5,123	\$8,116	30.8%
OR & Other States	Combined States Subtotal	\$1,209	\$1,763	\$1,025	\$918	\$990	\$949	\$1,199	\$1,083	\$1,037	\$1,031	\$1,120	4.3%
Grand Total		\$36,826	\$53,940	\$32,140	\$20,014	\$18,447	\$21,960	\$24,463	\$22,869	\$15,460	\$17,435	\$26,355	100.0%

*Denotes confidential data or data suppressed to preserve other data confidentiality/allow regional or grand totals.

** Communities combined to preserve data confidentiality.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 14. BSAI Halibut Catcher Vessels Ex-Vessel Gross Revenue Diversification by Community of Vessel Historical Ownership Address, All Communities, 2010-2019 (thousands of 2018 real dollars)

Region	Community	Annual Average Number of BSAI Halibut CVs 2010-2019	BSAI Halibut CVs Annual Average Ex-Vessel Gross Revenues from BSAI Halibut Only 2010-2019 (\$ thousands)	BSAI Halibut CVs Annual Average Total Ex-Vessel Gross Revenues from All Area, Gear, and Species Fisheries 2010-2019 (\$ thousands)	BSAI Halibut CVs BSAI Halibut Ex-Vessel Value as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2010-2019
APICDA	AdakAtka**	3.6	\$358	\$416	86.0%
APICDA	Akutan	2.8	\$142	\$154	91.7%
APICDA	Saint George Island	4.9	\$192	\$192	100.0%
APICDA	Unalaska/Dutch Harbor	7.6	\$1,790	\$2,990	59.9%
CBSFA	Saint Paul Island	15.0	\$2,380	\$2,381	100.0%
CVRF	Hooper Bay	3.6	\$10	\$10	99.8%
CVRF	Kipnuk	8.3	\$25	\$26	97.6%
CVRF	Mekoryuk	11.7	\$173	\$173	99.9%
CVRF	Toksook Bay	14.1	\$205	\$207	98.8%
CVRF	All Other CVRF	31.7	\$132	\$140	94.4%
NSEDC	Savoonga	11.1	\$193	\$193	99.9%
NSEDC	Nome & All Other NSEDC	6.4	\$286	\$1,077	26.6%
BBEDC	Togiak	12.4	\$170	\$1,012	16.7%
BBEDC	Dillingham & All Other BBEDC	4.8	\$87	\$581	15.0%
GOA	Anchorage/Wasilla/Palmer**	4.4	\$2,004	\$6,498	30.8%
GOA	Homer	13.2	\$2,768	\$11,100	24.9%
GOA	Juneau/Douglas/Sitka**	7.1	\$2,205	\$3,685	59.8%
GOA	Kodiak	11.7	\$2,710	\$16,810	16.1%
Other GOA/Other AK	All Other GOA & All Other AK	20.8	\$1,264	\$6,779	18.7%
Alaska	State Subtotal	180.2	\$17,114	\$54,424	31.4%
Washington	Seattle MSA	20.7	\$6,306	\$32,471	19.4%
Washington	Other Washington	5.1	\$1,810	\$6,181	29.3%
Washington	State Subtotal	25.8	\$8,116	\$38,652	21.0%
Oregon & Other States	Combined States Subtotal	5.1	\$1,120	\$6,488	17.3%
Grand Total		211.1	\$26,363	\$99,565	26.5%

**Communities combined to preserve data confidentiality.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 15. BSAI Halibut Catcher Vessel and All Catcher Vessel Ex-Vessel Gross Revenue Diversification by Community of Vessel Historical Ownership Address, 2008-2019 (thousands of 2018 real dollars)

Region	Community	Annual Average Number of BSAI Halibut CVs 2010-2019	Annual Average Number of All Commercial Fishing CVs in those Same Communities (the "Community CV Fleet") 2010-2019	All Commercial Fishing CVs Annual Average Ex-Vessel Gross Revenues from BSAI Halibut Only 2010-2019 (\$ thousands)	All Commercial Fishing CVs Annual Average Total Ex-Vessel Gross Revenues from All Areas, Gears, and Species Fisheries 2010-2019 (\$ thousands)	All Commercial Fishing CVs BSAI Halibut Ex-Vessel Gross Revenue as a Percentage of Total Ex-Vessel Gross Revenue Annual Average 2010-2019
APICDA	AdakAtka**	3.6	3.7	\$358	\$415	86.3%
APICDA	Akutan	2.8	2.9	\$142	\$155	91.4%
APICDA	Saint George Island	4.9	4.9	\$192	\$192	100.0%
APICDA	Unalaska/Dutch Harbor	7.6	16.0	\$1,790	\$4,663	38.4%
CBSFA	Saint Paul Island	15.0	15.1	\$2,380	\$2,394	99.4%
CVRF	Hooper Bay	3.6	3.8	\$10	*	*
CVRF	Kipnuk	8.3	13.8	\$25	\$278	9.1%
CVRF	Mekoryuk	11.7	12.0	\$173	\$201	86.1%
CVRF	Toksook Bay	14.1	22.1	\$205	\$784	26.1%
CVRF	All Other CVRF	31.7	53.2	\$132	\$1,042	12.7%
NSEDC	Savoonga	11.1	11.1	\$193	\$193	99.9%
NSEDC	Nome & All Other NSEDC	6.4	29.7	\$286	\$2,061	13.9%
BBEDC	Togiak	12.4	59.4	\$170	\$2,986	5.7%
BBEDC	Dillingham & All Other BBEDC	4.8	182.8	\$87	\$15,832	0.5%
GOA	Anchorage/Wasilla/Palmer**	4.4	197.9	\$2,004	\$56,754	3.5%
GOA	Homer	13.2	384.7	\$2,768	\$92,649	3.0%
GOA	Juneau/Douglas/Sitka**	7.1	602.8	\$2,205	\$81,131	2.7%
GOA	Kodiak	11.7	256.3	\$2,710	\$127,241	2.1%
Other GOA/Other AK	All Other GOA & All Other AK	20.8	935.3	\$1,264	\$152,745	0.8%
Alaska	State Subtotal	180.2	2,807.5	\$17,114	\$541,715	3.2%
Washington	Seattle MSA	20.7	372.1	\$6,306	\$413,042	1.5%
Washington	Other Washington	5.1	161.8	\$1,810	\$38,177	4.7%
Washington	State Subtotal	25.8	533.9	\$8,116	\$451,238	1.8%
Oregon & Other States	Combined States Subtotal	5.1	21.7	\$1,120	\$9,887	11.3%
Grand Total		211.1	3,363.1	\$26,363	\$1,002,840	2.6%

**Communities combined to preserve data confidentiality.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

5.3 Shore-Based Processors in Alaska Accepting BSAI/Area 4 Halibut Deliveries

The following tables 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 16 provides information on the distribution of shore-based processors in Alaska communities that accepted BSAI halibut deliveries in the period 2010-2019. 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]³⁰ codes in AKFIN data) accepting BSAI halibut deliveries. As shown, 22 Alaska communities were the locations of BSAI halibut shore-based processing over this period, but eight of those communities processed BSAI halibut in less than half of the years covered by the data. BSAI halibut was processed every year in 11 communities (Adak, Akutan, and Unalaska/Dutch Harbor; St. Paul; Nome and Savoonga; Twin Hills; and King Cove, Kodiak, Sand Point, and Seward). In two communities (Anchorage and Home), BSAI halibut processing took place in nine out of the 10 years covered by the data, while in one community (Atka) processing took place in eight of the 10 years covered by the data. Of the eight remaining communities, all of which processed in four of the 10 years covered by the data, six were in the CVRF communities (each of which processed annually 2010-2013, but none of which processed 2014-2019); one was in the ADICA region (False Pass, which processed in 2010-2011 and again 2014-2015) and one as in the BBEDC region (Togiak, which processed in each of the most four most recent years covered by the data).

Table 17 provides information on the ex-vessel values associated with BSAI halibut deliveries to shore-based processors by community and year (2010-2019) to the extent possible within data confidentiality restrictions. As shown, no individual community data can be disclosed, but deliveries of BSAI halibut to processors in the APICDA and CBSFA regions combined accounted for about 81 percent of all ex-vessel values associated with BSAI halibut deliveries to all geographies combined during this time period. GOA communities accounted for roughly 15 percent. NSEDC and BBEDC communities together accounted for about three percent, with the remaining two percent attributable to CVRF communities.

Table 18 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 2010-2019, as measured in percentage of ex-vessel values associated with deliveries made to the processors. As shown, of the deliveries made to the combined Akutan and Unalaska/Dutch Harbor BSAI halibut processors, approximately five percent of all ex-vessel values of landings of all species were associated with BSAI halibut deliveries over that period, while for the other BSAI Aleutian/Pribilof (APICDA/CBSFA) BSAI halibut processors that figure was approximately 17 percent. For the relevant NSEDC and BBEDC region processors combined and for the relevant GOA processors combined dependency was about seven and two percent, respectively), but dependency was virtually absolute (well over 99 percent) for the relevant CVRF region processors.

Table 19 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 themselves) on BSAI halibut compared to all area and species fishery landings processed by all processors for the years 2010-2019, within the constraints of

³⁰ "SBPR" is used as an abbreviation for "shore-based processor(s)" in tables (only) in this SIA.

confidentiality restrictions, as measured by ex-vessel values associated with those landings. As shown, for that span of years, BSAI ex-vessel value of landings accounted for about four percent of all shore-based processor ex-vessel value of landings for Akutan and Unalaska/Dutch Harbor combined, while for the other BSAI Aleutian/Pribilof (APICDA/CBSFA) communities that figure was approximately 16 percent. For all processors combined in relevant NSEDC and BBEDC communities and for the combined processing sectors in the relevant GOA communities dependency on BSAI halibut was relatively modest as measured by proportion of total ex-vessel values of deliveries (about seven and one percent, respectively), but dependency was again virtually absolute (well over 99 percent) for the all combined processors in the relevant CVRF region communities that had a least one shore-based processor accepting any BSAI halibut landings that year.

Table 16. Shore-Based Processors in Alaska Accepting BSAI Halibut Deliveries by Community of Operation, 2010-2019 (number of processors)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Total Unique SBPRs* 2008-2019 (number)
APICDA	Adak	1	1	1	2	2	1	1	2	1	1	1.3	5.37%	5
APICDA	Akutan	1	1	1	1	1	1	1	1	1	1	1.0	4.13%	1
APICDA	Atka	1	1	1	1	1	1	1	1	0	0	0.8	3.31%	1
APICDA	False Pass	1	1	0	0	1	1	0	0	0	0	0.4	1.65%	1
APICDA	Unalaska/Dutch Harbor	2	2	2	2	2	3	3	2	2	3	2.3	9.50%	4
CBSFA	St Paul/St Paul Island	2	2	1	1	1	1	1	1	1	1	1.2	4.96%	2
CVRF	Chefornak	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
CVRF	Hooper Bay	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
CVRF	Kipnuk	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
CVRF	Mekoryuk	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
CVRF	Toksook Bay	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
CVRF	Tununak	1	1	1	1	0	0	0	0	0	0	0.4	1.65%	1
NSEDA	Nome	1	1	1	1	1	1	1	1	1	1	1.0	4.13%	1
NSEDA	Savoonga	1	1	1	1	1	1	1	1	1	1	1.0	4.13%	1
BBEDC	Togiak	0	0	0	0	0	0	1	1	1	1	0.4	1.65%	1
BBEDC	Twin Hills	1	1	1	1	1	1	1	1	1	1	1.0	4.13%	1
GOA	Anchorage	1	3	5	3	4	2	1	1	2	0	2.2	9.09%	5
GOA	Homer	2	0	1	1	2	2	1	1	1	1	1.2	4.96%	3
GOA	King Cove	1	1	1	1	1	1	1	2	2	2	1.3	5.37%	2
GOA	Kodiak	5	4	3	3	4	4	4	5	4	5	4.1	16.94%	7
GOA	Sand Point	1	1	1	1	1	1	1	1	1	1	1.0	4.13%	1
GOA	Seward	1	3	1	1	1	1	1	1	3	3	1.6	6.61%	4
All	Grand Total	28	29	27	26	24	22	20	22	22	22	24.2	100.00%	46

*SBPR = shore-based processor.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 17. Ex-Vessel Values of BSAI Halibut Deliveries to Shore-Based Processors in Alaska by Community of Operation, 2010-2019 (millions of 2018 real dollars)

Region	Community(ies)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (\$ millions)	Annual Average 2010-2019 (percent)
APICDA	Akutan/Unalaska/Dutch Harbor	\$19.82	\$27.38	\$14.30	\$9.25	\$10.32	\$12.00	\$13.90	\$13.09	\$7.91	\$7.93	\$13.59	54.8%
APICDA/CBSFA	Adak/Atka/False Pass/St. Paul	\$11.34	\$18.06	\$8.64	\$4.19	\$3.63	\$4.78	\$4.08	\$3.15	\$3.53	\$3.34	\$6.47	26.1%
CVRF	Cheformak/Kipnuk/Toksook Bay	\$.80	\$.27	\$.82	\$1.03	\$.00	\$.00	\$.00	\$.00	\$.00	\$.00	\$.29	1.2%
CVRF	Hooper Bay/Mekoryuk/Tununak	\$.41	\$.52	\$.26	\$.18	\$.00	\$.00	\$.00	\$.00	\$.00	\$.00	\$.14	0.6%
NSEDA/BBEDC	Nome/Savoonga/Togiak/Twin Hills	\$.75	\$.79	\$.72	\$.34	\$.43	\$.36	\$.63	\$1.00	\$.54	\$.87	\$.64	2.6%
GOA	Anchorage/Homer/King Cove/Kodiak/Sand Point/Seward	\$3.89	\$6.84	\$4.29	\$2.86	\$2.70	\$3.24	\$3.71	\$3.18	\$2.74	\$3.31	\$3.68	14.8%
	Grand Total	\$37.02	\$53.86	\$29.03	\$17.85	\$17.08	\$20.37	\$22.32	\$20.42	\$14.72	\$15.45	\$24.81	100.0%

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 18. Shore-Based Processors in Alaska Accepting BSAI Halibut Deliveries Ex-Vessel Values Diversity by Community of Operation, 2008-2019 (millions of 2018 real dollars)

Region	Community(ies)	Annual Average Number of BSAI Halibut SBPRs* 2010-2019	BSAI Halibut SBPRs Annual Average Ex-vessel Values Paid for BSAI Halibut Only 2010-2019 (\$ millions)	BSAI Halibut SBPRs Annual Average Total Ex-vessel Values Paid for All Area, Gear, and Species Fisheries 2010-2019 (\$ millions)	BSAI Halibut SBPRs Ex-Vessel Values Paid for BSAI Groundfish as a Percentage of Total Ex-vessel Values Paid Annual Average 2010-2019
APICDA	Akutan/Unalaska/Dutch Harbor	3.3	\$13.59	\$267.85	5.07%
APICDA/CBSFA	Adak/Atka/False Pass/St. Paul	3.7	\$6.47	\$39.18	16.52%
CVRF	Cheformak/Kipnuk/Toksook Bay	1.2	\$.29	\$.29	99.88%
CVRF	Hooper Bay/Mekoryuk/Tununak	1.2	\$.14	\$.14	99.99%
NSEDA/BBEDC	Nome/Savoonga/Togiak/Twin Hills	3.4	\$.64	\$8.67	7.41%
GOA	Anchorage/Homer/King Cove/Kodiak/Sand Point/Seward	11.4	\$3.68	\$243.07	1.51%
	Grand Total	24.2	\$24.81	\$559.21	4.44%

*SBPR = shore-based processor.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

**Table 19. All Areas and Species Ex-Vessel Values Diversity by Community of Operation for All Shore-Based Processors
(for Alaska communities with at least one Shore-Based Processor accepting BSAI halibut deliveries), 2008-2019 (millions of 2018 real dollars)**

Region	Community(ies)	Annual Average Number of BSAI Halibut SBPRs* 2010-2019	Annual Average Number of All SBPRs in those Same Communities (the "Community SBPR Sector") 2010-2019	All Community SBPRs Annual Average Ex-vessel Values Paid for BSAI Halibut Only 2010-2019 (\$ millions)	All Community SBPRs Annual Average Total Ex-vessel Values Paid from All Area, Gear, and Species Fisheries 2010-2019 (\$ millions)	All Community SBPRs Annual Average BSAI Halibut Ex-vessel Values Paid as a Percentage of Total Ex-Vessel Values Paid Annual Average 2010-2019
APICDA	Akutan/Unalaska/Dutch Harbor	3.3	8.5	\$13.59	\$312.43	4.35%
APICDA/CBSFA	Adak/Atka/False Pass/St. Paul	3.7	4.3	\$6.47	\$40.38	16.03%
CVRF	Chefornak/Kipnuk/Toksook Bay	1.2	1.2	\$.29	\$.29	99.88%
CVRF	Hooper Bay/Mekoryuk/Tununak	1.2	1.2	\$.14	\$.14	99.99%
NSEDA/BBEDC	Nome/Savoonga/Togiak/Twin Hills	3.4	3.4	\$.64	\$8.67	7.41%
GOA	Anchorage/Homer/King Cove/Kodiak/Sand Point/Seward	11.4	37.1	\$3.68	\$371.40	0.99%
	Grand Total	24.2	55.7	\$24.81	\$733.30	3.38%

*SBPR = shore-based processor.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

5.4 Subsistence Halibut Harvest

5.4.1 Overview

The harvest and processing of wild resources for food, raw materials, and other traditional uses have been a central part of the customs and traditions of many cultural groups in Alaska, including Aleut, Athabascan, Alutiiq, Euro-American, Haida, Inupiat, Tlingit, Tsimshian, and Yupik for centuries. The Alaska legislature passed the state's first subsistence statute in 1978 and established subsistence as the priority use of Alaska's fish and wildlife. The law defined subsistence as "customary and traditional uses" of fish and wildlife and highlighted the unique importance of wild resources, and the continuing role of subsistence activities in sustaining the long-established ways of life in Alaska. Subsistence uses of fish and land mammals are given a priority over commercial and recreational fishing and hunting in state and federal law, meaning that when the harvestable portion of a fish stock or game population is not sufficient for all public uses, regulation requires that subsistence uses are the last to be restricted.

Federal and state laws differ in who qualifies for participation in subsistence fisheries and hunts. Rural Alaska residents qualify for subsistence harvesting under federal law. From 1978 to 1989 only rural residents qualified under state law for subsistence harvesting, but since 1989 all Alaska residents qualify. The federal law that is parallel to the State of Alaska's subsistence law is the Alaska National Interest Lands Conservation Act (ANILCA), Title VIII. Neither the state nor the federal subsistence laws apply to halibut specifically. However, IPHC has a definition for subsistence fisheries. The Commission defines subsistence as non-commercial, customary, and traditional uses of halibut for direct personal, family, or community consumption or sharing as food or customary trade. Within Alaska, the definition makes an exception to include halibut less than 32 inches (U32) that are retained for personal use by vessels fishing CDQ in Areas 4D and 4E. As detailed in Section 4 of the DEIS, IPHC takes an allocation for subsistence use "off the top" before it determines annual commercial catch limits for each of its management areas.

According to ADFG's 2017 subsistence update, roughly 83 percent of Alaska's population lived in nonsubsistence (urban) areas as defined by the Joint Board of Fisheries and Game while 17 percent lived in rural areas.³¹ As of 2010, Alaska Natives made up 55 percent of the rural population and 12 percent of the urban population. The 2017 subsistence update reports the percentage of households in rural areas that participate in subsistence activities. Harvest and use of fish – including non-halibut species – and game are reported in six areas: Arctic, Interior, Southcentral, Southeast, Southwest, and Western. Across all areas, 83 percent of households participated in subsistence fish harvest and 95 percent used subsistence fish; 60 percent of households participated in subsistence game harvest and 86 percent used subsistence game. Southwest and Western households ranked among the highest use regions. For fish, the Southwest area reported 86 percent household harvest participation and 94 percent household use; the Western area reported 98 percent harvest participation and 100 percent use.

In that 2017 update, ADFG ranked wild resources according to usable weight of subsistence harvest. Fish species accounted for 54 percent of usable weight, followed by land mammals (22 percent), marine mammals (14 percent), plants (4 percent), birds (3 percent), and shellfish (3 percent). Salmon species alone accounted for 32 percent of total usable weight, and non-salmon species – including halibut – accounted for 21 percent of usable weight. Excluding plants, total subsistence harvest accounted for 33.6 million pounds per year in the 2017 study, representing only 0.9 percent of the fish and game harvested annually in Alaska. By comparison, the study found that commercial fishing accounted for 98.6 percent of

³¹ https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf

total fish and game harvest by usable weight. The remainder of total harvest accounts for sport and personal use fishing and hunting. On a pounds per person per year basis across all categories of wild food harvest in 2017, Southwest Alaska and Western Alaska ranked in the top four areas: 210 pounds in Southwest Alaska and 379 pounds in Western Alaska. The other two areas in the top-four were Interior (293 pounds) and Arctic (402 pounds).

Halibut have been harvested for centuries by the indigenous coastal peoples of the lands bordering the eastern north Pacific Ocean, including Southeast, Southcentral, and Western Alaska. Early fishing was conducted by hook and line from large canoes, which could venture as far as 20 miles from shore (32 km). Hooks were carved from wood or bone to include spirit figures to attract halibut and were selective for large fish suitable for drying and smoking. Lines of up to sixty fathoms in length were made of twisted fibers of cedar, animal sinew, or kelp.

5.4.2 Subsistence Management

The management of subsistence halibut fisheries in Alaska is the responsibility of NMFS³² but data collection and harvest estimation are performed by the ADFG Division of Subsistence Fisheries under contract to NMFS. Participation and harvest information are collected through a mailed survey and site-visit interview process for which data are available from 2003. The survey was funded annually until 2012. Due to funding constraints, the survey and estimation work has occurred biennially since then, covering 2014, 2016, and 2018. Overall, ADFG has conducted the subsistence survey in 13 years. The most recent available survey results pertain to the 2018 fishing year and were published in January 2020. The estimates reported in this document rely on the 2018 survey results that are published in ADFG Technical Paper 456 (Fall and Koster, 2020), which includes extensive documentation of survey methodology.

Despite a long history of harvest, federal halibut fishing regulations did not officially recognize and authorize the subsistence fishery until 2003 (68 FR 18145, April 15, 2003). Regulations were developed pursuant to action taken by the Council in October 2000 to adopt a subsistence halibut program recognizing the Alaska subsistence fishery. The regulations were amended in May 2005 and October 2008; current regulations can be found at 50 CFR Part 300. In order to fish for subsistence halibut an individual must reside in an eligible community, be a member of an eligible recognized tribe, or be a resident of a designated rural area.³³ Regulations recognize the residents of 118 rural communities and designated rural areas as well as members of 123 Organized Tribal Entities (tribes) as eligible to participate in subsistence halibut fishing. The tribes listed in regulation are those with customary and traditional uses of halibut. Individuals who are eligible through their tribal membership are not required to live in an eligible community or rural area to participate in the fishery. Special permits for community harvest, ceremonial, and educational purposes are also available to qualified Alaska communities and tribes. Eligible participants must register by obtaining a Subsistence Halibut Registration Certificate (SHARC) from NMFS RAM division.

Regulations list eligible communities by IPHC area and subarea. Within Area 4, 4A includes three communities (Akutan, Nikolski, and Unalaska); 4B includes two communities (Adak and Atka); 4C includes two communities (St. George and St. Paul); 4D includes three communities (Diomedea, Gambell, and Savoonga); and 4E includes 54 communities (see §300.65(g)(1)).

³² A broader history of Federal subsistence management is available at the U.S. Department of Interior Office of Subsistence Management website: <https://www.doi.gov/subsistence/library/history>.

³³ 50 CFR 300.65(g)(1), (2), or (3).

In surveyed years – 2003 through 2012 and biannually since 2014 – ADFG has administered a voluntary SHARC survey to SHARC holders. The results of this survey are combined with data from some limited on-site visits to create the annual harvest estimate. On-site visits have occurred in roughly four of five communities during each study year. However, the response rates for remote Alaskan villages have often been low. SHARC registrations have dropped in many remote communities. These limited community visits and in-person surveys (used to improve community-wide survey response rates) are generally focused on communities and regions in Areas 2C and 4E. To protect confidentiality, data for many tribal and community reporting entities with five or fewer SHARCs issued have not been included in ADFG 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. While values for those communities are not reported individually, estimated harvests and participation rates are included in the management area and state totals. 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. However, some communities that were visited by ADFG in most study years are captured in the state’s subsistence reports; in Area 4E, this includes Tununak and Toksook Bay. In summary, while data based on SHARC surveys are the most complete and comprehensive recent subsistence halibut harvest information available, these limitations reduce their utility for many communities throughout the BSAI region and caution should be used in their interpretation.

The available community-level harvest data for halibut are published in Fall and Koster (2020) for the 2018 harvest year and in earlier summary reports since the beginning of the harvest monitoring program began in 2003. Estimates of harvest of all fish and wildlife resources for communities based on ADFG Division of Subsistence comprehensive surveys are available online via ADFG’s CSIS portal.³⁴ CSIS reports estimated harvest in pounds and pounds-per-capita, as well as the percentage of households in a community that harvest, attempt to harvest, or use the resource (i.e., received from harvesters).³⁵

5.4.3 Subsistence Halibut Data

Subsistence harvest data for halibut are available from both ADFG and IPHC. Table 20 shows estimated ADFG’s Alaska subsistence halibut harvest within IPHC Area 4 during each year that was surveyed and fully reported from 2003 through 2018.³⁶ Table 21 shows IPHC’s estimates of subsistence removals from 2010 through 2019 for all coastwide management areas; these estimates were first published in June 2020.³⁷ The two data sources are generally consistent with one another. The historical catalog of IPHC annual fishery statistics are available at <https://www.iphc.int/library/documents/category/annual-reports>.

NMFS publishes annual statistics on SHARC holders.³⁸ As of 2020, 6,775 SHARCs are issued; 4,616 are issued to rural residents and 2,159 are issued to tribal members. By “rural city,” the top five geographies by SHARC holders are Sitka (731), Kodiak (516), Petersburg (490), Cordova (230), and Wrangell (227). The first community ranked that is proximate to the BSAI FMP area is Unalaska with 37 SHARC holders (ranked 12th). The top five tribal affiliations by SHARC holders are the Central Council Tlingit and Haida Indian Tribes (335), Ketchikan Indian Corporation (276), Qagan Tayagungin Tribe of Sand Point Village

³⁴ Available at: <http://www.adfg.alaska.gov/sb/CSIS/>. For halibut, access CSIS >> Resource Category >> Fish. The currently available CSIS estimates are continuous from 1980 through 2016.

³⁵ Note that community-level results from the SHARC survey are not in the CSIS. Harvest data for halibut in the CSIS come from the comprehensive survey, which overlaps with the SHARC survey for some communities in some years.

³⁶ For other areas, refer to Table 6 in Fall and Koster (2020).

³⁷ <https://www.iphc.int/uploads/data/time-series-datasets/excel/iphc-2019-tsd-020.xlsx>

³⁸ <https://www.fisheries.noaa.gov/alaska/commercial-fishing/permits-and-licenses-issued-alaska#subsistence-halibut>

(224), Sitka Tribe of Alaska (132), and Native Village of Tununak (69). The complete lists of community and tribal SHARC counts for 2020 are available in the following reports: Community: https://www.fisheries.noaa.gov/sites/default/files/akro/20sharc_by_city.csv; and Tribal: https://www.fisheries.noaa.gov/sites/default/files/akro/20sharc_by_tribe.csv. For 2020, only one special permit for community, ceremonial, or educational use is issued; that permit is for Ketchikan Indian Corporation.

Of the 8,576 individuals who were potential subsistence halibut users in 2018, ADFG estimated that 4,094 participated (48 percent). Potential participants in 2018 included SHARC holders, two special community/ceremonial permits, and identified potential halibut fishers who did not hold SHARCs in two communities. Of the 2,857 individuals who were members of an eligible tribe, an estimated 1,211 participated (42 percent). Of the 5,719 individuals who qualified as residents of rural communities, an estimated 2,883 participated (50 percent). The estimated total of 4,094 subsistence halibut fishery participants in 2018 is the lowest estimate since the SHARC program began in 2003 and a seven percent decrease from the estimate of 4,408 participants in 2016. The estimates are based on 5,852 survey responses (68 percent of all potential participants). The response rate for residents of the 118 eligible rural communities and rural areas who did not register as tribal members was 77 percent (4,381 of 5,719).

Surveys were mailed to all 8,489 SHARC holders in 2018 and information was supplemented through contacts and interviews in five Southeast and Western Alaska communities. Surveys were also administered to two community/ceremonial permits, which were returned. The surveyors note that estimating catch in subareas with a small number of communities can be challenging and is sometimes influenced by a small number of individuals who do return the survey. ADFG received a survey return rate of 77 percent across all 118 eligible rural communities, or individuals with SHARC permits who did not register as tribal members (4,381 out of 5,719). The return rate was 64 percent in the 11 communities with more than 100 nontribal SHARC holders that accounted for 84 percent of all nontribal SHARCs issued in rural communities. Return rates were higher in larger communities where the majority of SHARCs are issued. The 68 percent return rate is considered good, though not as high as the recent peak of 71 percent in 2012.

Table 20. Alaska Subsistence Halibut Harvest (net weight pounds) and Percentage of Alaska State Subsistence Total in IPHC Area 4 by Geographic Area Fished, 2003-2012, 2014, 2016, and 2018 with Selected ADFG Management Subareas

Area		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016	2018	2018 Rel. 12-yr Avg.
4A Eastern Aluetians	Harvest	21,197	28,877	35,615	27,062	14,946	19,553	33,499	14,548	13,606	9,543	7,727	8,054	13,237	68%
	% AK Total	2.0%	2.4%	3.0%	2.4%	1.4%	2.2%	3.9%	1.8%	2.0%	1.4%	1.0%	1.1%	2.1%	
4B Western Aleutians	Harvest	2,582	916	1,351	2,761	1,997	4,737	1,175	450	537	1,698	254	294	1,684	108%
	% AK Total	0.2%	0.1%	0.1%	0.2%	0.2%	0.5%	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%	0.3%	
4C Pribilof Islands	Harvest	22,881	9,734	7,716	8,527	15,077	5,657	6,323	10,859	1,648	1,176	3,389	4,300	5,152	64%
	% AK Total	2.2%	0.8%	0.7%	0.8%	1.5%	0.6%	0.7%	1.4%	0.2%	0.2%	0.4%	0.6%	0.8%	
<i>St. George</i>	<i>Harvest</i>	<i>2,042</i>	<i>1,823</i>	<i>2,145</i>	<i>3,443</i>	<i>3,736</i>	<i>1,150</i>	<i>700</i>	<i>720</i>	<i>490</i>	-	-	<i>370</i>	<i>401</i>	<i>24%</i>
	% AK Total	0.2%	0.2%	0.2%	0.3%	0.4%	0.1%	0.1%	0.1%	0.1%	-	-	0.1%	0.1%	
<i>St. Paul</i>	<i>Harvest</i>	<i>20,839</i>	<i>7,911</i>	<i>5,571</i>	<i>5,085</i>	<i>11,342</i>	<i>4,507</i>	<i>5,623</i>	<i>10,139</i>	<i>1,158</i>	<i>1,176</i>	<i>3,389</i>	<i>3,930</i>	<i>4,751</i>	<i>71%</i>
	% AK Total	2.0%	0.7%	0.5%	0.5%	1.1%	0.5%	0.7%	1.3%	0.2%	0.2%	0.4%	0.5%	0.8%	
4D NW Bering Sea	Harvest	4,380	10,923	5,848	8,297	3,204	3,131	644	1,171	615	672	54	-	-	
	% AK Total	0.4%	0.9%	0.5%	0.7%	0.3%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	-	-	
4E E. Bering Sea Coast	Harvest	53,775	28,501	54,119	70,743	52,135	15,898	8,749	10,055	6,168	8,384	71,327	41,370	25,160	72%
	% AK Total	5.2%	2.4%	4.6%	6.3%	5.1%	1.8%	1.0%	1.3%	0.9%	1.2%	9.4%	5.7%	4.1%	
<i>Bristol Bay</i>	<i>Harvest</i>	<i>435</i>	<i>203</i>	<i>2,169</i>	<i>1,336</i>	<i>2,116</i>	<i>84</i>	-	-	<i>403</i>	<i>329</i>	<i>1,160</i>	<i>496</i>	<i>2,622</i>	<i>300%</i>
	% AK Total	0.0%	0.0%	0.2%	0.1%	0.2%	0.0%	-	-	0.1%	0.0%	0.2%	0.1%	0.4%	
<i>Y-K Delta</i>	<i>Harvest</i>	<i>53,284</i>	<i>28,298</i>	<i>51,950</i>	<i>69,407</i>	<i>50,019</i>	<i>14,669</i>	<i>7,468</i>	<i>9,484</i>	<i>5,283</i>	<i>7,239</i>	<i>69,765</i>	<i>39,351</i>	<i>22,088</i>	<i>65%</i>
	% AK Total	5.1%	2.4%	4.4%	6.2%	4.8%	1.7%	0.9%	1.2%	0.8%	1.1%	9.2%	5.4%	3.6%	
<i>Norton Sound</i>	<i>Harvest</i>	<i>56</i>	-	-	-	-	<i>1,145</i>	<i>1,281</i>	<i>571</i>	<i>482</i>	<i>816</i>	<i>403</i>	<i>1,522</i>	<i>450</i>	<i>57%</i>
	% AK Total	0.0%	-	-	-	-	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	
Area 4 Subtotal		104,815	78,951	104,649	117,390	87,359	48,976	50,390	37,083	22,574	21,473	82,751	54,018	45,233	67%
% Area 4		10.1%	6.6%	8.9%	10.4%	8.5%	5.5%	5.9%	4.6%	3.2%	3.1%	10.9%	7.4%	7.3%	
Alaska Total		1,041,330	1,193,162	1,178,222	1,125,312	1,032,293	886,988	861,359	797,560	697,656	686,991	760,469	727,178	615,789	67%

Source: Fall and Koster 2020, Table 6

Table 21. IPHC total subsistence halibut removal estimates by area, 2010 through 2019

IPHC Area	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2A	25,300	24,500	32,200	28,500	31,800	33,900	29,600	27,000	28,000	32,200
2B	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000
2C	424,800	387,000	396,000	396,000	422,971	422,971	436,464	436,464	366,214	366,214
3A	312,700	266,100	253,500	253,500	241,369	241,369	222,454	222,454	187,698	187,698
3B	23,000	22,000	16,000	16,000	13,378	13,378	14,242	14,242	16,644	16,644
4A	14,500	13,600	9,500	9,500	7,727	7,727	8,054	8,054	13,237	13,237
4B	500	500	1,700	1,700	254	254	294	294	1,684	1,684
4C	10,900	1,600	1,200	1,200	3,389	3,389	4,300	4,300	5,152	5,152
4D	1,200	600	700	700	54	54	-	-	-	-
4E	10,100	6,200	8,400	8,400	71,327	71,327	41,370	41,370	25,160	25,160
4D/E U32 CDQ	9,500	16,900	20,200	10,000	5,500	4,700	5,500	7,400	9,989	7,252
Total	1,237,500	1,144,000	1,144,400	1,130,500	1,202,769	1,204,069	1,167,278	1,166,578	1,058,778	1,060,241

Source: IPHC data - <https://www.iphc.int/datatest/subsistence-fisheries>, accessed June 2020.

Notes: Estimates for Canada (2B) are supplied by Fisheries and Oceans Canada (DFO) and have not changed since 2010. Estimates for Alaska (2C, 3A/B, and 4A/B/C/D/E) are based on the SWHS, which is not conducted every year; estimates for 2013, 2015, 2017, and 2019 are carried over from the previous year.

ADFG survey estimates found that statewide subsistence harvests accounted for 2.3 percent of total Alaska halibut removals in 2018. Over the 13 years of the SWHS the average net weight of subsistence-caught halibut has ranged from 23.7 pounds in 2003 to 18.2 pounds in 2008. Average weight in 2018 was up to 20.6 pounds which was an increase over recent years.

Across all Alaska areas, the 2018 subsistence harvest was estimated at 615,789 net weight pounds. For comparison, the total removals from Alaska waters in 2018 was estimated at 30,151,032 pounds. While subsistence accounted for roughly 2.1 percent of total removals, the 2018 commercial fishery accounted for 55 percent. Sport fisheries (harvests and other mortalities) accounted for 19.3 percent of removals. Commercial bycatch in other fisheries accounted for 18.7 percent of removals (down from 20.8 percent in 2016), and non-harvest mortality (formerly “wastage”) accounted for 2.2 percent.

As in most years, the majority of 2018 subsistence harvest occurred in Areas 2C and 3A. Area 2C accounted for 59 percent of harvest by weight, while Area 3A accounted for 30 percent. Area 4E accounted for four percent of harvest. Area 3B accounted for three percent. Area 4A accounted for two percent. Area 4C accounted for one percent. Area 4B accounted for less than one percent. No harvest was estimated for Area 4D. ADFG’s total halibut removal estimates include 9,989 pounds of under 32-inch U32 halibut taken under an exemption for subsistence/personal use by CDQ organizations in Areas 4D and 4E (described below)³⁹ Fall and Koster (2020) provide community case studies that describe activity in Areas 4D and 4E beginning on page 18 of ADFG Technical Paper No. 456.

Fall and Koster note the estimated population in eligible rural communities. This information is useful in gauging the scale of individuals who might have benefitted from subsistence halibut fishing through “use,” even though fewer than 5,000 individuals participated in direct harvest. The 2000 and 2010 U.S. Census estimates for this set of communities was 82,707 and 84,353, respectively. The Alaska Department of Labor and Workforce Development estimated the population of these communities in 2016 at 86,525. An additional 8,000 to 9,000 individuals who reside in non-rural Alaska communities are eligible to participate by virtue of their tribal membership. Alaska Natives who live in non-rural places but are not members of an eligible tribe are eligible to participate in subsistence fishing but may benefit through sharing of harvested resources. Further discussion on the local economics of subsistence uses is included later in this section.

ADFG estimates that roughly 75 percent of subsistence halibut are taken with setline gear; the remainder is taken with handline gear. SHARC survey respondents were asked to classify their subsistence and recreational fishing separately to avoid double-counting. Virtually all who reported subsistence and recreational catch separately were respondents from Areas 2C or 3A; those individuals were likely making a distinction between subsistence fishing with setlines and recreational fishing with handlines (e.g., rod and reel).

Since 1998, commercial Pacific halibut vessels fishing for specific CDQ groups in Area 4E have been permitted by the IPHC to retain U32 Pacific halibut (less than 32 inches or 81.3 cm in fork length), under an exemption requested by the NPFMC. Beginning in 2002, the retention allowance was expanded to also include vessels that land all their annual catch in Areas 4D or 4E. The harvests reported under this exemption are reported separately from the household survey conducted by the ADFG for the subsistence harvest, where survey participants are instructed to exclude any U32 Pacific halibut retained during commercial fishing.^{40 41} As shown in Table 22, from 1998 through 2019, CVRF reported an average

³⁹ IPHC’s 2019 fishery statistics report reports a different amount of retained U32 fish by CDQ participants but it is similar in order of magnitude (see Table 22).

⁴⁰ <https://iphc.int/uploads/pdf/rara/iphc-2016-rara26.pdf> accessed 8/21/2020.

⁴¹ SHARC survey respondents are instructed to not include any U32 retained fish in the subsistence harvests they report back to ADFG and therefore they do not appear in most tables and figures in Fall and Koster 2020 (because they are not accomplished under subsistence regulations). The exceptions are tables and figures that report total halibut removals in Alaska where rather than report the U32 retained halibut as a separate category, which would not

annual net weight of 6,409 pounds, which was the highest among the three groups, despite the fact that CVRF CDQ subsistence retention from commercial catch dropped to zero pounds in 2015 with the suspension of the local small boat commercial halibut fishery (discussed in Section 6.3.5) and has remained there since. Aggregating all three CDQ groups, the average retention of U32 halibut from 2010 through 2019, the baseline years used for this analysis, was 9,688 pounds per year.

Table 22. Reported Annual Amounts (pounds, net weight) of U32 Halibut Retained for Subsistence Use by CDQ Harvesters Commercially Fishing in Areas 4D and 4E, by CDQ Group, 1998-2019

Year	BBEDC	CVRF	NSEDC	Total
1998	2,690	900	0	3,590
1999	418	7,483	0	7,901
2000	3,772	9,618	0	13,390
2001	10,773	19,494	0	30,267
2002	6,593	7,473	4,371	18,437
2003	6,346	5,034	2,961	14,341
2004	4,826	7,120	4,242	16,188
2005	8,750	11,335	3,136	23,221
2006	2,836	13,467	3,407	19,710
2007	3,135	11,398	4,516	19,049
2008	1,816	12,926	6,924	21,666
2009	922	4,277	6,060	11,259
2010	2,155	3,924	3,438	9,517
2011	2,752	9,909	4,206	16,867
2012	5,095	10,424	4,668	20,187
2013	3,493	5,250	1,290	10,033
2014	3,456	963	1,114	5,533
2015	2,460	0	2,206	4,666
2016	3,456	0	2,001	5,457
2017	5,261	0	2,119	7,380
2018	8,510	0	1,479	9,989
2019	3,349	0	3,903	7,252
Average 1998-2019	4,221	6,409	2,820	13,450
Average 2010-2019	3,999	3,047	2,642	9,688

Source: Data from 1998-2016 from IPHC Report of Assessment and Research Activities 2016 <https://iphc.int/uploads/pdf/rara/iphc-2016-rara26.pdf>, data from 2017-2019 from IPHC Annual Reports.

effectively show up in the figures (given how relatively small they are), those harvests are included in the subsistence category. This lumping of categories is logically consistent, given that these fish are being used for food in traditional ways in rural subsistence communities (Fall, personal communication, 8/21/2020).

5.4.4 Economics of Subsistence Uses

Contemporary subsistence uses in rural Alaska occurs within a mixed economy. Communities engaged in subsistence harvest include both a fishing and hunting component and a cash component. Rural households use cash for items like fuel oil, electricity, clothing, and shelter, but also to purchase equipment that is necessary for subsistence activity (e.g., firearms, ammunition, nets, boats, snowmachines, and personal gear). In many rural communities, cash-paying jobs are few or unstable (seasonal or temporary). Economic activity often takes place in small-scale family groups, and economic goals tend to focus on the household unit (ADFG 2017). In the Aleutians, Reedy (2016) notes that, aside from housing, groceries are the largest household expenditure in Unalaska/Dutch Harbor and Adak. Groceries accounted for 8 percent to 21 percent (Atka) of expenditures among eight studied Aleutian communities.

Rural households with higher cash incomes are observed to produce *more* wild foods than those with less cash. Higher relative income and higher producing households are central to the sharing economy within subsistence use communities. ADFG's Division of Subsistence cites a "30-70 rule," whereby 30 percent of households in a community often produce 70 percent of the community's wild harvest in terms of usable pounds.⁴² In addition to relative income, higher producing households might also be those with more available labor (i.e., physically capable individuals). For all subsistence resources, ADFG estimates that 60 percent of rural Alaska households harvest wildlife but 86 percent of households use the harvest. For fish, the estimate is that 83 percent of households harvest subsistence fish but 95 percent use the harvest. These facts underline the reverberating effect of subsistence harvest throughout rural communities and their extensions through family and tribal ties. The 2017 ADFG Subsistence Update estimated the monetary value of wild food harvest in defined subsistence areas at an annual value of \$170 million to \$340 million. This calculation was based on usable pounds of all resource types (fish, land mammals, marine mammals, plants, birds, etc.) and a replacement cost ranging from \$5/pound to \$10/pound.

Reedy-Maschner and Maschner (2012) note that the delineation between commercial and subsistence activity in rural Alaska communities is often overstated. In many cases an individual will use the same vessel to harvest both commercial individual fishing quota (IFQ) and subsistence halibut, as well as other wild foods. For example, open skiff vessels that have a small commercial market in Atka are critical for residents' access to non-commercial wild foods at sea and on land (Reedy 2016). While vessel identification data are not available for subsistence use, the authors recognize the potential for interconnectedness between these two modes of harvest. Subsistence and commercial fishing also coincide in the previously mentioned case where U32 halibut taken on CDQ trips can be retained as subsistence fish in eligible communities. More broadly, engagement in small scale fishing – through a CDQ reserve or individually – can financially sustain a fishing platform that is also available for subsistence use. Moreover, cash earned from crew work on commercial vessels is often applied to the inputs necessary for subsistence harvest of both marine and land resources.

Individuals in eligible rural communities or tribal members might also conduct subsistence harvest in areas outside of the place where they reside. For example, a study of subsistence fisheries in eight communities in the Arctic-Kotzebue management subarea from 2012 through 2014 included halibut harvest by residents of non-coastal communities (Braem *et al.*, 2018). Halibut were recorded as a minor species in areas that predominantly focus on salmon and freshwater species such as the Bristol Bay area (Halas and Neufield, 2018). These reports indicate that individuals may travel to participate in subsistence fishing with family or other relations and bring those resources back to their home economy.

Braem *et al.* (2018) also note occurrences where localized disasters were mitigated or alleviated by access to subsistence fishing opportunities, or by distribution of subsistence species from CDQ groups. For

⁴² http://www.adfg.alaska.gov/static/home/library/pdfs/subsistence/ak_economies_subsistence.pdf

example, in 2014 an unusual thaw event caused fish and game that were stored outside – as is customary in the area – to spoil. Data reflect that residents in the affected communities increased subsistence harvest that year to replace the lost food. In both that event and an event where severe coastal storms destroyed food caches, a CDQ group (NSEDC) and an Alaska Native Claims Settlement Act (ANCSA) corporation (NANA Inc.) provided halibut and salmon from harvest on corporation-owned vessels and facilitated contributions through bycatch donation programs.

5.4.5 Halibut in the Context of Other Subsistence Resources

Halibut is just one of many important sources of wild foods in rural Alaskan communities. Key regions where subsistence uses have been studied and reported include the Aleutian Islands, the Pribilof Islands, Central Yupik places, and St. Lawrence Island. A 2016 report commissioned by the U.S. Department of Interior Office of Subsistence Management focused on the Aleutian region reported the most recent available data on total subsistence harvest for eight Aleutian Islands communities: Unalaska, Nikolski, Atka, Adak, Akutan, False Pass, Nelson Lagoon, Port Heiden (Reedy 2016). Among 13 selected species, halibut ranked third in usable subsistence pounds per capita behind caribou and salmon. Other important non-salmon species included Pacific cod, rockfish, and greenling (pogies). The communities with the greatest per capita non-salmon fish harvest were Akutan, Unalaska, and Atka. Adak and Akutan were the only communities where per capita non-salmon harvest outstripped salmon harvest. Akutan and Unalaska were the communities that relied on non-salmon species and had little land mammal harvest. Some of the studied Aleutian Islands communities – e.g., Atka – were relatively more reliant on land mammals such as feral reindeer than fish, but still recorded salmon and non-salmon harvests in line with the volumes in other communities. Reedy (2016) includes data on subsistence use of birds, eggs, plants, and invertebrates with data collected between 2009 and 2015. Within the APICDA region, Unalaska is the community with the greatest number of halibut subsistence fishermen and the largest volume of harvest. The AFSC has compiled socioeconomic community profiles on each community in the region based on ADFG data, United States Fish and Wildlife Service (USFWS) reports, and researchers' interaction with civic leaders through a survey to elicit communities' most important subsistence species. AFSC found that halibut were specifically listed as a key subsistence resource in Adak, Unalaska, and St. George. The profiles for Akutan and Atka referred generally to 'fish' or 'non-salmon fish.' Other key resources in the region include salmon, crab, Pacific cod, seal, sea lion, duck, geese, marine/terrestrial birds, marine invertebrates, and local vegetation.

As noted in Section 4.5.5, subsistence use of Pacific cod has deep roots in the social, cultural, and economic fabric of communities in the Aleutian region; Pacific cod shows up as a resource in the archaeological record and patterns of use continue to evolve. A 2003 study of Unalaska ranked Pacific cod eighth in terms of subsistence harvest and use of species harvested elsewhere, behind four salmon species, halibut, moose, and crab, but ahead of seal and caribou (Hamrick and Smith 2003).

A survey conducted by ADFG in 2008 found that 33.3 percent of households in Akutan used Pacific cod, which was less than the percentage using halibut (86.1 percent), char (63.9 percent), and Dolly Varden (58.3 percent).⁴³ The range of subsistence uses in Akutan was also lower in 2008 than in 1990. In 1990, 27 kinds of resources were used by at least 50 percent of Akutan households. In 2008, without exception, the percentage of households using these resources dropped, including 51 percent less households using Pacific cod. Involvement of households in commercial fishing is often associated with high levels of production of fish and wildlife resources for subsistence uses. Of all Akutan's households, 33 percent were involved in commercial fishing in 2008. These households averaged harvests of 941 pounds of wild foods, compared to 538 pounds for other households. A 2016 study of 26 households in Akutan (70 percent of households) found that the percentage of households harvesting subsistence resources in

⁴³ CSIS data accessed in 2018.

2015/2016 had declined for all resources except for salmon relative to findings from similar surveys in the 1990s (Schmidt *et al.* 2018).

5.4.6 Western Alaska & Industry Joint Working Group

The Chaninik Qaluyat Nunivak (CQN) Working Group, formed in 2013, is an example of cooperation between subsistence users and the BSAI commercial groundfish fishery.⁴⁴ CQN “was established to address tensions stemming from overlapping use of Kuskokwim Bay area fishing grounds by tribal community commercial and subsistence users and off-shore commercial bottom-trawl fisheries.”⁴⁵ CQN is comprised of members from the Bering Sea Elders Group, the Association of Village Council Presidents, and the Alaska Seafood Cooperative. The group was created out of a desire to work together to provide opportunity for a productive yellowfin sole fishery while minimizing the impacts on residents who use the same region for subsistence and other fisheries. Chief among the issues of concern is the effect of halibut bycatch in the yellowfin sole trawl fishery on subsistence resources near the Kuskokwim Bay, Etolin Strait, and Nunivak regions.

CQN has supported research into deck sorting halibut on Amendment 80 trawl vessels to reduce bycatch mortality rates⁴⁶ and methods to reduce the impact of yellowfin sole trawling in the Kuskokwim Bay area. CQN’s contributions to deck sorting research include funding for satellite tags that improve understanding of release mortality rates and the efficacy of the deck sorting initiative. CQN is also supporting the deployment of real-time seafloor temperature loggers to help both subsistence fishermen and Amendment 80 yellowfin sole vessels identify the optimal time to harvest their target species. Using baseline knowledge of seasonal temperatures and correlation with target species presence, temperature data may help trawl vessels minimize the time that they need in the area to achieve their harvest objectives and thus reduce their impact on subsistence fishing in the form of bycatch. Temperature readings might also allow subsistence users to optimize their effort and improve their harvest efficiency for species including halibut and salmon, as well as develop a better general understanding of their local ecosystem as the climate is changing. CQN participants who communicated with the analysts stated that in some areas, such as Togiak, it is accepted knowledge that warmer bottom temperatures correlate to greater halibut presence but this relationship is not established in other areas – e.g., Kuskokwim Bay – and satellite surface temperatures are not a reliable indicator of bottom conditions.

Efforts to collect bottom temperatures with moorings and correlate them with surface temperatures available by satellite are in an early stage. The investigators are contending with the challenges of sea ice and the availability of vessels to successfully retrieve the physical data loggers in the spring. They are working through the stages of determining how much temperature variation exists in the study area to understand how many collection stations are necessary on an ongoing basis. Temperature variation is caused by seasonal effects and mixing between river outflows and the ocean; it is not yet established whether consistent patterns exist. The first year of study included mooring locations in shallow water and along the edge of the groundfish trawl area at the fishing depth. Both depth ranges were studied at locations along a north/south gradient.

⁴⁴ Information in this subsection provided via personal communication by T. Loomis, CQN co-chair (August 2019) and John Gauvin, Alaska Seafood Cooperative (June 2020).

⁴⁵ <https://www.alaskapacific.edu/stories/new-relationships-in-kuskokwim-bay>, accessed June 3, 2020.

⁴⁶ See deck sorting information provided in Section 3.4.2 of the DEIS to which this SIA is appended.

5.5 Sport Halibut Harvest

The sport fishing category includes non-commercial recreational fishing and commercial recreational fishing, generally referred to as charter fishing. Together, halibut and salmon are the major sport fish species in Alaska, though NMFS's regulatory authority for recreational fisheries extends only to halibut. Sport fishing regulations for halibut in Alaska are developed on the international, federal, and state levels by the IPHC, NPFMC, NMFS, and ADFG. Although ADFG does not directly manage Alaska halibut fisheries, the State has adopted regulations that affect sport fishing for halibut.

This section focuses on sport harvest activity in the management areas that are geographically consistent with the BSAI, though sport harvest is managed and reported by IPHC and ADFG areas. This section includes data from both IPHC and ADFG and, while estimation and reporting methodologies may differ, it is clear from both sources that sport harvest is a small component of halibut removals in the region and is also a small portion of total sport harvest for Alaska and coastwide. Additional information is available in AFSC's Community Profiles, which are updated with sport harvest and charter permit information through 2014.⁴⁷

This section does not break out harvest information for charter operations as opposed to unguided recreational fishing. Charter businesses are required by Alaska Board of Fisheries regulations to report effort under the ADFG Saltwater Logbook program. However, ADFG's policy is not to release charter logbook information if the data represent fewer than four businesses. For the area under consideration, fewer than four businesses were operating in all but one year during the 2006 through 2019 period. Only one year during that period (2007) would be reportable. Per communication with ADFG staff, the analysts can report that fewer than 100 halibut were harvested annually by charter operations in IPHC areas 4A or 4B in five of the six years since 2014; no charter fish are reportable in Areas 4CDE. Additional description of charter activity in the region of study is included at the end of this section.

Across all IPHC areas, including those outside of Alaska, recreational removals (mortality) account for 17 percent to 19 percent of total halibut removals according to the fishery statistics put out by IPHC for their three most recent Annual meetings covering fishing years 2017 through 2019.⁴⁸ The greatest proportion of coastwide removals was commercial landings (61 percent to 62 percent from 2017 through 2019). Bycatch in other commercial fisheries – including but not limited to Amendment 80 – accounted for 14 percent to 17 percent of removals during the 2017 through 2019 period. Subsistence removals were stable from 2017 through 2019, accounting for 3 percent of removals. This section is focused on halibut fishing in IPHC Area 4, where non-commercial recreational catch is quite low and only a small amount of guided recreational activity occurs. A 2013 ADFG estimate found that charter operations in Area 3B and Area 4, combined, represented less than 0.4 percent of Alaska's total charter/non-charter recreational yield.⁴⁹ For this reason, *all* recreational anglers in areas outside of 2C and 3A (i.e., in Area 4) are subject to the regulations that govern unguided (non-commercial, non-charter) anglers in Areas 2C and 3A. The most salient of these regulations are a sport fishing season that extends from February 1 to December 31 and a bag limit of two halibut of any size per person per day unless otherwise specified. The complete regulations are defined in Sections 26 and 29 of the IPHC's annual management measures and summarized by NMFS for public consumption.⁵⁰

⁴⁷ <http://www.afsc.noaa.gov/maps/ESSR/recreation/default.htm>

⁴⁸ [Data for years prior to 2017 can be found in IPHC Annual Reports at: https://www.iphc.int/library/documents/category/annual-reports](https://www.iphc.int/library/documents/category/annual-reports)

⁴⁹ See Section 4.4, of the Recreational Quota Entity Secretarial Review Draft at <https://www.npfmc.org/wp-content/PDFdocuments/halibut/HalibutCharterRQE517.pdf>

⁵⁰ <https://www.fisheries.noaa.gov/alaska/recreational-fishing/unguided-sport-fishing-halibut-alaska>

Due to the relatively small volume of recreational use in Area 4 and the management under a daily bag limit rather than an area/sector allocation – such as the Catch Sharing Plan that defines the commercial IFQ and charter sector allocations in Areas 2C and 3A – IPHC accounts for recreational removals using a projection. Projected sport harvest in areas outside of 2C and 3A are combined with projected subsistence harvest and projected bycatch in non-target commercial fisheries and then deducted from Total Constant Exploitable Yield (TCEY) to arrive at Fishery Constant Exploitable Yield (FCEY), which then becomes the annual combined catch limit for the commercial IFQ sector and the charter allocation to 2C and 3A.⁵¹

The analysts summarize recreational catch of halibut for the ADFG management areas that coincide with Area 4 in which halibut were recorded on the annual Statewide Harvest Survey (SWHS) from 2010 through 2018 (Table 23). Those areas include ADFG Areas R, S, and T in the Southcentral region and Areas V and W in the Arctic-Yukon-Kuskokwim region.⁵² The primary place where unguided recreational halibut fishing occurs within Area 4 is in Unalaska Bay in Area R. The data in the table represent the number of halibut that were retained. (Records dating farther back in time showed a one-year incidence of recreational halibut catch in Areas V and W in 2005 (32 fish in Area V and 96 fish in Area W). Note that the data in the table are derived from a scientific survey of resident and non-resident angler households, and that the precision of the estimates depend on the amount of fishing that occurs and the number of survey responses received. As a result, standard error for the total sport harvest estimate may be large; standard error for Area R has been around 38-41 percent in recent years.

Table 23. Sport harvest estimates by selected ADFG region and area, 2009-2018 (Source: SWHS)

Region	Area	Unguided Recreational Harvest (number of fish)									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Southcentral	Alaska Peninsula/ Aleutian Islands (Area R)	3,300	2,352	2,034	3,625	2,025	1,063	778	1,657	409	1,148
	Kvichak River Drainage (Area S)	0	0	33	0	0	0	32	0	0	0
	Nushagak, Wood River, & Togiak (Area T)	0	0	0	0	0	0	0	21	0	0
Arctic-Yukon- Kuskokwim	Kuskokwim River/Bay Drainages (Area V)	0	0	0	0	0	33	0	0	0	0
	Seward Peninsula/ Norton Sound (Area W)	0	0	0	15	0	0	0	0	0	21
Alaska Total		440,255	397,998	393,571	387,713	453,594	407,975	420,484	399,635	352,454	351,842

ADFG reports final sportfishing harvest estimates to IPHC using the Commission's management area definitions for use in the calculation of total removals and setting FCEY for the commercial IFQ fishery and the 2C/3A charter sector. In a letter to IPHC dated October 2019 accompanying final 2018 estimates, ADFG outlines the department's estimation methods.⁵³ Estimates for IPHC areas 3B and 4 combine charter and unguided activity and are based entirely on the SWHS. Because ADFG does not sample sport harvest in those areas, the department applies the average fish weight of unguided Kodiak sport harvest as a proxy to calculate yield (14.08 net pounds in 2018, down from 15.35 pounds in 2017). Unguided Kodiak harvest is used because the unguided sector is not affected by size limits. In 2018, recreational halibut harvest in IPHC Area 4 was estimated to equal 13,000 pounds of removals, which was up from 6,000 pounds estimated in 2017 and close to the 15,000 pounds estimated in 2016. The October 2019

⁵¹ This process is diagrammed in a flowchart in Figure 4-1, Section 4.4, of the Recreational Quota Entity Secretarial Review Draft <https://www.npfmc.org/wp-content/PDFdocuments/halibut/HalibutCharterRQE517.pdf>

⁵² Maps of the regions and areas as well as SWHS data are available to the public at: <http://www.adfg.alaska.gov/sf/sportfishingsurvey/>.

⁵³ https://www.npfmc.org/wp-content/PDFdocuments/halibut/ADFG_sport_fishery_report_IPHC_2019.pdf

ADFG letter provided preliminary 2019 harvest projections for Area 4, projecting 810 fish at an average net weight of 16.92 pounds for a yield of 14,000 pounds in removals.⁵⁴

To compare the scale of sport halibut harvest in Area 4 to that of Areas 2C and 3A, the analysts refer to ADFG's final 2018 harvest estimates for Areas 2C and 3A.⁵⁵ In 2018, Area 2C charter harvest was estimated using charter logbooks at 69,992 fish with a net weight yield of 656,000 pounds (avg. net wt. 9.37 lbs.), down from 70,647 fish at 901,000 pounds in 2017. Unguided harvest in 2C was in 2018 was estimated using the SWHS at 57,688 fish with a yield of 1,216,000 pounds (avg. net wt. 21.09 lbs.), down from 60,817 fish with a net weight yield of 1,218,000 pounds in 2017. Area 3A charter harvest was estimated at 136,312 fish with a yield of 1,874,000 pounds (avg. net wt. 13.75 lbs.), down from 142,664 fish with a net weight yield of 2,076,000 pounds. Unguided harvest in 3A was 105,880 fish with a yield of 1,555,000 pounds (avg. net wt. 14.69 lbs.), down from 108,972 fish with a net weight yield of 1,530,000 pounds. These annual reports document recreational removals in 2C and 3A dating back to 1995. Total recreational harvest estimates (charter and non-charter) in Area 2C have ranged from 1,029,000 pounds in 2011 to 3,264,000 pounds in 2008. Total recreational harvest estimates (charter and non-charter) in Area 3A have ranged from 3,542,000 pounds in 2016 to 6,283,000 pounds in 2007. Recreational harvest estimates for 2019 should be available in December 2020 barring delays in data collection.

IPHC has recently published estimates of retained sport catch by area for 2013 through 2019.⁵⁶ Discard mortality and, thus, total removals are also reported but are not available for Areas 4BCDE. During that period retained sport catch in Area 4A – where most of the sport activity in the BSAI region occurs – ranged from three to seven metric tons per year, or roughly 6,000 pounds (2017) to 15,000 pounds (2016).

Another measure of recreational fishing engagement at the community level is the number of sportfishing licenses sold in a community. AFSC's Alaska Community Profiles uses AKFIN data to map the number of licenses sold in a community, sportfish licenses sold to community residents, charter fishing businesses in a community, and charter guide licenses held by community residents. The most recent data included in the map function is for 2014. While use of these licenses does not necessarily indicate engagement in the halibut recreational fishery, it gives some indication of communities' sportfishing engagement in general. Of the Bering Sea communities identified in this SIA, Unalaska, Dillingham, King Salmon, and Nome possessed the greatest number of sportfishing licenses, though far fewer than communities such as Kodiak and Homer. The only active charter fishing business identified in the study area by the AFSC Alaska Community Profiles in 2014 was a single operation in Unalaska.

Unalaska/Dutch Harbor experienced a pulse in halibut sport charter business activity following the local landing of a new world-record Pacific halibut in 1995 and then another 1996, with the 459-pound Pacific halibut caught in 1996 still remaining the current (as of 2020) all-tackle world-record.⁵⁷ The community, however, saw drop-off in sport charter demand in more recent years. Information gathered during recent (July 2019) fieldwork in the community suggest that there are currently two fishing charter businesses in the community, both of which are active during the summer months. One is a long-established undertaking run by an otherwise retired individual who started the business while still working full-time

⁵⁴ ADFG assumes a 6.0 percent release mortality rate in Area 4 based on non-charter data from other areas. Due to the low amount of catch, release mortality for 2018 was estimated at 0.000 million pounds. Zero is an effect of rounding to three digits; the October 2019 ADFG letter states that "Areas 3B and 4 each had negligible amounts of release mortality from the sport fishery."

⁵⁵ https://www.npfmc.org/wp-content/PDFdocuments/halibut/ADFG_sport_fishery_report_IPHC_2019.pdf

⁵⁶ <https://www.iphc.int/data/datatest/pacific-halibut-recreational-fisheries-data>, accessed June 2020.

⁵⁷ https://igfa.org/igfa-world-records-search/?search_type=CommonNameSummary&search_term_1=Halibut%2C+Pacific. Accessed 6/5/2020.

in another occupation in the community. The other is relatively recently established and is primarily run by two individuals who currently have other full-time employment. Depending on weather, sea conditions, fishing conditions, and customer preference, charter destinations at times range widely beyond Unalaska Bay. A long-established third charter business is also active in Unalaska, but a part of a multi-faceted business with the tourism-oriented portion of that business focused on bird-watching, whale-watching, eco-tourism, and the like rather than on recreational fishing (although, according to its owner, charter fishing was included in its portfolio of services in its early years of operation).

Aside from salmon and crab, sportfishing for non-halibut species in the ADFG saltwater areas that coincide with IPHC Area 4 also occurs at low volumes. Reported catch of groundfish species that are also considered in this analysis included Pacific cod, rockfish (primarily black and yelloweye), and sablefish. Recreational catch of Pacific cod almost exclusively occurred in Unalaska Bay within Area R (Alaska Peninsula/Aleutian Islands). From 2010 through 2017, total catch ranged from 686 fish (2017) to 3,789 fish (2012) with an annual average of 1,317 fish and a median of 985 fish. Fifty-two Pacific cod were caught in Area T during 2016. Recreational catch of rockfish and sablefish were also exclusive to Area R. Average rockfish catch was 1,216 fish during the 2010 through 2017 period (maximum of 2,455; minimum of 409). Average sablefish catch was 72 fish (maximum of 133; minimum of zero).

6 Regional and Community Context of the Fisheries

Relatively recent information on the range of BSAI groundfish fishing communities relevant to the proposed action may be found in a number of other NPFMC groundfish-related documents, including the Proposed Bering Sea/Aleutian Islands Halibut Prohibited Species Catch Limit Revisions – Appendix C: Community Analysis (AECOM 2015) and the Catcher/Processor Mothership Restrictions in the Bering Sea and Aleutian Islands when taking Directed Non-CDQ Pacific Cod Deliveries from Trawl Catcher Vessels – Appendix 1: Social Impact Assessment (Wislow Research 2019).

Less recent, but more comprehensive community/fishery context information may be found in 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).

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 vessels are owned; where vessels make product transfers/port calls and generate associated economic activities and public revenues, including those derived from shared state Fishery Resource Landing 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, indirectly, and adversely affected by the no-action alternative under specific circumstances, but potentially directly, indirectly, and beneficially affected by proposed action alternatives under other circumstances, are those BSAI halibut communities where potentially affected vessels are owned; where vessels make deliveries to shore-based processors and generate associated economic activities and public revenues, including those derived from local landing or severance taxes and/or state shared Fishery Business 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 limited 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 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.

Similarly, the availability, timeliness, and comprehensiveness of information on the subsistence use of halibut (and other subsistence resources) varies by community. The most recent subsistence halibut data available for most communities is from Fall and Koster (2020). To the extent that this type of information is available for the individual communities characterized, a summary of data from this and other relevant sources is included in the regional/community characterizations below. Supplementary information on the harvest of fish, other marine species, land mammals, and terrestrial vegetation are drawn from ADFG Division of Subsistence's most recent report on "Food Production and Nutritional Values of Noncommercial Fish and Wildlife Harvests in Alaska" (2019)⁵⁸ and "Estimated Harvests of Fish, Wildlife, and Wild Plant Resources by Alaska Region and census Areas, 2017" (2019).⁵⁹

The following sections provide a regional and community-by-community characterization of the local community context of BSAI Amendment 80, BSAI halibut commercial, and BSAI halibut subsistence fisheries for those communities. For Alaska communities, these are organized by CDQ region as these regions provide logical units of socioeconomic analysis, covering the BSAI coastal region, and the fact that CDQ entities mediate, to varying degrees, direct engagement of local communities in the relevant fisheries (and would themselves be potentially affected in multiple ways by the proposed management alternatives).

6.1 Aleutian Pribilof Islands Community Development Association Region, Unalaska, and Adak

6.1.1 Location

APICDA is the CDQ entity that includes communities along the Alaskan Peninsula, in the Aleutian Islands, and one of the two communities in the Pribilof Islands. As identified through initial screening criteria, BSAI communities potentially substantially engaged in or dependent upon the BSAI/Area 4 halibut fishery in APICDA include Akutan, Atka, and St. George. Other communities in APICDA include False Pass, Nelson Lagoon and Nikolski. False Pass appears in the data used for this analysis as being the location of shore-based BSAI/Area 4 processing in four of the ten years 2010-2019; Nelson Lagoon and Nikolski do not appear in the data as participating either the harvesting or processing sector of the commercial BSAI/Area 4 halibut fishery in any year 2010-2019.

Unalaska and Adak, the two non-CDQ communities on the Aleutian Chain, are included in this regional discussion due to the key roles they play in the BSAI fisheries relevant to this analysis. Because of substantial existing capacity to participate in Bering Sea fisheries, Unalaska did not qualify as a CDQ

⁵⁸ <http://www.commonwealthnorth.org/download/Wild-Harvest-Notebook.pdf> accessed 8/20/2020

⁵⁹ <https://www.adfg.alaska.gov/static-sub/CSIS/PDFs/Estimated%20Harvests%20by%20Region%20and%20Census%20Area.pdf> accessed 8/20/2020.

community, but with an Aleut population larger than that of each of the APICDA communities,⁶⁰ it is an ex-officio member of APICDA, and Unalaska/Dutch Harbor 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. Following base closure, however, Adak has been the focus of effort by the regional ANCSA corporation (the Aleut Corporation) and others to develop a sustainable civilian community with a local economy based on commercial fishing and maritime services.

Akutan, False Pass, and Nelson Lagoon are located within the Aleutians East Borough (AEB).⁶¹ The rest of the APICDA member communities, along with Unalaska and Adak, are not located within an organized borough.⁶²

6.1.2 Historical Overview

Archaeological evidence suggests that the Alaskan peninsula and Aleutian Islands have been inhabited for around 9,000 years. Excavation of kitchen-middens revealed consistent use of marine resources, including bone fish hooks and fish scrapers, stone sinkers, as well as bones of many marine species including whales, sea-lions, sea otters, seals, sea birds, fish (including halibut, cod, and sculpin) and mollusk shells (Jochelson 2002). The Native people of the region refer to themselves as Unangaġ (Unangam tunuu in their own language) or Aleut (a name applied by foreigners in the mid-1700s) (APIA 2019). Unangaġ subsisted on sea mammals, fish, shellfish, birds, and plants. They fashioned lines of dried, braided kelp, notched stone sinkers and large two-piece bone hooks with a curve and a barb to fish for cod and halibut while smaller rounded hooks made from a single piece of bone or shell were used to fish for sculpin and flounders (Collins *et al.* 1945).

Russian ships first made contact in the Aleutians in 1741 and subsequently discovered St. George in 1786 while searching for fur seal breeding grounds. Seasonal work camps were established in St. George where Russians forced many Unangax to relocate and harvest fur seals. These seasonal work camps became permanent, year-round villages by the early 1800s. Commercial fishing for cod and salmon was developed rapidly in the region as the fur industry declined, and by the early 1900s, commercial fishing became the largest source of employment in the Aleutians, concentrated particularly in the eastern region (NPFMC 2007). During World War II many Unangax were evacuated and interned in Southeast Alaska.

Larger scale commercial fishing started in the early 1900s when fishing stations opened throughout the eastern Aleutians, and one shore station opened at Attu (western Aleutians) where Atka mackerel and greenling were caught. Salmon canneries opened in the eastern islands of Unalaska and Umnak, with limited success. A purse seine fishery for herring developed in the vicinity of Unalaska/Dutch Harbor

⁶⁰ In 2010, Unalaska's Aleut population was larger than the Aleut populations of the potentially BSAI halibut dependent APICDA member communities (Akutan, Atka, and St. George) combined, and it was only about seven percent smaller than the Aleut populations of all APICDA member communities combined.

⁶¹ Port Moller, site of a shore-based processing plant since about 1916 (currently owned by Peter Pan Seafoods <https://dced.maps.arcgis.com/apps/MapJournal/index.html?appid=05c3d6a437f64ff6905d2b04246931c6> accessed 8/4/2020), is a seasonally occupied unincorporated location within the AEB that is neither an ANCSA nor an APICDA (or BBEDC) community. While not a year-round community, it is the focus of activity of the "Gentleman's Fleet," an assemblage of fishing vessels that travel to the port to harvest red and silver salmon every summer. The fleet reportedly takes its name from a cordial working relationship cultivated by several generations of crews looking out for one another while fishing out of the port (<https://alaska.coastguard.dodlive.mil/2015/06/where-no-coast-guardsmen-has-gone-before-port-mollers-gentlemans-fleet/>). Before implementation of the BSAI crab rationalization program, Port Moller had a history of participation in the crab fisheries included in that program, based on the activity of locally operating floating processors. Following implementation of rationalization, however, the processor quota shares originally associated with Port Moller have been processed at shore-based processing facilities in another AEB community owned by the same firm that accumulated the processing history that qualified for initial allocation of the shares (AECOM 2010).

⁶² AEB communities that are not members of APICDA include Cold Bay, King Cove, and Sand Point.

with catches peaking in 1932 at about 2,800 metric tons, then declining until the fishery was abandoned in 1946 (INPFC 1979, Bakkala 1981). Whaling was also common in the early 1900s. Norway built a whaling station in Akutan in 1907 which operated until 1939 when it was sold to the Navy with the threat of World War on the horizon.

A mostly foreign groundfish fleet developed in the 1960s targeting pollock and Pacific ocean perch. At this time, the American fleet started fishing for red king crab near Adak and Unalaska (NPFMC 2007). As the abundance of red king crab declined in the Aleutian Islands, fishers gradually transitioned to harvesting golden king crab and by 1982, golden king crab landings exceeded those for red king crab, although the total volume of golden king crab landed was never as high as for red king crab (Otto 1981). Regulations restricted foreign fishing beginning in the mid-1970s and, by the 1990s the groundfish fleet was a domestic fleet with total catches in excess of 150,000 metric tons. In 1999 the pollock fishery was severely restricted due to concerns regarding the fishery's impact on Steller sea lions (Barbeaux 2004). Since then, total groundfish catches have averaged slightly above 100,000 metric tons and are roughly 50 percent Atka mackerel, 30 percent Pacific cod and 15 percent Pacific ocean perch. Recently, the highest exploitation rates on groundfish are for Pacific cod and Atka mackerel, followed by halibut, Pacific ocean perch and sablefish, targeting pollock, Atka mackerel, and Pacific cod (NPFMC 2007).

A summary of the institutional structure of the contemporary APICDA region communities relevant to this SIA analysis is shown in Table 24. Narrative summaries of the historic context of each community listed are presented in the following sections.

Table 24. Community Institutional Summary (Selected APICDA CDQ Communities, Adak, and Unalaska)

Community	Borough	ANCSA Regional Corporation	ANCSA Village Corporation	Tribal Government	Municipal Government
Adak	Unorganized	Aleut Corporation	none	none	City of Adak
Akutan	Aleutians East	Aleut Corporation	Akutan Corp	Native Village of Akutan	City of Akutan
Atka	Unorganized	Aleut Corporation	Atkam Corp	Native Village of Atka	City of Atka
St. George	Unorganized	Aleut Corporation	St. George Tanaq Corp	Saint George Island	City of St. George
Unalaska	Unorganized	Aleut Corporation	Ounalashka Corp	Qawalangin Tribe of Unalaska	City of Unalaska

6.1.2.1 Adak

Adak island was abandoned in the early 19th Century when Aleut hunters moved or were forced eastward because of the Russian fur trade. The Native people continued to use the island as a place to fish and hunt until the beginning of World War II. The island had been designated in 1913 as part of the Aleutian Island Reservation, but in the 1940's became a key operations and supply location for United States military forces after the Japanese occupation of Kiska and Attu Islands during World War II. Adak's population in the spring of 1944 was made up of at least 32,000 military personnel, peaking at approximately 90,000 during the early staging periods of the war. After World War II, Adak was developed into a Naval Air Station and played an important role during the Cold War as a submarine surveillance center. The navy base housed 6,000 personnel and their families during its peak, but substantial cutbacks occurred in 1994 and navy family housing and schools were closed. Adak Naval Station officially closed on March 31, 1997. Aleut Corporation acquired most Adak's facilities in 2004 in a land transfer agreement under the federal Base Realignment and Closure process and in 1998 about 30 families with children (mostly Aleut Corporation shareholders) relocated to Adak.

Adak incorporated as a 2nd Class City in 2001 and provides police and fire services, electricity (from diesel fuel), water, and a sewer system. Adak Medical Clinic is operated by Eastern Aleutian Tribes.

Although Adak was an Aleut village in earlier times, it was a military base during the latter half of the twentieth century. For that reason, it was not included as an Alaska Native village under ANCSA (nor is it otherwise federally recognized as an Alaska Native governmental entity). Aleut Corporation has taken an active role in the development of the city after the base closure, taking over responsibility for some services to the community, such as the landfill.

6.1.2.2 Akutan

Akutan began in 1878 when the Western Fur and Trading Company established a sea otter trading post and a Russian Orthodox Church and school were built. Alexander Nevsky Chapel was built in 1918 to replace the original structure. The Pacific Whaling Company built a whale processing station across the bay from Akutan in 1912. It was the only whaling station in the Aleutians and operated until 1939. After the Japanese attacked Unalaska in June 1942, the U.S. government evacuated Akutan residents to the Ketchikan area. The village was re-established in 1944, although many villagers chose not to return. This exposure to the outside world brought many changes to the traditional lifestyle and attitudes of the community. The Wakefield Seafood Processors began to process king crab in 1948. In 1979, Seawest, Inc. purchased Wakefield operations, which triggered rapid expansion of Akutan's shore-based facilities. Akutan incorporated in 1979 as a 2nd Class City with a mayoral form of government and is a part of the AEB.⁶³ The Akutan Corporation is the local ANCSA chartered village corporation, and the Aleut Corporation is the regional ANCSA chartered corporation.

6.1.2.3 Atka

Atka is a Native village that has persisted for thousands of years, though its population is declining. The island has been occupied by Unangas for at least 2,000 years. Recent archaeological evidence indicates that the present village site may have had human use since prehistoric times. The townsite was settled in the 1860s. After the end of the sea otter hunting era in the late 1800s, Atka had no viable cash economy. Reindeer were introduced to the island in 1914. During the 1920s, Atka became relatively affluent due to fox farming. After the Japanese attacked Unalaska and seized Attu and Kiska in June 1942, the U.S. Government evacuated Atka residents to the Ketchikan area and burned the village to the ground to prevent Japanese forces from using it and advancing. The community was rebuilt by the U.S. Navy after the war, and residents were allowed to return. Many Attu villagers, released from imprisonment in Japan in 1945, relocated to Atka. Atka incorporated as a 2nd Class City in 1988, is in the Aleutians West Census Area, and is not under the jurisdiction of a borough. The community has a mayor and a seven-member city council and municipal employees which include a fire chief, a Village Public Safety Officer (VPSO), and Anchorage-based City Administrator. In addition, there is a U.S. Bureau of Indian Affairs (BIA) recognized Tribal government, and an ANCSA chartered Native village corporation (Atxam Corporation). The regional ANCSA chartered Native Corporation representing Atka is the Aleut Corporation.

6.1.2.4 St. George

In 1868, the Pribilof Islands were declared a special Federal Reserve with the purpose of managing fur seals and other fur-bearing species, and the federal government began to contract seal harvest to private companies. In 1870, the U.S. Government awarded the Alaska Commercial Company a 20-year sealing

⁶³ Among Alaska communities in the BSAI region identified through use of initial screening criteria as potentially substantially engaged in or substantially dependent upon the BSAI commercial halibut fishery, only Akutan is part of an organized borough.

lease, and they provided housing, food, and medical care to the Aleuts in exchange for seal harvesting. In 1890, a second 20-year lease was awarded to the North American Commercial Company. However, fur seals were severely over-harvested, and poverty ensued. The 1910 Fur Seal Act ended private leasing on the islands and placed the community and fur seals under the U.S. Bureau of Fisheries. Food and clothing were scarce, social and racial segregation was practiced, and working conditions were poor. During World War II, the Pribilof Aleuts were moved to Funter Bay on Admiralty Island in Southeast Alaska as part of the emergency evacuation of residents from the Bering Sea. Unlike Aleutian Islands residents, they were confined in an abandoned cannery and mine camp. In 1979, the Pribilof Aleuts received \$8.5 million in partial compensation for the unfair and unjust treatment the federal administration subjected them to from 1870 to 1946. With Alaska Statehood in 1959, 70 percent of revenues from the commercial fur seal hunt began to go to the State of Alaska. This decrease in federal revenue, in combination with an unexplained decline in productivity of the seal population in the 1960s, led the federal government to begin phasing out of the Pribilof Islands. Federal sealing operations were consolidated in Saint Paul in 1972, leaving Saint George as a research station to monitor the status of the fur seal population. Many Saint George residents chose to relocate to Saint Paul or left the Pribilof Islands entirely, but a majority remained in the community. In 1983, Congress passed the Fur Seal Act Amendments, which brought government control of the commercial seal harvest and the federal presence in the Pribilof Islands to an end. Saint George incorporated as a 2nd Class City in 1983.

6.1.2.5 Unalaska

Unalaska became a Russian trading port for the fur seal industry in 1768. In 1787, many hunters and their families were enslaved and relocated by the Russian American Company to the Pribilof Islands to work the fur seal harvest. By the late eighteenth century, the Aleutians had for the most part been abandoned by Russians in favor of eastern trapping grounds. However, several strategic outposts remained including one in Iliuliuk Harbor. In 1825, the Russian Orthodox Church of the Holy Ascension of Christ was constructed. The founding priest, Ivan Veniaminov, composed the first Aleut writing system with local assistance and translated scripture into Aleut. Since Aleuts were not forced to give up their language or culture by the Russian Orthodox priests, the church became strong in the community. By 1830 and 1840, however, only 200 to 400 Aleuts lived in Unalaska.

By 1850, Russians abandoned the outpost due to the diminished availability of furs. American influence in Alaska increased as people migrated northward; drawn by furs, fishing, and whaling. Dutch Harbor flourished in the 1880s as a coaling station and commercial trade center. The Klondike Gold Rush of the 1890s brought many ships to Dutch Harbor, lured by its position as a gateway to the gold fields of northwest Alaska. By the turn of the twentieth century, several seafood processors may have been in operation processing herring, salmon, and whale meat. As coal began to be replaced by oil as ship fuel, the coal trade began to diminish in Dutch Harbor. Fox farming became popular throughout the Aleutians in 1910, which brought economic relief to Unalaska until the Great Depression of the 1930s saw the demise of the fur industry. Unalaska incorporated as a 1st Class City in March 1942. Dutch Harbor Naval Station and Fort Mears were established in Unalaska as diplomatic relations with the Japanese deteriorated. Other military installations were established on Hog Island and remote locations throughout the area. Permanent facilities including a major hospital complex, docking and fueling facilities, submarine drydocking and repair facilities, an airport, and extensive living and recreational facilities were built to serve military personnel stationed in Unalaska. During this time, many Native residents were evacuated to Southeast Alaska communities. On June 3, 1942, Japanese naval forces bombarded Dutch Harbor, damaging or destroying several facilities and killing dozens of U.S. military personnel. Following the war, many villages returned only to find their villages severely damaged or destroyed. The population of Unalaska following the conflict was reported to be about 300. Interest in fishery resources in the Aleutians began to increase around 1950 with the harvesting and processing of halibut, salmon, and king crab. The growth of the king crab fishery in the early 1960s greatly improved the local economic

condition. Unalaska became a rapidly growing and culturally diverse community, primarily focused on fishing and fish-processing activities. Subsistence activities are important to both the Unangan community and many long-term non-Native residents, as well.

6.1.3 Demographics

Demographic and socioeconomic characteristics for the potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria in the APICDA region are presented in Table 25. All 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.⁶⁴ In 2010, Akutan's total population was 1,027 with 5.5 percent stating they were 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 for 2018⁶⁵ in these CDQ communities show approximate per capita income between \$28,000 and \$31,000 annually, although median household incomes are higher in St. George (approximately \$57,000) than in Akutan and Atka (approximately \$31,000 and \$52,000, respectively). The percent of the population considered low-income was 2.6 percent for St. George, which was lower than the percentages of the population in Akutan (17.8 percent) and Atka (17.1 percent).

⁶⁴ Initially (in 1992) Akutan was deemed not eligible for participation in the 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.

⁶⁵ Some of the social and economic data used in this document are from the U.S. Census American Community Survey (ACS). The ACS asks a broader range of questions than the decennial census and is meant to sample the entirety of the U.S. population on a range of issues. The ACS is conducted annually and the data used in this analysis is based on a 5-year aggregation of data. However, the 5-year ACS surveys approximately 1 in 12 households and this can result in substantial margins of error, particularly in smaller communities. For example, while Adak's median household income is estimated at \$71,667, the margin of error is \$17,141. This means that there is a 90 percent chance that the true median household income in Adak is anywhere from \$54,526 to \$88,808. Similarly large margins of error are present in other communities. Despite this, the ACS provides the most recent and most reliable source for these social and economic data at this time.

**Table 25. APICDA Region BSAI Halibut Dependent Communities and State of Alaska
Selected Demographic Indicators**

Community	2010 Decennial Census Data				2018 American Community Survey Data				
	Total Population	Alaska Native/ Native American 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 House- holds	Median Family Income (dollars)	Low-Income*** Residents (percent of total population)
Adak****	326	5.5%	81.9%	66.6%	\$28,529	\$71,667	22	\$63,750	26.6%
Akutan	1,027	5.5%	90.8%	91.2%	\$31,040	\$31,250	37	\$38,125	17.8%
Atka	61	95.1%	95.1%	0.0%	\$28,066	\$51,875	7	--	17.1%
St. George	102	88.2%	91.2%	3.9%	\$27,963	\$56,875	13	\$61,250	2.6%
Unalaska****	4,376	6.1%	66.3%	48.0%	\$37,404	\$92,273	589	\$97,344	7.2%
State of Alaska	626,932	14.1%	37.1%	1.8%	\$35,874	\$76,715	167,633	\$90,284	10.8%

*Defined as all persons other than those self-identified being in both "white" and "non-Hispanic" census categories.

**Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.

***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2014-2018 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of \$25,926 in 2019.

****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; US Census 2019.

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 potentially substantially engaged or substantially dependent halibut communities in this document, Adak was until recently not classified as "rural" for the purposes of federal subsistence regulation⁶⁶ due to its former military status.⁶⁷ 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.

Unalaska had the highest income rates across all indicators for the five relevant communities in this region. Adak had higher median household income and family income levels than Akutan, Atka, and St. George, while ranking in the middle of those communities in terms of per capita income. In contrast, Adak had, by far, the largest proportion of low-income residents among the five relevant communities in this region.

One demographic challenge faced in common by the communities of Adak, Akutan, Atka, and St. George in recent years has been retaining a large enough number of children to retain a school in the community. Alaska schools need at least 10 students to receive funding from the state; while a community or borough

⁶⁶ 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).

⁶⁷ Adak was recommended for rural status in the Rural Determinations Decennial Review published in 2006. See: <https://www.doi.gov/sites/doi.gov/files/migrated/subsistence/library/policies/upload/Review2006a.pdf>

may choose to operate the school without state funding few, if any, have found it feasible to do so for the long term. The school in St. George did not meet the state funding threshold for the 2017-2018 school year and remains closed at present.⁶⁸ Table 26 provides information on school enrollments, for both kindergarten through 12th grade (KG-12) and pre-kindergarten through 12th grade (PK-12), by community for the 2019-2020 school year, the most recent year for which data are available. The communities included in the table are those that directly participated in the BSAI/Area 4 halibut fishery, as measured by catcher vessels with local ownership addresses that were active in the fishery and/or locally operating shore-plants that accepted BSAI/Area 4 halibut deliveries during at least one year 2010-2019 as indicated in the dataset used for this analysis.

Table 26. Selected APICDA Region Schools Total Enrollments, Kindergarten-Grade 12 and Pre-Kindergarten-Grade 12, by Community, 2019-2020 School Year (as of Oct 1, 2019)

Community	School District	School	Total KG-12	Total PK-12
Adak	Aleutian Region School District	Adak School	18	19
Atka	Aleutian Region School District	Yakov E. Netsvetov School	10	10
Akutan	Aleutians East Borough School District	Akutan School	20	20
False Pass	Aleutians East Borough School District	False Pass School	6	7
St. George	Pribilof School District	PSD Correspondence Program*	6	6
Unalaska	Unalaska City School District	Eagle's View Elementary School	238	238
Unalaska	Unalaska City School District	Unalaska Jr/Sr High School	174	174

*The St. George school has been closed due to low enrollment since the 2017-2018 school year..

Source: <https://education.alaska.gov/data-center>, accessed 8/3/2020.

6.1.4 Local Economy

The economy of the APICDA region 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/Dutch Harbor 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 most 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/Dutch Harbor cannot be overstated, as Unalaska/Dutch Harbor has ranked as the number one U.S. port in volume of landings since 1992 and has ranked second in value of landings (behind New Bedford, Massachusetts) since 2000. In recent years, employment statistics for Unalaska/Dutch Harbor 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

⁶⁸ Two other APICDA communities that did not participate directly in the BSAI/Area 4 halibut fishery are in the same situation as St George with respect to school closings. The school in Nikolski failed to meet the threshold number of students required to qualify for state funding in the 2009-2010 school year and has been closed since then (https://www.alutregion.org/nikolski_school_information accessed 8/3/2020); the school in Nelson Lagoon was last open for the 2011-2012 school year (<https://education.alaska.gov/data-center> accessed 8/3/2020). While not an APICDA community, the school in the AEB community of Cold Bay was last open for the 2013-2014 school year (<https://education.alaska.gov/data-center> accessed 8/3/2020).

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 facilitated the Aleut Enterprise Corporation's ability 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).

6.1.5 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

6.1.5.1 Catcher Vessels with Local Ownership Addresses and Ex-Vessel Gross Revenues

Table 27 provides trend information on the number of vessels with ownership addresses in APICDA region communities that were active in the BSAI/Area 4 commercial halibut fisheries 2010-2019. As shown, the CDQ communities of Akutan, Atka, and St. George averaged between three and five BSAI halibut vessels annually from 2010-2019, while the non-CDQ communities of Adak and Unalaska averaged less than one and about eight vessels, respectively.

Table 27. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, APICDA Region Communities, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
APICDA	Adak*	1	1	1	1	0	1	0	0	0	1	0.6	0.3%	3
APICDA	Akutan	4	3	5	3	4	3	3	1	1	1	2.8	1.6%	6
APICDA	Atka	3	3	4	5	6	4	3	3	0	0	3.1	1.7%	7
APICDA	Saint George Island	3	6	6	4	6	5	5	4	5	5	4.9	2.8%	8
APICDA	Unalaska/Dutch Harbor*	10	9	9	8	6	7	7	6	8	7	7.7	4.3%	16
APICDA	Regional Subtotal	21	22	25	21	22	20	18	14	14	14	19.1	10.7%	39

*Denotes communities within a CDQ region that are not themselves CDQ communities.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Information on BSAI halibut ex-vessel gross revenues of vessels with ownership addresses in the regional communities, to the extent possible within confidentiality constraints, is provided in Table 13. As shown, these revenues varied widely by community (\$142,000 [Akutan] to \$1.8 million [Unalaska/Dutch Harbor] on an annual average basis for those individual communities for which data can be disclosed, with the remaining communities [Adak and Atka combined and St. George] having \$358,000 and \$192,000 in average annual halibut ex-vessel revenues, respectively). Information on BSAI halibut vessel diversity, as

measured by relative dependency on halibut ex-vessel revenues compared to the total ex-vessel revenues for all species, gear, and area fisheries pursued by those same vessels on an annual average basis 2010-2019, is provided in Table 14. As shown in that table, levels of halibut dependency range from 60 percent to 100 percent for the vessels involved in the halibut fishery.

For that same 2010-2019 period, Table 15 shows the annual average number of BSAI halibut catcher vessels with local ownership addresses, the annual average number all commercial fishing catcher vessels (all species, gear, and area fisheries) with local ownership addresses (i.e., the local “community commercial fishing fleet”), BSAI halibut ex-vessel gross revenues for the community commercial fishing fleet, total ex-vessel gross revenue for the commercial fishing fleet (from all species, gear, and area fisheries), and the percentage of halibut ex-vessel gross revenues as a percentage of the total ex-vessel gross revenues of the community commercial fishing fleet (i.e., the “dependency” of the community fleet on BSAI halibut as measured in the proportion of ex-vessel revenues derived from that fishery). For three of the four communities (or groups of communities), the halibut fleet is essentially the community commercial fisheries fleet, such that dependency does not change (that is, it still ranges from 86 percent [Adak/Atka combined] to 91 percent [Akutan] to 100 percent [St. George]. In the case of Unalaska/Dutch Harbor, the vessels active in the halibut fishery were 60 percent dependent on that fishery alone, with the Unalaska/Dutch Harbor “community fleet” as a whole were 38 percent dependent on halibut ex-vessel revenues alone. This community fleet level of dependency was, by far, the highest among communities shown in Table 15 with halibut ex-vessel values greater than \$1 million, with the exception of St. Paul.

Beyond these averages, Adak had no vessels active in the fishery in the four out of the six most recent years for which data are available; Akutan has declined to a single vessel in the most recent three years for which data are available; and Atka did not have any vessels in the most recent two years for which data are available. The apparent causes of these declines vary by community.

Adak has had challenges with stability in the local processing sector, with several changes of ownership and intermittent interruption of operations occurring during the 2010-2019 period. More recently, operations at the plant were indefinitely suspended in June 2020.⁶⁹ While a number of factors reportedly led to the plant closure, one factor that made operational viability particularly challenging, as cited by informed industry sources, was the loss of favorable access opportunities to Pacific cod harvested in the federally managed fishery that existed under FMP Amendment 113 that were vacated by the courts in early 2019.⁷⁰

Interviews in Akutan in 2019 suggested that quota held by multiple local residents has been fished off a combination of a single local resident-owned vessel and another vessel or other vessels with ownership addresses outside the community but whose owner(s) have kinship or other long-standing relationships with the community rather than on more vessels with local ownership addresses. This pattern was attributed to a set of circumstances particular to the vessels involved rather than movement of quota or vessels out of the community but none-the-less represents a change in local fishery engagement patterns.

Atka has experienced the closure of Atka Pride Seafoods, the local processing plant that was a 50/50 joint venture between APICDA and the Atka Fishermen’s Association. It was not open in 2018 or 2019 due to a combination of factors including lowered halibut quotas, competition with the processing operation in Adak, and other factors not directly related to fishing conditions, according to APICDA leadership. As a 2018/2019 interim⁷¹ measure during the non-operation of the local processing plant, APICDA fostered a

⁶⁹ Bristol Bay Times, June 27, 2020 (accessed 8/5/2020): http://www.thedutchharborfisherman.com/article/2026adak_fish_plant_closes_following_management#:~:text=The%20only%20seafood%20shore%20plant,and%20workers%20removing%20vintage%20military

⁷⁰ According to persons involved in the process, there are active discussions in progress exploring different scenarios for re-opening the plant, but no firm commitments are in place to do so.

⁷¹ According to APICDA leadership, as of 2019, plans to reopen the plant are being actively explored, but no firm timeline had been established; more recently with the Coronavirus pandemic of 2020, all plans have been put on

substitute opportunity program for Atka fishermen to fish their quota off a single larger vessel (rather than their smaller individually owned vessels) which had additional safety advantages under conditions of lower halibut abundance that can mean longer trips farther offshore. Most of the deliveries of the catch under this program were made to Adak but, in some instances, deliveries were made to Unalaska/Dutch Harbor and/or Akutan, also according to APICDA leadership. With 2020 came additional changes: due to Coronavirus pandemic conditions, emergency transfers were utilized to harvest the Atka fishermen's quota so as not to unnecessarily risk the health of local fishermen by having them physically present on the vessel. With the plant in Adak not operating, deliveries of the Atka quota catch for the 2020 season have been made exclusively to Unalaska/Dutch Harbor, according to APIDCA management.

In the case of St George, local fishermen access APICDA-held CDQ quota to pursue the halibut fishery, but there is no shore-based processing capacity on the island. Instead, APICDA, through one of its subsidiaries, owns and maintains vessels to tender locally caught halibut the roughly 45 miles from St. George to the shore-based processor in St. Paul. These tenders typically winter in Homer (and occasionally in Nelson Lagoon). According to APICDA management, the St. George halibut program is one of its larger local fisheries programs, which speaks to the fundamental importance of the fishery to that community, which has few other income or employment opportunities.

In 2020, the decision was made not to open the St. Paul shore-based processor for halibut season due to Coronavirus pandemic conditions (as noted in Section 6.2.5.1, below), which meant that St. George residents were unable to pursue the directed halibut fishery, given the fact that the APICDA tenders, while adequate to support a small community fishery, do not have the capacity to make the 200+ mile run to the closest alternate shore-based processors (in Unalaska/Dutch Harbor) feasible. According to APICDA management, in response to this situation they have leased out most of the CDQ halibut that would be otherwise have been harvested by St. George residents, with the harvester planning to deliver to Unalaska/Dutch Harbor. This is a much longer than typical run, with additional turn-around time and fuel expense, so the standard lease rates to the quota holder have gone down considerably (and therefore the benefits that APICDA has been able to generate from their CDQ have also decreased). The lease revenue that is being generated from the CDQ is being used to partially offset a relief/mitigation program for St. George fishermen. In consideration of COVID and the St. Paul shore-based processing closure, APICDA is making a one-time direct payment to fishermen and crew based on their past years' average earnings, after deducting some expenses that would have otherwise occurred under normal fishing operations (Drobnica, personal communication, 8/14/2020).

6.1.5.2 Other Measures of CDQ Community, Unalaska, and Adak BSAI/Area 4 Halibut Harvest Engagement

In addition to catcher vessel-related activity, engagement in and dependency on the BSAI halibut harvest sector can be gauged in part by looking at the number of individuals holding quota shares in the halibut fishery, although this information is complicated by the fact that some CDQ community fleets participate in the fishery to greater or lesser degrees through the use of CDQ quota, which is further complicated by the fact that percentage of quota held as CDQ reserves in the different subareas of Area 4 varies from none (Area 4A) to 100 percent (Area 4E). Nonetheless, the level of quota shareholding in a community is typically indicative of one type of engagement in the halibut fishery.

The quota share pool (measured in quota share units) is converted to IFQ TAC (measured in pounds) each year. The ratio of quota share units to pounds varies year-to-year based on multiple factors, including

indefinite hold. Earlier Council analyses noted that the potential for diversification of the plant through crab processing was being explored and, according to APICDA leadership, that is still the case. Additionally, given the instability of processing in Adak in recent years, it is recognized there may be additional opportunities available for Atka in the future as the only other extant community in the western Aleutian Islands region.

abundance, and varies by IPHC regulatory area. Table 28 shows the quota share pool, IFQ TAC, and ratio of quota share units to IFQ pounds of halibut for 2019 by area, along with CDQ reserve and distribution of CDQ reserve by CDQ group for each area (which does not vary by year) for reference. 2019 is shown for consistency with fisheries data used as quantitative indicators of community fishery engagement and dependency in Section 5 (i.e., the most recent full-year data available for those indicators). Table 29 provides analogous information for 2020, the most recent data available for this indicator.

**Table 28. Halibut Quota Share Pools and IFQ TACs (2019)
and CDQ Reserve and Distribution by CDQ Group by IPHC Regulatory Area**

Area	Quota Share Pool (units)	IFQ TAC (pounds)	Ratio (QS:IFQ)	CDQ Reserve (percent)	Distribution of CDQ Reserve by CDQ Group (percent)
2C	59,477,396	3,610,000	16.4757:1	0%	not applicable
3A	184,893,008	8,060,000	22.9396:1	0%	not applicable
3B	54,201,315	2,330,000	23.2624:1	0%	not applicable
4A	14,586,011	1,650,000	8.8400:1	0%	not applicable
4B	9,284,774	968,000	9.5917:1	20%	100% APICDA
4C	4,016,352	455,000	8.8271:1	50%	85% CBSFA / 15% APICDA
4D	4,958,250	637,000	7.7838:1	30%	30% NSEDC / 26% BBEDC / 24% CVRF / 20% YDFDA
4E	139,592	0	not applicable	100%	70% CVRF/30% BBEDC
All Areas	331,556,698	17,710,000	not applicable	not applicable	not applicable

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

**Table 29. Halibut Quota Share Pools and IFQ TACs (2020)
and CDQ Reserve and Distribution by CDQ Group by IPHC Regulatory Area**

Area	Quota Share Pool (units)	IFQ TAC (pounds)	Ratio (QS:IFQ)	CDQ Reserve (percent)	Distribution of CDQ Reserve by CDQ Group (percent)
2C	59,477,396	3,410,000	17.4421:1	0%	not applicable
3A	184,893,008	7,050,000	26.2260:1	0%	not applicable
3B	54,201,315	2,410,000	22.4902:1	0%	not applicable
4A	14,586,011	1,410,000	10.3447:1	0%	not applicable
4B	9,284,774	880,000	10.5509:1	20%	100% APICDA
4C	4,016,352	383,000	10.4866:1	50%	85% CBSFA / 15% APICDA
4D	4,958,250	536,200	9.2470:1	30%	30% NSEDC / 26% BBEDC / 24% CVRF / 20% YDFDA
4E	139,592	0	not applicable	100%	70% CVRF/30% BBEDC
All Areas	331,556,698	17,710,000	not applicable	not applicable	not applicable

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

As shown in Table 30, APICA region communities with local ownership of halibut quota shares include communities in three different IPHC management subareas within Area 4 (Areas 4A, 4B, and 4C) and one in Area 3 (Area 3B). Also shown is the 2019 IFQ pounds of halibut by community of quota holder as calculated by community shareholding as described in the bullets that follow the table and relevant quota share units to IFQ pounds ratios shown in Table 28. Table 31 provides similar information for 2020, with the relevant quota share units to IFQ pounds ratios shown in Table 29. As noted in the tables and the bulleted notes that follow, the nature, level, and area diversity of halibut quota share holding varies widely between the communities.

Table 30. Halibut Quota Share Holders and Quota Share Units Held, APICDA Region Communities, 2019

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held 2019	Percent of QS Units Held in Region 2019	2019 IFQ Pounds
Adak	4B	1	1,196,304	23.92%	124,723
Akutan	4A	8	273,563	5.47%	30,946
Atka	4B	9	418,656	8.37%	39,391
False Pass	3B	3	386,123	7.72%	16,599
St George	4C	3	32,783	0.66%	3,694
Unalaska/Dutch Harbor	4A	20	2,693,016	53.86%	293,228
Regional Total	--	44	5,000,445	100.00%	508,581

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

Table 31. Halibut Quota Share Holders and Quota Share Units Held, APICDA Region Communities, 2020

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held 2020	Percent of QS Units Held in Region 2020	2020 IFQ Pounds
Adak	4B	1	1,196,304	24.08%	113,384
Akutan	4A	8	273,563	5.51%	26,445
Atka	4B	9	418,656	8.43%	36,183
False Pass	3B	3	386,123	7.77%	17,169
St George	4C	3	32,783	0.66%	3,111
Unalaska/Dutch Harbor	4A	20	2,661,262	53.56%	249,803
Regional Total	--	44	4,968,691	100.00%	446,095

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

Compared to other CDQ regions, halibut quota share holdings within the APICDA region are relatively diversified.

- Communities in the APICDA region span four different IPHC regulatory areas (see Figure 1).
 - Akutan and Unalaska/Dutch Harbor are the only communities in Area 4A, which does not have a CDQ reserve.
 - Adak and Atka are the only communities in Area 4B, which has a 20 percent CDQ reserve that is 100 percent allocated to APICDA.
 - St. George (APICDA) and St. Paul (CBSFA) are the only two communities in Area 4C, which has a 50 percent CDQ reserve that is allocated 15 percent to APICDA and 85 percent to CBSFA.

- False Pass is in Area 3B, which is located within the federal Gulf of Alaska management area (rather than the BSAI management area). Area 3B does not have a CDQ reserve.
- All quota shares held in Adak are held by the Adak Community Development Corporation (ACDC), the only Community Quota Entity (CQE) outside of the Gulf of Alaska. ACDC held quota shares are all in Area 4B. Adak is not a CDQ community.
- All quota shares in Akutan are held by individuals and all shares held are in Area 4A.
- All quota shares in Atka are held by individuals. Eight individuals hold Area 4B shares exclusively and one individual holds Area 3B shares and CDQ flagged⁷² shares in Area 4A.
- All quota shares in False Pass are held by individuals and all are in Area 3B.
- All quota shares in St. George are owned by individuals. Two individuals hold Area 4C shares exclusively and one individual holds Area 4C shares plus CDQ flagged shares in Areas 2C, 3A, 3B, and 4A.
- All quota shares held in Unalaska/Dutch Harbor are held by individuals, with the holdings varying more widely across IPHC regulatory areas than is typical in other communities, regardless of CDQ region. Unalaska/Dutch Harbor is the only community where there was a difference in quota shareholders and/or quota shares held between 2019 and 2020 among all of the communities shown in Table 30 or analogous tables in the other CDQ regional discussions. . Unalaska/Dutch Harbor is not a CDQ community (but is an ex-officio/non-voting member of APICDA).
 - In 2019, 12 individuals held Area 4A shares exclusively; two held Area 4A and 4B shares; one held Area 4A and 4E shares; one held Area 4A, 4C, and 4D shares; two hold Area 4B shares exclusively; one held Area 4A and 3A shares; and one held Area 4A and 3B shares.
 - In 2020, the number of quota shareholders remained at 20, but the net number of quota shares held dropped by 31,754, all of which were Area 4A shares. The pattern of quota share holding “portfolios” by area described for 2019 did not change in 2020, although the specific individuals involved did change.
 - In one instance, quota shares transferred between two individuals who are or were residents, resulting in no net change in quota share holdings at the community level. Both individuals held or now hold only Area 4A quota shares.
 - In another instance, an individual who held 33,452 Area 4A shares (only) in 2019 does not appear as a quota shareholder in the 2020 data.

⁷² CDQ flagged shares represent CDQ compensatory shares that were automatically issued to qualified individuals as compensation for the potential loss of fishing history that would have otherwise qualified for IFQ but for the CDQ program. These compensatory shares were issued in IPHC regulatory areas that did not have CDQ reserves (i.e., Areas 2C, 3A, 3B, and 4A). The intent, according to those involved with the process, was not for those individuals who were awarded CDQ compensatory shares to actually fish those shares, rather, the intent was that the CDQ compensatory shares could be sold and the proceeds of those sales would then serve as compensation for the potential loss of fishing history that would have otherwise qualified for IFQ but for the CDQ program. When CDQ compensatory shares are sold, the CDQ flag is removed from the shares in the data, so any remaining shares so flagged in the data are still held by the individual to whom they were originally issued. Any individuals shown in the data holding quota share units in Area 4E, which has a 100 percent CDQ reserve, did not qualify for compensatory shares. As there is no Total Allowable Catch (TAC) set in 4E, those shares are not issued quota pounds (i.e., they cannot be fished and typically have no sale value).

- In a third instance, an individual who did not appear as a shareholder in the 2019 data shows up in the 2020 data as holding 1,698 Area 4A quota shares (only).

Another important way that communities are engaged in the commercial halibut fishery harvest sector, beyond local individuals owning vessels active in the fishery or holding halibut quota share units, is through employment of local residents as crew members on vessels participating in the fishery. However, as noted in Section 4.5.4, sources of systematically collected quantitative data on crew employment and earnings are not available for the halibut fishery in this or other regions.

6.1.5.3 Shore-Based Processors and First Wholesale Gross Revenues

As shown in Table 16, shore-based processors in Adak, Akutan, and Unalaska/Dutch Harbor accepted BSAI halibut deliveries every year during the period 2010-2019, while Atka accepted deliveries eight out of those ten years. The average number of processors accepting BSAI halibut was greater than one in Unalaska/Dutch Harbor (2.3) and Adak (1.3). In the case of Adak, however, while more than one processor name appears in the data, only one unique physical plant was active in the community during these years. The Atka shore-based processing plant did not operate in 2018 and 2019 for a combination of reasons, as noted earlier. In False Pass, the processing plant accepted halibut only intermittently in during the 2010-2019 period (in 2010-2011 and in 2014-2015); in 2017 the plant changed ownership structure⁷³ and in 2018 and 2019 focused exclusively on salmon.⁷⁴

More recently, as noted above, the plant in Adak plant suspended operations in June 2020. Additionally, due to Coronavirus pandemic conditions, the decision was made not to open the shore-based processing plant in False Pass in 2020 that had processed halibut at least some years 2010-2019 and is owned in part by APICDA.⁷⁵

As noted in Section 4.5.2, first wholesale gross revenue data for shore-based processors sufficient to calculate processing diversity are not available. For the reporting of ex-vessel value of deliveries of BSAI halibut to shore-based processors, plants in Unalaska/Dutch Harbor and Akutan were grouped together and plants in the APICDA region communities of Adak, Atka, and False Pass were grouped with St. Paul from the CBSFA region due to data confidentiality restrictions. As shown in Table 17, on an annual average basis, shore-based processors in Unalaska/Dutch Harbor and Akutan combined accounted for over half of all ex-vessel gross revenues of BSAI halibut deliveries to shore-based processors, while the plants in Adak, Atka, False Pass, and St. Paul combined accounted for over one-quarter of the total. Together, these two groups of communities accounted for approximately 81 percent of all ex-vessel gross revenues of BSAI halibut deliveries to shore-based processors in all regions combined.

⁷³ APICDA Joint Ventures has retained a 25 percent interested in False Pass Seafoods (formerly Bering Pacific Seafoods) and False Pass Fuel Services, while Trident Seafoods now holds the balance of ownership interest and is the managing partner in these enterprises.

⁷⁴ A second, relatively large shore-based processing plant was recently built in False Pass and began operations in June 2019. According to the company's website, the plant is in a favorable geographic position to process salmon, pollock, and cod from both the Gulf of Alaska and Bering Sea (<https://www.silverbayseafoods.com/>, accessed 7/31/2020). As noted in Table 16, no BSAI/Area 4 halibut deliveries were accepted by shore-based processors in False Pass in 2019. According to company management, while BSAI Area 4 halibut has not been an operational focus of the new plant to date, and there are no immediate plans to have it become so in the near term, operations are subject to change as conditions in individual fisheries warrant. This plant has not yet had a "typical" annual cycle, as COVID-19 pandemic considerations changed plans, including seasonal labor phasing, before the plant had completed a full 12 months of operations.

⁷⁵ According to APICDA management, the salmon that would have been processed at the False Pass plant that did not open in 2020 were sent instead to shore-based processors at other locations in the Aleutians East Borough, including King Cove, Sand Point, and/or Port Moller.

As shown in Table 19, however, annual average ex-vessel gross revenues of BSAI halibut landings at Unalaska/Dutch Harbor and Akutan plants combined (\$14 million) accounted for about four percent of all ex-vessel gross revenues of the landings of all species at all shore-based processors in those communities combined (\$312 million). As shown in that same table, annual average ex-vessel gross revenues of BSAI halibut landings at Adak, Atka, False Pass, and St. Paul plants combined (\$6.5 million) accounted for about 16 percent of all ex-vessel gross revenues of the landings of all species at all shore-based processors in those communities (\$40 million).

6.1.6 Engagement in the Subsistence BSAI Halibut Fishery

As described in an earlier NPFMC analysis (AECOM 2015)⁷⁶ 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 for the city and 13.3 reported for 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, by this measure, 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.

ADFG's Division of Subsistence has collected comprehensive subsistence harvest information for at least some years for key subsistence species across many Alaskan communities. While in many cases these data are dated (e.g., 1994 is the most recent year available for Atka, St. George, and Unalaska), they still represent the most comprehensive data encompassing all subsistence resources available that is comparable across regions. These data are accessible through the Community Subsistence Information System and include information on percentage of households using the subsistence species, estimated total harvest, and, for some fish species, amount of subsistence harvest retained from commercial fisheries, among other variables. Table 32 presents selected information for the potentially substantially engaged or substantially dependent halibut communities in the APICDA region as selected by initial screening criteria. Of those communities for which there are data, each has 85 percent of households using subsistence halibut, although the number of pounds harvested per community varies widely between communities and, in the case of Akutan, between study years. The percentage of halibut of all subsistence fish harvested is especially high in St. George, while the percentage of retention of subsistence halibut from commercial fishing is relatively high in Akutan. No data are available for Adak (likely due to the fact that Adak, a former military installation, was only relatively recently classified as rural for the purposes of subsistence resource management, as noted in Section 6.1.3).

⁷⁶ See Table 2-8 in that analysis (Proposed Bering Sea/Aleutian Islands Halibut PSC Limit Revisions Appendix C: Community Analysis).

Table 32. Selected CSIS Halibut, Fish, and All Resources Subsistence Harvest Information, APICDA Region Communities, Various Years

Community	Year(s) Data Are Available	Percent Using Halibut	Percent Harvesting Halibut	Halibut Reported Pounds Harvested	Halibut Estimated Total Pounds Harvested	All Fish Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Fish Harvested	All Resources Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Resources Harvested	Estimated Pounds of Subsistence Halibut Harvested Retained from Commercial Fisheries	Subsistence Halibut Estimated Total Pounds Harvested Retained from Commercial Fisheries
Adak	none*	--	--	--	--	--	--	--	--	--	--
Akutan	1990	100.0%	80.0%	7,007	8,689	26,921	32.3%	47,397	18.3%	2,200	25.3%
Akutan	2008	86.1%	50.0%	3,794	4,216	18,636	22.6%	26,909	15.7%	no data	--
Atka	1994	85.7%	53.6%	3,576	3,704	15,152	24.4%	37,307	9.9%	321	8.7%
St. George	1994	100.0%	47.2%	3,320	4,611	5,444	84.7%	11,330	40.7%	906	19.6%
Unalaska	1994	90.8%	55.8%	no data	108,207	245,876	44.0%	355,081	0.0%	10,606	9.8%

*Indicates no halibut subsistence use or harvest was reported for any year.

Source: ADFG Community Subsistence Information System <https://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvestCommSelComm> accessed 5/7/2020.

As part of the AFSC’s most recent compilation of baseline socioeconomic community profiles, researchers compiled subsistence data from ADFG Division of Subsistence reports, U.S. Fish and Wildlife Service reports, and other published quantitative data. AFSC researchers also elicited qualitative information from some civic leaders via a survey regarding their community’s most important subsistence species.⁷⁷

- In Adak, household participation is unavailable, but community leaders have stated that salmon (sockeye), halibut, crab, seal, sea lion, duck, and geese are important subsistence species. In 2009, 26 residents were registered with a SHARC to fish subsistence halibut, compared to only six residents with a SHARC in 2003. In 2009, an estimated 377 pounds of halibut was harvested on four SHARC cards, compared to 687 pounds harvested on six SHARC cards in 2003. The peak year for subsistence halibut use during the period of available information was in 2008 when 3,058 pounds were harvested on 12 SHARC cards. Between one and 12 subsistence salmon permits have been issued to Adak residents annually from 2000 through 2008; the total number of salmon harvested as reported on returned permits ranged from 75 fish to 465 fish. The number of seals, sea lions, and otters harvested annually from 2000 through 2010 ranged from five animals to 17 (all species combined).
- In Akutan, 2011 AFSC survey reported that according to community leaders the most important subsistence species are seals, ducks, and salmon. The most recent Alaska Department of Fish and Game general subsistence survey, in 2009, stated that 80 percent of the subsistence harvests in Akutan were comprised of salmon, non-salmon fish (including halibut), and marine invertebrates. The AFSC community profile with data through 2010 estimated that three or fewer subsistence salmon permits were issued in each year and that 30 or fewer salmon were harvested; this would suggest that non-salmon species are a key part of the marine subsistence harvest. Residents were issued 49 SHARC cards in 2018, which is close to the high point of 50 in 2003 during the life of the ADFG halibut subsistence survey. The issuance of 49 SHARCs in 2018 was a large increase over recent years when the total issued was fewer than 20 from 2008 through 2011 and fewer than 10 from 2012 through 2016. The number of individuals estimated to have fished subsistence halibut in 2018 was 21 – the highest estimate since 2006 (38) but less than half of the peak

⁷⁷ Although AFSC has done profiling work on communities in recent years, the information available for many communities is still dated as surveys and field research have not been newly conducted in all communities.

estimate in 2005 (47). Subsistence halibut catch was at a peak estimate of 15,000 pounds in 2005 but totaled only 3,973 pounds in 2018. The lowest estimate since 2003 occurred in 2016 (910 pounds). The 2009 ADFG general subsistence survey found that marine mammals accounted for 8 percent of subsistence harvests while land mammals, birds, eggs, and wild plants made up 12 percent. Marine mammal harvest consisted mainly of seals and sea lions, with the harvested number ranging from four to 30 in a year.

- In Atka, community leaders stated that fish, marine birds, terrestrial birds, terrestrial mammals, and local vegetation are the most important subsistence resources. The number of SHARC cards issued for halibut dropped from 13 in 2003 to 1 in 2010. Between four and nine of those SHARC holders reported fishing in 2003 through 2005, and no data were returned from 2006 through 2010. During those three reported years, SHARC harvest ranged from 795 pounds to 1,625 pounds. The data available in AFSC's most up-to-date profile indicate that subsistence salmon and marine mammal harvest either go unreported, only account for a small part of subsistence use, or are not a part of subsistence use. An important on-land source of wild food is a herd of several thousand reindeer.
- In St. George, community leaders stated that fur seals, halibut, and Pacific cod are the most important subsistence resources. The most recent AFSC profile noted that around 500 fur seals are harvested each year for subsistence purposes. Between 2003 and 2010, the number of SHARC cards issued decreased from 31 to four. In 2010, 14 of the 26 SHARC cards issued that year were reported as actively fished, for a total of 686 pounds of halibut harvested that year. In 2018, all seven SHARCs issued were used, yielding an estimated catch of 16 halibut or 401 pounds. The more recent totals represent a substantial decrease from 2007, when 3,736 pounds of halibut were harvested on 14 active SHARC cards.
- In Unalaska, community leaders stated that the most important subsistence resources included sockeye salmon, halibut, coho salmon, and crab, while the subsistence harvest of marine mammals has declined substantially over the past few decades (Himes-Cornell *et al.* 2013). In 2008, the most recent year for which data were available for salmon harvesting, there were 199 subsistence salmon permits issued to Unalaska/Dutch Harbor residents, a value which ranged from 172 subsistence salmon permits issued in 2007 to 226 permits issued in 2002. In 2008, 158 of the subsistence salmon permits were reported as fished. Subsistence harvest of all salmon species ranged between 3,000 and 7,000 fish, with sockeye salmon accounting for the vast majority. ADFG's halibut subsistence survey estimates show that 2018 participation and catch is similar to the first year in the survey in 2003 (Fall and Koster 2020). In 2018 it is estimated that 58 SHARC holders found 9,199 pounds of halibut, compared to 50 SHARC holders catching 10,860 pounds in 2003. These estimates are low relative to estimates from 2004 through 2010. Recent subsistence use peaked in 2009 when 76 SHARC holders were estimated to have caught 29,306 pounds. The largest number of participants estimated for a single year was 92 in 2010.

6.1.7 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

No direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any APICDA region community for any year in the 2010-2019 dataset used for this analysis.

Engagement of some APICDA region communities in the BSAI groundfish fishery includes being a product transfer location for processed product offloaded from catcher/processors, including Amendment

80 catcher/processors. When these offloads occur, a Product Transfer Report is completed⁷⁸ and the transfer is subject to the state Fisheries Resource Landing Tax, with the resulting tax revenues shared by the state with the community. A more complete description of this sharing process is provided in Section 10.4 (SIA Attachment D, State of Alaska Shared Fishery Tax Revenues).⁷⁹

Importantly for the purposes of this analysis, however, the data that are available do NOT differentiate between Amendment 80 catcher/processors and other catcher/processors; rather, all offloads/product transfers of all catcher/processors operating in different fisheries and different sectors of those fisheries are aggregated together. It is also important to recognize that Fisheries Resource Landing Tax data do not capture the location where the fish were caught that were ultimately processed into the product transferred in these ports. As a result, only BSAI ports are shown in Table 33, which provides the percentage contribution of state shared Fisheries Business Tax revenue (deriving from catcher vessels landings in the communities) and shared Fisheries Resource Landing Tax revenue (deriving from catcher/processor product transfers) to the combined Fisheries Business Tax and Fisheries Resource Landing Tax revenue total, for BSAI communities individually and all other Alaska communities as a group, on an annual average basis 2010-2019.

Table 33. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities within the BSAI Region with Resource Landing Tax Revenues and All Other Alaska Communities, Annual Average 2010-2019

Borough or City	Average of Combined FBT and FRLT Shared Revenue	Fisheries Business Tax (FBT) Shared Revenue		Fisheries Resource Landing Tax (FRLT) Shared Revenue	
		Average Shared FBT Revenue	Average Percent of FBT+FRLT	Average Shared FRLT Revenue	Average Percent of FBT+FRLT
Aleutians East Borough	\$1,495,030	\$1,468,494	98.2%	\$26,536	1.8%
City of Adak	\$193,885	\$115,021	59.3%	\$78,864	40.7%
City of Akutan	\$545,251	\$536,193	98.3%	\$9,059	1.7%
City of Atka	\$52,315	\$27,539	52.6%	\$24,776	47.4%
City of Saint Paul	\$922,845	\$902,759	97.8%	\$20,086	2.2%
City of Sand Point*	\$200,633	\$187,895	93.7%	\$12,738	6.3%
City of Togiak	\$114,424	\$78,355	68.5%	\$36,069	31.5%
City of Unalaska	\$8,320,919	\$3,639,851	43.7%	\$4,681,068	56.3%
Subtotal	\$11,845,303	\$6,956,108	58.7%	\$4,889,195	41.3%
All Other AK Communities	\$14,892,304	\$14,785,538	99.3%	\$106,766	0.7%
Grand Total	\$26,528,761	\$21,532,953	81.2%	\$4,995,808	18.8%

*Considered a BSAI community due to its being a part of the Aleutians East Borough.

Source: Alaska Dept of Revenue, FY 2010-2019 Shared Taxes and Fees Annual Reports.

<http://tax.alaska.gov/programs/sourcebook/index.aspx> accessed 4/24/2020.

⁷⁸ As noted in Section 4.5.1, Product Transfer Report data were initially examined for potential direct use as a dataset to determine patterns of catcher/processors offloads and the relative importance of those offloads across and within port communities, but the usefulness of these data proved problematic.

⁷⁹ As noted in Section 10.4, the Alaska Department of Revenue and the Alaska Department of Commerce, Community and Economic Development administer two separate fisheries tax revenue sharing programs. The program administered by the Department of Revenue shares fish tax revenues collected from activities that took place inside municipal boundaries. The program administered by the Department of Commerce, Community and Economic Development provides for annual sharing of fish tax collected outside municipal boundaries to municipalities that can demonstrate they suffered significant effects from fisheries business activities. The data in this section, unless otherwise noted, are from the Department of Revenue as the Fishery Resource Landing Tax revenues distributed to communities under that program, as they are directly proportional to catcher/processor product transfers in the individual communities. Further, they, in turn, can be used as a rough/relative proxy for the potential occurrence of other port call related activities that may have accompanied product transfers.

As shown in Table 33, among APIDCA region communities, in Adak, Atka, and Unalaska, between 41 and 56 percent of shared state fisheries tax revenues derive from catcher/processors making local product transfers. It is important to note, however, that this percentage does not include community raw fish taxes, borough fish taxes (in the case of the Aleutians East Borough), or other local community or borough taxes and fees that may be applicable to shore-based processing activity that are not applicable to at-sea processing activities.

Beyond the revenue benefits directly resulting from tax revenues, catcher/processor port calls may foster other economic activities involving local support service providers, such as crew transfers, fuel purchases, cold storage facility use, stevedoring, and logistics support, among others. There are, however, no publicly available, systematically collected data on the amounts and locations of these types of expenditures (as noted in Section 4.5.3), but level of shared state Fishery Resource Landing Tax revenue may be taken as one rough proxy for the potential of this activity across the port communities involved.

Another rough proxy, and one specific to the Amendment 80 fishery, would be the number of Amendment 80 vessel port calls, which are shown in Table 6 (in Section 4.5.3). Clearly shown is the predominance of Unalaska/Dutch Harbor as a port of call, with the community accounting for 67 percent of all Amendment 80 port calls over the years 2010-2019 (with an annual average of 169 port calls per year), with marked secondary clusters seen in Adak (29 per year) and Togiak (18 per year)⁸⁰ among the remaining listed ports. Unalaska/Dutch Harbor has easily the most developed support service sector capacity in the BSAI region with multiple marine fueling options, substantial cold storage capacity, multiple provisioning options, administrative support, and multiple electrical, electronics, hydraulics, welding, and mechanical services providers among others; Adak has few support capabilities aside from its deep water port, a fueling station capable of accommodating large vessels, and the ability to support larger-scale aircraft operations at its airport than any other civilian community west of Cold Bay. Atka, with essentially no support services of a scale to capable of supporting Amendment 80 vessels or crew, averaged approximately two Amendment 80 port calls per year 2010-2019, with all the port calls during this time occurring in the four of the five most recent years covered by the data, and ranging from one to six port calls per year during those four years. There is also variability between ports with respect to the species targeted on the trips associated with the port calls in the individual communities with, for example, the western Aleutian communities of Adak- and Atka-based trips generally being used to target rockfish and/or Atka mackerel, while St. Paul- and Togiak-based trips are more likely to target a variety of species of sole, with Unalaska/Dutch Harbor-based trips being far more diversified in terms of target species than any of the other ports.

6.1.8 CDQ Group Direct BSAI/Area 4 Halibut and/or Groundfish Amendment 80 Sector Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through use of CDQ quota ownership in a number direct and indirect of ways APICDA, like other CDQ entities, has also invested in capital assets in the catcher vessel and/or catcher/processor sectors as another avenue to meet the economic and social goals of the CDQ program. Among vessels shown in the dataset used for analysis as actively participating in the BSAI groundfish Amendment 80 sector fishery in at least one year 2010-2019, none were listed in the most recent CDQ ownership attribution Regulatory Impact Review (RIR) (NMFS 2017) as owned in whole or in part by APICDA, a situation that was confirmed by APICDA management as still accurate in 2020. APICDA does however, like some other CDQ groups, lease CDQ

⁸⁰ All of Togiak's Amendment 80 port calls 2010-2019 occurred in the six most recent years covered by the data; in four of those six years, the number of port calls in Togiak equaled or exceeded those in Adak in those same years.

quota to entities in which it has no ownership or management interest, including entities participating in the Amendment 80 sector fishery.

APICDA ownership interests the directed halibut fishery potentially relevant to the proposed action noted above include the following: (1) Atka Pride Seafoods, which owns and operates the shore-based processing plant in Atka, is a 50/50 partnership between APICDA Joint Ventures and the Atka Fishermen’s Association;⁸¹ (2) APICDA Joint Ventures has retained a 25 percent interested in False Pass Seafoods (formerly Bering Pacific Seafoods) and False Pass Fuel Services, which in previous years processed halibut; (3) ownership and maintenance of halibut tender vessels serving the community of St. George.

6.2 Central Bering Sea Fishermen’s Association Region

6.2.1 Location

The CBSFA is a CDQ entity that represents the community of St. Paul, located in the Pribilof Islands. As identified through initial screening criteria, BSAI communities potentially substantially engaged in or dependent upon the BSAI/Area 4 halibut fishery include St. Paul.

6.2.2 Historical Overview

Saint Paul’s population is predominantly Unangan Aleut. Historically, the Aleuts traveled to the Pribilof Islands seasonally for hunting. Inspired by traditional Aleut stories, Gavriiff Pribilof of the Russian fur trading company, Lebedov Lastochkin Co., went on a search for the legendary “Seal Islands.” After three years, Pribilof landed on Saint George Island in 1786, and named the island after his vessel. The following year, Pribilof and his party landed on the larger island to the north, which was named ‘Saint Peter and Saint Paul Island’ in honor of the day they made landfall – the Feast of Saints Peter and Paul. It is now known simply as Saint Paul Island. In 1788, the Russian American Company enslaved and relocated Aleuts from Siberia, Atka, and Unalaska to the Pribilofs to hunt fur seals. Their descendants continue to live on these two islands today (Himes-Cornell *et al.* 2013).

After the United States purchased Alaska from Russia in 1867, the U.S. government leased sealing rights to private companies, 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-

⁸¹ <https://www.apicda.com/> accessed 7/31/2020.

Cornell *et al.* 2013, APIA 2019).⁸² The local commercial halibut fishery got its start in 1981⁸³ and a Trident Seafoods crab processing plant was built in 1989 (EDAW/AECOM and Northern Economics 2008).

According to a survey conducted by the AFSC in 2011, Saint Paul community leaders reported that fisheries are the primary economic driver in Saint Paul and emphasized the importance of fish and crab processing to the local economy. Saint Paul is a port for the Central Bering Sea fishing fleet, and major harbor improvements have fueled economic growth. Several offshore processors are serviced out of Saint Paul, and shore-based processing operations include crab, cod, and halibut. The CBSFA operates a cooperative in conjunction with the F/V Saint Paul, Trident Seafoods, and American Seafoods. Trident Seafoods is one of the top local employers. A number of local residents are also involved in commercial fisheries as vessel owners, permit and quota share accountholders, and crew license holders (Himes-Cornell *et al.* 2013).

Saint Paul is incorporated as a 2nd Class City governed by a mayor and a city council and is not located within an organized borough (Table 34). Saint Paul was included under the ANCSA and is federally recognized as a Native Village. The traditional government, recognized by the BIA, is the Aleut Community of Saint Paul Island. The Tribe is combined with Saint George as the “Pribilof Islands Aleut Communities of Saint Paul and Saint George Islands.” The Native village corporation for the Aleut Community of Saint Paul Island is the Tanadgusix Corporation (TDX), which manages land and owns several subsidiary companies that provide services to commercial, industrial, and public sectors. Many members of the Aleut Community of Saint Paul Island are also shareholders in the Aleut Corporation, the regional ANCSA corporation of the eastern Alaska Peninsula, Aleutian Islands, and Pribilof Islands (Himes-Cornell *et al.* 2013).

Table 34. Community Institutional Summary (CBSFA CDQ Community of St. Paul)

Community	Borough	ANCSA Regional Corporation	ANCSA Village Corporation	Tribal Government	Municipal Government
St. Paul	Unorganized	Aleut Corporation	Tanadgusix Corporation (TDX)	Saint Paul Island	City of St. Paul

⁸² 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 in St. Paul occurring over a longer period of time and with a continuously present local population experiencing the transition. 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 as discussed in Section 6.2.4).

⁸³ While the 1981 date was established through interviews that took place soon thereafter, the earliest records of local commercial halibut harvests that could be located during the course of this project date from 1983 (M. Fey, personal communication, 11/30/2019). Local subsistence use of halibut, however, has been a part of life in St. Paul since the establishment of the community.

6.2.3 Demographics

Demographic and socioeconomic characteristics for St. Paul are presented in Table 35. With a predominantly Alaska Native population, St. Paul is 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 [APIA]), St. Paul has the largest number of Aleut residents of any community in the larger Aleutian Pribilof Islands region and is the only CDQ community in that larger 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 fluctuate substantially over the course of a year depending on the level of processing activity in the community.

Table 35. CBSFA Region BSAI Halibut Dependent Communities and State of Alaska Selected Demographic Indicators

Community	2010 Decennial Census Data				2018 American Community Survey Data				
	Total Population	Alaska Native/ Native American 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 House- holds	Median Family Income (dollars)	Low-Income*** Residents (percent of total population)
St. Paul	479	82.3%	89.4%	5.0%	\$34,043	\$60,833	77	\$63,750	15.9%
State of Alaska	626,932	14.1%	37.1%	1.8%	\$35,874	\$76,715	167,633	\$90,284	10.8%

*Defined as all persons other than those self-identified being in both "white" and "non-Hispanic" census categories.

**Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.

***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2014-2018 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of \$25,926 in 2019.

Source: US Census 2010; US Census 2019.

Table 36 provides information on school enrollment, for both KG-12 and PK-12, for St. Paul for the 2019-2020 school year, the most recent year for which data are available.

Table 36. CBSFA Region School Total Enrollments, Kindergarten-Grade 12 and Pre-Kindergarten-Grade 12, by Community, 2019-2020 School Year (as of Oct 1, 2019)

Community	School District	School	Total KG-12	Total PK-12
St. Paul	Pribilof School District	St. Paul School	59	59

Source: <https://education.alaska.gov/data-center>, accessed 8/3/2020.

6.2.4 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 in the community provide 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 has historically relied primarily on crab, including opilio and king crab, with some bairdi processed as well, including during times when it may fill in what would otherwise be gaps in processing activity. Trident has previously reported that cod was also processed, typically during opilio

season, although the amount of cod processed per season varied from one year to another. More recently cod processing has not been common, reportedly for a combination of reasons including market conditions, the expense of shipping product from St. Paul, and seasonal processing plant outfall constraints. The local fleet does not participate directly in the crab fishery and is focused nearly 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.

According to senior CBSFA personnel, to ensure predictable/sustainable processing and marketing of locally caught halibut, CBSFA and Trident have entered into an agreement that involves sharing of halibut processing and marketing costs in proportion to the amount of halibut received at the plant via CBSFA/the local fleet versus halibut delivered to the plant by other suppliers, ensuring the viability of the operation during what are otherwise slow months for the plant. CBSFA determines the local opening date for halibut processing, which typically has run from around June 20 through September, but with changing water temperatures has opened earlier in June in recent years. While the plant only employs an estimated 30-50 persons during halibut processing, depending on deliveries, (compared to an estimated 300-400 employees during crab processing) it does provide employment for at least some locals wishing to retain fisheries-related employment without going to sea.

The plant also provides services to the community through having a galley and a store that is open to the public and provides a processing option to non-CBSFA/non-local IFQ fishery vessels targeting halibut in the area. According to CBSFA management, Trident has partnered with the community to keep the plant open to support the local halibut fishery (and the community at large via the other services provided when the plant is open), while the custom processing and shared operating expense agreement with CBSFA allows them to do so on a more-or-less break-even basis. Given the relatively recent ability of CDQ fisheries to retain cod when targeting halibut, CBSFA had been planning on developing cod as a diversification opportunity, especially during times of low halibut abundance, but given the other current constraints on cod processing at the local plant, including the high cost of operation and startup expenses, has not pursued that option to date.

6.2.5 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

6.2.5.1 Catcher Vessels with Local Ownership Addresses and Ex-Vessel Gross Revenues

Table 37 provides trend information on the number of vessels with local ownership addresses active in the BSAI/Area 4 commercial halibut fisheries. As shown, the number of vessels active in any one year has varied, but with a general trend of decreasing participation from 18 vessels in 2010-2011 to 12 vessels in 2016 and 2019 (with an uptick to 14 vessels in 2017-2018).

Table 37. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, CBSFA Region Community, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
CBSFA	Saint Paul Island	18	18	17	16	16	13	12	14	14	12	15.0	8.4%	24

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Information on BSAI halibut ex-vessel gross revenues of vessels with ownership addresses in the regional communities, to the extent possible within confidentiality constraints, is provided in Table 13. As shown, with an annual average BSAI halibut ex-vessel revenue of approximately \$2.4 million over the period 2010-2019, the St. Paul halibut fleet was the highest producing halibut fleet of any community in any CDQ region (and was exceeded among all Alaska communities only by the GOA communities of Homer and Kodiak). For St. Paul vessels, however, the halibut ex-vessel revenues have been below the period average in each of the last seven years for which data are available, with 2019 revenues, the most recent year for which data are available, being about 63 percent of the period average. Information on BSAI halibut vessel diversity, as measured by relative dependency on halibut compared to all species, gear, and area fisheries pursued by those same vessels on an annual average basis 2010-2019, is provided in Table 14. As shown in that table, the St. Paul halibut fleet is 100 percent dependent upon BSAI halibut (i.e., the relevant vessels do not participate in any other fisheries).

For that same 2010-2019 period, Table 15 shows the annual average number of BSAI halibut catcher vessels with local ownership addresses, the annual average number all commercial fishing catcher vessels (all species, gear, and area fisheries) with local ownership addresses (i.e., the local “community commercial fishing fleet”), BSAI halibut ex-vessel gross revenues for the community commercial fishing fleet, total ex-vessel gross revenue for the commercial fishing fleet (from all species, gear, and area fisheries), and the percentage of halibut ex-vessel gross revenues as a percentage of the total ex-vessel gross revenues of the community commercial fishing fleet (i.e., the “dependency” of the community fleet on BSAI halibut as measured in the proportion of ex-vessel revenues derived from that fishery). As shown in that table, the St. Paul halibut fleet, while only making up only 50 percent of the St. Paul commercial fishing fleet as measured by vessel counts, accounts over 99 percent of all ex-vessel gross revenue (i.e., dependency, as measured in gross revenues, is essentially complete). In other words, the entire St. Paul commercial fishing fleet is focused exclusively on halibut, with virtually no revenue diversification.

This focus of the local fleet is consistent with the efforts of the CBSFA to use the development and maintenance of a local halibut fishery as a major source of employment, income, and subsistence for the community and its members. The CBSFA created a cooperative (the CBSFA Halibut Cooperative) in 2003 to purchase halibut from the local fleet at a competitive price and it also provides support services for the fishermen through its Local Fleet Support Program.⁸⁴ CBSFA additionally created three subsidiaries to market seafood products produced from CBSFA’s fishery resources, including 170 Degrees West, LLC, which is the operating company for CBSFA’s halibut and sablefish operations.⁸⁵

According to CBSFA management, in 2020, local fishermen opted not to open the local processing plant during summer due to the COVID-19 pandemic and specific concerns for St. Paul’s vulnerable elderly and other at-high-risk residents. This, in turn, meant the local halibut fishery is not occurring in 2020. To help minimize economic impacts to local fishing families, CBSFA has leased out CDQ quota and provided for the harvest of locally held IFQ quota using the F/V St. Peter and three hired vessels, with revenue from lease fees returned to local fishermen as mitigation payments which, in the case of CDQ quota, were based on their historic performance in the fishery. According to CBSFA management, as of mid-August, the bulk of CBSFA’s 2020 CDQ and local IFQ has been taken to the shore-based processor in Akutan, with some deliveries going to Unalaska/Dutch Harbor as well.

⁸⁴ <https://www.cbsfa.com/halibut.html> accessed 8/1/2020.

⁸⁵ <https://www.cbsfa.com/seafood.html> accessed 8/1/2020.

6.2.5.2 Other Measures of CDQ Community BSAI/Area 4 Halibut Harvest Engagement

As shown in Table 38, St. Paul is located in Area 4C. Also shown are the 2019 and 2020 IFQ pounds of halibut by community of quota holder as calculated by community shareholding as described in the bullets that follow the table and relevant quota share units to IFQ pounds ratios shown in Table 28 and Table 29, respectively. As noted in the bulleted text below the table, halibut quota share holdings by residents are heavily focused on Area 4C.

Table 38. Halibut Quota Share Holders and Quota Share Units Held, CBSFA Region, 2019 and 2020

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held	Percent of QS Units Held in Region	2019 IFQ Pounds	2020 IFQ Pounds
St Paul	4C	13	757,574	100.00%	85,762	72,201
Regional Total	--	13	757,574	100.00%	85,762	72,201

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

All quota shares held by St. Paul residents are Area 4C shares, except for CDQ flagged quota.⁸⁶

- St. Paul is one of two communities in Area 4C (see Figure 1). Area 4C has a 50 percent CDQ reserve that is allocated 85 percent to CBSFA and 15 percent to APICDA. St. George, the other community in Area 4C, is a member of the APICDA CDQ entity.
- 10 individuals in St. Paul hold quota shares in Area 4C exclusively.
- Two individuals in St. Paul hold quota shares in Area 4C plus CDQ flagged quota shares in Area 4A; another individual owns only CDQ flagged quota shares in Areas 3B and 4A (and no quota shares in Area 4C).

Another important way that communities are engaged in the commercial halibut fishery harvest sector, beyond local individuals owning vessels active in the fishery or holding halibut quota share units, is through employment of local residents as crew members on vessels participating in the fishery. However, as noted in Section 4.5.4, sources of systematically collected quantitative data on crew employment and earnings are not available for the halibut fishery in this or other regions.

6.2.5.3 Shore-Based Processors and First Wholesale Gross Revenues

The shore-based processor in St. Paul accepted BSAI halibut deliveries each year during the period 2010-2019. While more than one processor name appears in the data, only one unique physical plant was active in the community during these years. As noted in an earlier analysis (AECOM 2015), 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).

According to the CBSFA website and public testimony before the Council, the CBSFA operates the local halibut fishery in conjunction with local fishermen, Saints Boats LLC (F/V Saint Paul and F/V Saint

⁸⁶ For more information on CDQ flagged shares, see the discussion contained in the footnote in Section 6.1.5.2.

Peter), and Trident Seafoods. CBSFA purchases the halibut from the local fleet and partners with Trident to process and market the fish. During halibut processing, as noted above, CBSFA splits the cost of the shoreplant overhead and operating costs with Trident based on the proportion of CBSFA-purchased halibut and Trident-purchased halibut being processed in the plant, which facilitates the stability of a local halibut market that may not otherwise be economically sustainable by either party. Any halibut CDQ not able to be caught by the local St. Paul fleet is then leased to CBSFA's own boats, the F/V Saint Paul and F/V Saint Peter, if they are available at the end of the season.⁸⁷

For the reporting of first wholesale gross revenues (or ex-vessel gross revenues for deliveries made to the plant in the absence of first wholesale gross revenue data), the shore-based processor in St. Paul was combined with those in Akutan and Unalaska due to confidentiality restrictions. Those data, available in Table 17 are presented in summary in Section 6.1.5.3.

6.2.6 Engagement in the Subsistence BSAI Halibut Fishery

As described in an earlier NPFMC analysis (AECOM 2015)⁸⁸ 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. Between 2003 and 2010, the number of St. Paul residents holding a SHARC card to harvest halibut declined from 250 to 41. Because the CBSFA region only includes St. Paul, more recent information on subsistence use can be gleaned from ADFG's most recent subsistence harvest report (Fall and Koster 2020). In 2018, 30 residents were issued SHARCs, and 26 are estimated to have fished for subsistence halibut. Based on returned surveys, total estimated catch in the community was 357 fish in 2018, estimated at 4,751 pounds. That poundage estimate is the highest since 2010 (10,139 pounds), and an increase over the most recent surveyed year (3,930 pounds in 2016). Total estimated subsistence harvest from 2003 through 2018 can be found in Table 6 of Fall and Koster, 2020.

Table 39 presents selected information from the ADFG Community Information System for the potentially substantially engaged or substantially dependent halibut community (as selected by initial screening criteria) of St. Paul in the CBSFA region. As discussed in Section 6.1.6, while these data are often dated (e.g., 1994 is the most recent year available for St. Paul), they still represent the most comprehensive data encompassing all subsistence resources available that is comparable across regions. As shown, over 90 percent of all households are reported as using subsistence halibut. The percentage of halibut of all subsistence fish harvested was approximately 87 percent, while the retention of subsistence halibut from commercial fishing was approximately 27 percent. The latter two figures are the highest for any community characterized in this analysis.

⁸⁷ <https://www.cbsfa.com/halibut.html> accessed 8/1/2020.

⁸⁸ See Table 2-8 in that analysis (Proposed Bering Sea/Aleutian Islands Halibut PSC Limit Revisions Appendix C: Community Analysis)

Table 39. Selected CSIS Halibut, Fish, and All Resources Subsistence Harvest Information, CBSFA Region, 1994

Community	Year(s) Data Are Available	Percent Using Halibut	Percent Harvesting Halibut	Halibut Reported Pounds Harvested	Halibut Estimated Total Pounds Harvested	All Fish Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Fish Harvested	All Resources Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Resources Harvested	Estimated Pounds of Subsistence Halibut Harvested Retained from Commercial Fisheries	Subsistence Halibut Estimated Total Pounds Harvested Retained from Commercial Fisheries
St. Paul	1994	90.5%	54.8%	27,374	51,489	59,260	86.9%	131,814	39.1%	14,039	27.3%

Source: ADFG Community Subsistence Information System <https://www.adfg.alaska.gov/sbi/CSIS/index.cfm?ADFG=harv/inf/h.harvestCommSelComm> accessed 5/7/2020.

Community leaders have stated that the most important subsistence species in the community include halibut, reindeer, fur seals, and sea lions (Himes-Cornell *et al.* 2013). Halibut is the primary fish species taken for subsistence. From 2000 through 2008 only one or two households held a subsistence salmon permit, and no data were available on the number fish harvested. Other species caught or gathered for subsistence include Pacific cod, rockfish, sablefish, sculpin, and flounder. Marine invertebrates included various crab species, octopus, clams, and sea urchins.

6.2.7 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

No St. Paul direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any year in the 2010-2019 dataset used for this analysis.

St. Paul does serve as a product transfer location for catcher/processors engaged in BSAI groundfish fisheries, but shared state Fisheries Resource Landing tax revenue returns associated with these transfers are minor relative to other fishery sector local activities. As shown in Table 33, on an average annual basis 2010-2019, St. Paul received approximately \$923,000 per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax and Fisheries Resource Landing Tax revenues combined. Of this amount about \$903,000, or about 98 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$20,000, or about two percent of the total, derived from Fishery Resource Landing Tax shared revenue. To put these figures in perspective, total general revenues and transfers for the City of Saint Paul in Calendar Year 2018 were approximately \$2.4 million,⁸⁹ of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$923,000) would have accounted for roughly 38 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$20,000) would have accounted for roughly 0.8 percent of calendar year 2018 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.⁹⁰

⁸⁹ City of Saint Paul, Alaska, Basic Financial Statements, Required Supplemental Information, Supplemental Information, and Single Audit Reports, Year Ended December 31, 2018, available at: <https://www.commerce.alaska.gov/dcr/DCRARepoExt/RepoPubs/FinDocs/SaintPaulCY2018Audit.pdf>. Accessed 7/20/2020; data from Year Ended December 31, 2019 not yet available as of this date.

⁹⁰ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

As shown in Table 6, over the period 2010-2019, St. Paul had an annual average of 5.5 Amendment 80 vessel port calls per year, making it the community with the fourth highest average of Amendment 80 port calls in the BSAI region, ranging from zero to 24 in any given year in that period. According to CBSFA management, however, private sector economic activity related to Amendment 80 port calls are modest, primarily consisting of services related to transportation to and from the island for crew changes and the like. Amendment 80 vessels are too large to enter the harbor, so no fuel sales or other direct vessel support activities take place.

6.2.8 CDQ Group Direct BSAI/Area 4 Halibut and/or Groundfish Amendment 80 Sector Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through use of CDQ quota ownership in a number direct and indirect of ways, CBSFA, like other CDQ entities, has also invested in capital assets in the catcher vessel and/or catcher/processor sectors as another avenue to meet the economic and social goals of the CDQ program. Among vessels shown in the dataset used for analysis as actively participating in the BSAI groundfish Amendment 80 sector fishery in at least one year 2010-2019, none were listed in the most recent CDQ ownership attribution Regulatory Impact Review (RIR) (NMFS 2017) as owned in whole or in part by CBSFA, a situation that was confirmed by CBSFA management as still accurate in 2020. CBSFA does however, like some other CDQ groups, lease CDQ quota to entities in which it has no ownership or management interest. According to CBSFA management, it has in several past years specifically avoided leasing its CDQ to the Amendment 80 sector over concerns with bycatch rates and have left quota in the water as a result, considering the decline in bycatch more valuable to the local fishery than the potential value that would be returned from lease fees. More recently, CBSFA has coordinated its groundfish CDQ leasing with that of NSEDC which, according to CBSFA management, utilizes a catcher/processor (in this specific instance an AFA catcher/processor) with relatively favorable bycatch rates to harvest its own quota in conjunction with CBSFA's quota.

As noted above, CBSFA and its subsidiaries are actively involved in the local commercial halibut fishery in multiple ways in the local harvest sector, the local processing sector, and in the marketing of fishery products, which underlines the local importance of the commercial halibut fishery.

6.3 Coastal Villages Region Fund Region

6.3.1 Location

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. As identified through initial screening criteria, BSAI communities potentially substantially engaged in or dependent upon the BSAI/Area 4 halibut fishery within the CVRF region 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.

6.3.2 Historical Overview

The CVRF region has 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. Small numbers of people were likely present at optimal coastal sites between 2,500 and 3,500 years ago (Shaw 1998). The presence of large coastal villages increased before 2,400 years ago as nets were introduced. These coastal locations gave quick access to sea mammals and fish and seasonal access upriver to inland

resources such as caribou. These three resources (sea mammals, salmon, and caribou) made up the base of the broad subsistence economy (Shaw 1998). Prehistoric trade routes across the Bering Strait provided access to manufactured goods to native people in the region prior to the arrival of Russian explorers in the late 1700s and their establishment of trading posts in 1819. 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).

A summary of the institutional structure of the contemporary CVRF region communities relevant to this SIA analysis is shown in Table 40. Narrative summaries of the historic context of each community listed are presented in the following sections.

Table 40. Community Institutional Summary (Selected CVRF CDQ Communities)

Community	Borough	ANCSA Regional Corporation	ANCSA Village Corporation	Tribal Government	Municipal Government
Chefornak	Unorganized	Calista Corporation	Chefamrmut Incorporated	Village of Chefornak	City of Chefornak
Hooper Bay	Unorganized	Calista Corporation	Sea Lion Corporation	Native Village of Hooper Bay	City of Hooper Bay
Kipnuk	Unorganized	Calista Corporation	Kugkaktlik, Limited	Native Village of Kipnuk	none (unincorporated)
Mekoryuk	Unorganized	Calista Corporation	Nima Corporation	Native Village of Mekoryuk	City of Mekoryuk
Newtok	Unorganized	Calista Corporation	Newtok Native Corporation	Newtok Village	none (unincorporated)
Nightmute	Unorganized	Calista Corporation	Chinuruk Incorporated	Native Village of Nightmute	City of Nightmute
Quinhagak	Unorganized	Calista Corporation	Qanirtuq, Incorporated	Native Village of Kwinhagak	City of Quinhagak
Toksook Bay	Unorganized	Calista Corporation	Nunakauiak Yupik Corporation	Nunakauyarmiut Tribe	City of Toksook Bay
Tununak	Unorganized	Calista Corporation	Tununarmiut Rinit Corporation	Native Village of Tununak	none (unincorporated)

6.3.2.1 Chefornak

The village of Chefornak was not established in its current location until the mid-twentieth century, when Alexie Amagiqchik founded a small general store at the site. He had moved from a village on the Bering Sea to the new location on mainland to escape potential floodwaters. Others from the original village followed and settled in Chefornak, which was incorporated as a 2nd Class City in 1974. Chefornak is largely dependent on a subsistence economy, with employment opportunities limited to part time and seasonal work. Today, subsistence activities continue to be an important part of the community's identity; however, commercial fishing has also taken root as a driver of the local economy (Himes-Cornell *et al.* 2013).

6.3.2.2 Hooper Bay

The early Yup'ik names for Hooper Bay are "Askinuk" or "Askinaghamiut". E.W. Nelson of the U.S. Signal Service first reported the village in 1878. The name Hooper Bay came into common usage after a post office with this name was established in 1934. Hooper Bay is a large traditional Yup'ik Eskimo community. Commercial fishing and subsistence activities are the primary means of support (DCCED 2019). Hooper Bay was incorporated in 1966 as a 2nd Class City with a mayoral form of government.

6.3.2.3 Kipnuk

Kipnuk is a traditional Yup'ik Eskimo community, maintaining a subsistence lifestyle. According to Bureau of Indian Affairs records, the village of Kipnuk was established around 1922. Today, commercial fishing is an important source of income in Kipnuk. Kipnuk is an unincorporated community, however local government and utilities provide a majority of wage employment in Kipnuk along with seasonal activities such as fishing and construction. Subsistence activities also provide a foundation for the local economy and lifestyle (Himes-Cornell *et al.* 2013).

6.3.2.4 Mekoryuk

Historically, the Native Eskimo people present in the area of Mekoryuk have been the Yup'ik peoples, specifically the Nuniarmiut people who are Cup'ig Eskimos. Nunivak Island itself has been peopled for at least 2,000 years. Prior to the arrival of Europeans, subsistence hunting and fishing was the basis of the economy for people living on Nunivak Island and surrounding areas of the Yukon-Kuskokwim Delta. In 1821, the first outside contact occurred with the Russian American Company. The Company documented 400 people living in 16 villages on the Island. In 1874 a summer village camp by the name of "Koot" was noted at the modern-day site of Mekoryuk. There was an epidemic in 1900 which decimated the population. Only four families in the village survived. An Eskimo missionary built the Evangelical Covenant Church in the 1930s in the village, and a BIA school was built in 1939. The school attracted people to relocate from other parts of the Island to the village. By 1957, the only permanent community left on the Island was Mekoryuk, and around this time many of the families moved to the community of Bethel to be closer to a high school. Families returned seasonally to Mekoryuk for fishing and sea mammal hunting in the late spring.

Mekoryuk was incorporated as a 2nd Class City in 1969. The City has a Strong Mayor form of government, which includes a seven-person city council, including the mayor, a nine-person advisory school board, and several municipal employees. Today almost all local families continue to engage in subsistence activities, and most have fish camps. In Mekoryuk, major employers include the school, local and regional government and non-profit organizations, commercial fishing, construction, and service industries. According to a survey conducted by the AFSC in 2011, community leaders reported that commercial fishing is the primary resource-based industry on which the economy depends. In addition, most families in Mekoryuk engage in subsistence fishing, and most have fish camps. Community leaders noted that halibut is also an important subsistence resource (Himes-Cornell *et al.* 2013).

6.3.2.5 Newtok

Newtok is a Yup'ik Eskimo village. The people of Newtok and Nelson Island are known as Qaluyaarmiut, or "dip net people." The name Newtok (Niugtagin Yup'ik) means "rustling of grass," appropriate for a village located on a sweeping bend of the Ninglick River. Only intermittent outside contact occurred until the 1920s. Newtok was first reported in 1949 by the U.S. Geologic Survey after residents of Old Kealavik, a site across the river, relocated to Newtok to escape seasonal flooding. A BIA school was built in 1958, and like many communities in rural Alaska, the village developed around the school (DCRA 2019). Harvest of marine resources has been important to residents of the Newtok area since prehistory. Subsistence fishing and hunting continue to be an important supplement to cash employment for Newtok residents (Himes-Cornell *et al.* 2013). Relative isolation from outside influences has allowed Newtok to retain traditions and customs to a greater degree than in other parts of Alaska. Residents of the village have an active subsistence lifestyle (DCCED 2019).

A city government incorporated in 1976 but was dissolved in 1997 in favor of the traditional village council government and Newtok remains an unincorporated community. Due to severe erosion and

melting permafrost, the village is in the process of relocating to higher ground. Construction has begun in Mertarvik, the future site of Newtok.

6.3.2.6 Nightmute

Nightmute is a Yup'ik Eskimo village. The people of Nelson Island are known as Qaluyaarmiut, or “dip net people.” Harvest of marine resources has been important to residents of the Nightmute area since prehistory. The Qaluyaarmiut have lived on the Bering Sea coast for at least 2,000 years. In 1841-1842, a Russian naval officer, Lieutenant Lavrenty Zagoskin, was the first to explore the lower Yukon and briefly encountered the Qaluyaarmiut. Contact with outside people and customs became more consistent during the 1950s. The traditional fish camp for the people of Nightmute is called Umkumiut. In 1964, many residents relocated to the present site of Toksook Bay to access cost-effective goods more easily. Those who remained make up most of the current population of Nightmute. Nightmute was incorporated in 1974 as a 2nd Class City. Because of the village’s relative isolation from outside influences, traditions and customs have been retained in Nightmute to a greater degree than in other parts of Alaska. Subsistence fishing and hunting continue to be an important supplement to commercial fishing and other cash employment for Nightmute residents (Himes-Cornell *et al.* 2013).

6.3.2.7 Quinhagak

The Yup'ik name for Quinhagak is Kuinerraq, meaning “new river channel.” Quinhagak, also known as Kwinhagak, is a long-established village whose origin has been dated to 1000 AD. It was the first village on the lower Kuskokwim to have sustained contact with Europeans. Gavril Sarichev reported the village on a map in 1826. After the purchase of Alaska in 1867, the Alaska Commercial Company sent annual supply ships to Quinhagak with goods for Kuskokwim River trading posts. Supplies were brought to shore from the ship and stored in a building on Warehouse Creek. A Moravian mission was built in 1893. There were many non-Natives in the village at that time; most were waiting for boats to go upriver. In 1904, a mission store opened, followed by a post office in 1905 and a school in 1909. Between 1906 and 1909, over 2,000 reindeer were brought in to the Quinhagak area. They were managed for a time by the Native-owned Kuskokwim Reindeer Company, but the herd had scattered by the 1950s. In 1915, the Kuskokwim River was charted, so goods were barged directly upriver to Bethel. In 1928, the first electric plant opened; the first mail plane arrived in 1934. The community was incorporated as a 2nd Class City governed by a mayor and city council in 1975. The community is primarily Yup'ik Eskimos who fish commercially and are active in subsistence food gathering (Himes-Cornell *et al.* 2013).

6.3.2.8 Toksook Bay

The Nelson Island area has been inhabited and utilized by Yup'iks for thousands of years. Toksook Bay, also known as Nunakauyak, was established in 1964 along the Tuqsuk River by residents of Nightmute. Toksook Bay was settled to be more accessible to the annual freighter ship, the North Star. Toksook Bay was incorporated in 1972 as a 2nd Class City. Today, Toksook Bay is a traditional Yup'ik Eskimo community with a reliance on fishing and subsistence activities.

6.3.2.9 Tununak

In 1878, Nelson Island was named after Edward Nelson, a Smithsonian naturalist who noted six people, including one non-Native trader, living in Tununak. The city was incorporated in 1975, but it was dissolved on February 28, 1997, in favor of traditional council governance. Tununak remains an

unincorporated community. Today, Tununak is a traditional Yup'ik village, with an active fishing and subsistence lifestyle.

6.3.3 Demographics

Demographic and socioeconomic characteristics for the potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria in this area are presented in Table 41. All communities in the CVRF region 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 community potentially substantially engaged or substantially dependent halibut community in terms of population was Mekoryuk with 191 residents. All nine of the potentially substantially engaged or substantially dependent BSAI halibut 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 the potentially substantially engaged or substantially dependent BSAI halibut communities in the CVRF, the percentage of minority residents is 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, 2018 per capita incomes are relatively low, ranging from approximately \$8,000 (Hooper Bay) to approximately \$20,000 (Quinhagak). Median household incomes ranged from approximately \$30,000 (Mekoryuk) to approximately \$54,000 (Chefornak), while median family incomes ranged from approximately \$32,000 (Hooper Bay) to approximately \$63,000 (Chefornak). Of the nine communities listed in the table, approximately half of the residents of one were considered low-income, as were more than a quarter of the residents of six of the other eight communities.

Table 41. CVRF Region BSAI Halibut Dependent Communities and State of Alaska Selected Demographic Indicators

Community	2010 Decennial Census Data				2018 American Community Survey Data				
	Total Population	Alaska Native/ Native American 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 House- holds	Median Family Income (dollars)	Low-Income*** Residents (percent of total population)
Chefornak	418	95.7%	96.7%	0.0%	\$10,978	\$53,750	79	\$63,125	20.2%
Hooper Bay	1,093	94.6%	98.1%	0.0%	\$8,037	\$31,528	181	\$31,528	50.2%
Kipnuk	639	97.7%	98.0%	0.0%	\$10,706	\$36,250	138	\$39,167	38.3%
Mekoryuk	191	93.2%	96.9%	0.0%	\$17,495	\$30,000	59	\$41,250	23.7%
Newtok	354	96.1%	97.2%	0.0%	\$9,479	\$36,042	57	\$37,188	34.2%
Nightmute	280	94.6%	95.4%	0.0%	\$9,559	\$46,875	33	\$47,813	33.7%
Quinhagak	669	93.4%	97.8%	0.0%	\$19,882	\$33,194	137	\$34,479	34.7%
Toksook Bay	590	92.0%	95.6%	0.0%	\$13,447	\$45,893	98	\$46,429	28.9%
Tununak	327	94.5%	96.0%	0.0%	\$9,614	\$34,750	63	\$34,750	39.2%
State of Alaska	626,932	14.1%	37.1%	1.8%	\$35,874	\$76,715	167,633	\$90,284	10.8%

*Defined as all persons other than those self-identified being in both "white" and "non-Hispanic" census categories.

**Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.

***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2014-2018 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of \$25,926 in 2019.

Source: US Census 2010; US Census 2019.

Table 42 provides information on school enrollments, for both kindergarten through 12th grade (KG-12) and pre-kindergarten through 12th grade (PK-12), by CVRF community for the 2019-2020 school year, the most recent year for which data are available. The specific CVRF communities included in the table are those that directly participated in the BSAI/Area 4 halibut fishery, as measured by catcher vessels with local ownership addresses that were active in the fishery and/or locally operating shore-plants that accepted BSAI/Area 4 halibut deliveries during at least one year 2010-2019 as indicated in the dataset used for this analysis.

Table 42. Selected CVRF Region Schools Total Enrollments, Kindergarten-Grade 12 and Pre-Kindergarten-Grade 12, by Community, 2019-2020 School Year (as of Oct 1, 2019)

Community	School District	School	Total KG-12	Total PK-12
Chefornak	Lower Kuskokwim School District	Chaptnguak School	153	153
Chevak	Kashunamiut School District	Chevak School	302	313
Goodnews Bay	Lower Kuskokwim School District	Rocky Mountain School	72	73
Hooper Bay	Lower Yukon School District	Hooper Bay School	465	482
Kipnuk	Lower Kuskokwim School District	Chief Paul Memorial School	205	205
Kongiganak	Lower Kuskokwim School District	Ayagina'ar Elitnaurvik	152	163
Kwigillingok	Lower Kuskokwim School District	Kwigillingok School	121	138
Mekoryuk	Lower Kuskokwim School District	Nuniwarmiut School	39	42
Newtok	Lower Kuskokwim School District	Ayaprun School*	108	108
Nightmute	Lower Kuskokwim School District	Negtemiut Elitnaurviat	77	98
Platinum	Lower Kuskokwim School District	Arvik School	13	13
Quinhagak	Lower Kuskokwim School District	Kuinerrarmiut Elitnaurviat	215	218
Toksook Bay	Lower Kuskokwim School District	Nelson Island School	189	190
Tuntutuliak	Lower Kuskokwim School District	Lewis Angapak Memorial School	141	143
Tununak	Lower Kuskokwim School District	Paul T. Albert Memorial School	106	108

*Newtok is the process of relocating; Mertarvik Pioneer School opened for the first time in October 2019 with 10 students in temporary facilities at the new townsite. Source: <https://education.alaska.gov/data-center>, accessed 8/3/2020.

6.3.4 Local Economy

The economy of the region is currently focused on commercial fisheries, but the nature of regional engagement in those fisheries has changed over time, particularly with the creation and evolution of the CDQ program and the CVRF group. 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).

6.3.5 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

6.3.5.1 Catcher Vessels with Local Ownership Addresses and Ex-Vessel Gross Revenues

Table 43 provides trend information on the number of vessels with ownership addresses in CVRF region communities that were active in the BSAI/Area 4 commercial halibut fisheries 2010-2019. Unlike Table 11, which lists only those nine communities with an annual average of two or more active BSAI halibut catcher vessels on an annual average basis (one of the initial screening criteria for halibut dependency),

this table shows all regional communities with even one vessel active in any one year during 2010-2019 (i.e., an additional six regional communities, plus Bethel which, while neither a member community of the CVRF CDQ group nor in the geographic region covered by the CDQ group, is nearby and serves as a regional hub). As shown, average annual participation ranged widely during the period 2010-2019: three regional communities (Kwigillingok, Platinum, and Tuntutuliak) participated with only one vessel and in only one year (2013) as did Bethel (2010) for an annual average of 0.1 vessels per year, while Mekoryuk, Toksook Bay, and Tununak each had an annual average of over 10 vessels participating in the fishery.

It is important to note that two of the communities shown in Table 43, Chevak and Goodnews Bay, averaged over 2.0 vessels active in the fishery, one of the initial screening criteria for potential community engagement in or dependency on the BSAI halibut fishery, over the years 2010-2013, i.e., before the regional discontinuation of direct participation in the fishery. Except for three years for Chevak (2011-2013) and one year for Goodnews Bay (2013), all ex-vessel gross revenue data associated with these vessels are confidential.

Table 43. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, CVRF Region Communities, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
CVRF	Bethel*	1	0	0	0	0	0	0	0	0	0	0.1	0.1%	1
CVRF	Chefornak	23	21	8	20	2	0	0	0	0	0	7.4	4.2%	34
CVRF	Chevak	2	5	6	4	0	0	0	0	0	0	1.7	1.0%	8
CVRF	Goodnews Bay	2	1	2	3	0	0	0	0	0	0	0.8	0.5%	4
CVRF	Hooper Bay	7	9	9	11	0	0	0	0	0	0	3.6	2.0%	14
CVRF	Kipnuk	20	24	20	19	0	0	0	0	0	0	8.3	4.7%	37
CVRF	Kongiganak	0	0	1	5	0	0	0	0	0	0	0.6	0.3%	5
CVRF	Kwigillingok	0	0	0	1	0	0	0	0	0	0	0.1	0.1%	1
CVRF	Mekoryuk	28	29	24	24	12	0	0	0	0	0	11.7	6.6%	34
CVRF	Newtok	8	8	8	10	1	0	0	0	0	0	3.5	2.0%	17
CVRF	Nightmute	5	8	7	4	2	0	0	0	0	0	2.6	1.5%	10
CVRF	Platinum	0	0	0	1	0	0	0	0	0	0	0.1	0.1%	1
CVRF	Quinhagak	2	8	9	16	0	0	0	0	0	0	3.5	2.0%	18
CVRF	Toksook Bay	33	39	30	31	8	0	0	0	0	0	14.1	7.9%	54
CVRF	Tuntutuliak	0	0	0	1	0	0	0	0	0	0	0.1	0.1%	1
CVRF	Tununak	27	29	26	28	2	0	0	0	0	0	11.2	6.3%	41
CVRF	Regional Subtotal	158	181	150	178	27	0	0	0	0	0	69.4	39.1%	275

*Bethel is not a CDQ community, nor is it within the CDQ region. It is listed, however, due to its function as a regional hub.

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Beyond these annual averages, however, the most striking pattern of participation seen in the CVRF region is the complete cessation of local vessel participation in BSAI halibut fishery that occurred during the 2010-2019 period. In the four years 2010-2013, between 150 and 181 catcher vessels with ownership addresses in communities in the CVRF region participated in the BSAI commercial halibut fishery in any given year. In 2014, a total 27 vessels with CVRF region community ownership addresses participated in the fishery. During the years 2014-2019, the five most recent years for which data are available, no vessels with ownership addresses in the CVRF region participated in the BSAI commercial halibut fishery. This suspension of direct participation of multiple local communities in the commercial halibut

fishery is attributable to a shift in CVRF strategy for its CDQ fishery holdings (itself due to multiple factors, including declining halibut quotas and the economics of in-region processing, among others, as noted in Section 6.3.5.3).

Information on BSAI halibut ex-vessel gross revenues of vessels with ownership addresses in the regional communities, to the extent possible within confidentiality constraints, is provided in Table 13. Of the four CVRF communities listed individually,⁹¹ annual average BSAI halibut ex-vessel gross revenues in 2010-2019 ranged from \$10,000 (Hooper Bay) to \$205,000 (Toksook Bay), with the other two communities (Kipnuk and Mekoryuk) falling in between (\$25,000 and \$173,000, respectively). Importantly, however, these values would be substantially higher if calculated for only the years 2010-2013 when all four were still active in the fishery, or even for 2010-2014 when two of the four were still active in the fishery. Information on BSAI halibut vessel diversity, as measured by relative dependency on halibut compared to all species, gear, and area fisheries pursued by those same vessels on an annual average basis 2010-2019, is provided in Table 14. As shown in that table, dependency of the BSAI halibut vessel fleets in the four individual communities ranged between 98 percent and 100 percent (and the rest of the CVRF communities active at any level of participation in the fishery combined was 94 percent). In other words, vessels with CVRF community ownership addresses that were active in the halibut fishery focused virtually exclusively on (and were therefore virtually exclusively economically dependent upon) the BSAI halibut fishery, as they did not participate in other commercial fisheries as part of a diversified fishing portfolio.

For that same 2010-2019 period, Table 15 shows the annual average number of BSAI halibut catcher vessels with local ownership addresses, the annual average number all commercial fishing catcher vessels (all species, gear, and area fisheries) with local ownership addresses (i.e., the local “community commercial fishing fleet”), BSAI halibut ex-vessel gross revenues for the community commercial fishing fleet, total ex-vessel gross revenue for the commercial fishing fleet (from all species, gear, and area fisheries), and the percentage of halibut ex-vessel gross revenues as a percentage of the total ex-vessel gross revenues of the community commercial fishing fleet (i.e., the “dependency” of the community fleet on BSAI halibut as measured in the proportion of ex-vessel revenues derived from that fishery). As shown in that table, of the three communities that can, within the constraints of data confidentiality, be listed independently, the Mekoryuk community fleet was 86 percent dependent on the BSAI halibut fishery, while the Kipnuk and Toksook Bay community fleets were less dependent on that fishery (at nine percent and 26 percent dependency, respectively). For all other CVRF communities that had some level of direct participation in the BSAI halibut fishery 2010-2019 combined, the aggregate community fleet annual average dependency on the BSAI halibut fishery was 13 percent during this period. It is important to note, however, that these 2010-2019 annual dependency averages were depressed by zero direct participation in the BSAI halibut fishery in the years 2014-2019 for some CVRF communities and for all CVRF communities in the years 2015-2019.

6.3.5.2 Other Measures of CDQ Community BSAI/Area 4 Halibut Harvest Engagement

As shown in Table 44, communities in the CVRF region (or near the CVRF region, in the case of Bethel) whose residents hold halibut quota shares are located in Area 4E. Also shown are the 2019 and 2020 IFQ pounds of halibut by community of quota holder as calculated by community shareholding as described in the bullets that follow the table and relevant quota share units to IFQ pounds ratios shown in Table 28 and Table 29, respectively. As noted in the bulleted text, halibut quota share holding by local residents is heavily focused on Area 4E.

⁹¹ The four communities listed had sufficient levels of participation to disclose data for each year they were active in the fishery 2010-2019. Other communities have been aggregated to preserve data confidentiality.

**Table 44. Halibut Quota Share Holders and Quota Share Units Held,
CVRF Region Communities, 2019 and 2020**

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held	Percent of QS Units Held in Region	2019 IFQ Pounds	2020 IFQ Pounds
Bethel*	4E	2	958	0.22%	0	0
Goodnews Bay	4E	1	5,155	1.19%	0	0
Mekoryuk	4E	18	374,106	86.09%	15,776	13,799
Toksook Bay	4E	21	49,901	11.48%	0	0
Tununak	4E	1	4,454	1.02%	0	0
Regional Total	--	43	434,574	100.00%	15,776	13,799

*Bethel is not a CDQ community, nor is it within the CDQ region. It is listed, however, due to its function as a regional hub.

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

Except for the holdings of one individual in one community, halibut quota shares held by individuals in the CVRF region are Area 4E shares.

- All CVRF communities are located in Area 4E (see Figure 1). Area 4E has a 100 percent CDQ reserve that is allocated 70 percent to CVRF and 30 percent to BBEDC.⁹²
- Bethel is not a CDQ community (and is nearby, but not in the geographic area spanned by the CVRF) but is included in this analysis based on its function as a regional hub. Two individuals in Bethel hold quota shares in Area 4E exclusively.
- One individual in Goodnews Bay holds quota shares in Area 4E exclusively.
- 17 individuals in Mekoryuk hold quota shares in Area 4E exclusively. One individual in Mekoryuk holds quota shares in Area 4E and 3A (and does not hold shares in Area 4E).
- 21 individuals in Toksook Bay hold quota shares in Area 4E exclusively.
- One individual in Tununak holds quota shares in Area 4E exclusively.

Another important way that communities are engaged in the commercial halibut fishery harvest sector, beyond local individuals owning vessels active in the fishery or holding halibut quota share units, is through employment of local residents as crew members on vessels participating in the fishery. However, as noted in Section 4.5.4, sources of systematically collected quantitative data on crew employment and earnings are not available for the halibut fishery in this or other regions.

6.3.5.3 Shore-Based Processors and First Wholesale Gross Revenues

Shore-based processors in Chefornak, Hooper Bay, Kipnuk, Mekoryuk, Toksook Bay, and Tununak accepted BSAI halibut deliveries each year 2010-2013, as shown in Table 16. One unique processor appears in the data for each community over these years. No processors in any of these communities accepted BSAI halibut deliveries in any year 2014-2019.

⁹² As noted in the discussion contained in the footnote in Section 6.1.5.2, any individuals shown in the data as holding quota share units in Area 4E, which has a 100 percent CDQ reserve, did not qualify for compensatory shares. As there is no TAC set in 4E, those shares are not issued quota pounds (i.e., they cannot be fished and typically have no sale value).

Table 45 provides additional years of historic participation by shore-based processors in the CVRF region that accepted BSAI halibut deliveries (i.e., years not covered by the 2010-2019 dataset primarily used for this analysis). As shown, the plant in Mekoryuk appears in the data as early as 1991, with the number of single-plant communities increasing to six by 2003. This level of engagement, and the specific communities involved, remained unchanged through 2013.

Table 45. Shore-Based Processors in CVRF Region Accepting BSAI Halibut Deliveries by Community of Operation, 1991-2009 (number of processors)

Region	Community	1991	1992	1993	1994	1995	1996	1997	1998	1999	1990	2001	2002	2003	2004	2005	2006	2007	2008	2009
CVRF	Chefornak	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
CVRF	Hooper Bay	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
CVRF	Kipnuk	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
CVRF	Mekoryuk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CVRF	Toksook Bay	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
CVRF	Tununak	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Table 46 provides additional years of historic participation by catcher vessels with CVRF community ownership addresses delivering BSAI halibut to the shore-based processors in the CVRF region shown in Table 45 (i.e., years not covered by the 2010-2019 dataset primarily used for this analysis). As shown, a total of 14 CVRF communities had at least one vessel that made at least one delivery in at least one year during the period shown. This includes Scammon Bay, which does not show up in the 2010-2019 data shown in Table 43 (but does not include two communities that began their engagement in the fishery through being the community of catcher vessel ownership address in later years, Platinum and Quinhagak, as shown in that same table).⁹³

⁹³ Vessels with ownership addresses in seven non-CVRF member communities are shown in the data as having made at least one BSAI halibut delivery to shore-based processing plants in CVRF region communities during at least one year 1991-2013. These include communities that show up in the data for one year: Petersburg (2009) and Nome (2012), Alaska; South Bend, Oregon (2008); and Ilion, New York (2006). Anchorage appears in each of the 23 years 1991-2013, with more than one vessel making at least one delivery all years, with one exception (1998) and up to a maximum of five vessels per year (which occurred in five different years). Bethel and Kwethluk, approximately 10 miles apart and both outside of but near the inland boundary of the CVRF region, appear in the data for multiple years. Kwethluk appears in the data with one vessel in each of three years (1998, 2000, and 2001), while Bethel appears in the data 17 out of 23 years, with more than one vessel in 11 of those years (with a maximum of 6 vessels per year, which occurred in one year).

Table 46. BSAI Individual Halibut Vessels by CVRF Region Community of Vessel Historical Ownership Address, That Delivered to Shore-Based Processors in the CVRF Region, 1991-2009 (number of vessels)

Region	Community	1991	1992	1993	1994	1995	1996	1997	1998	1999	1990	2001	2002	2003	2004	2005	2006	2007	2008	2009
CVRF	Chefornak	0	0	0	0	1	3	9	8	0	8	21	15	8	15	14	18	29	28	20
CVRF	Chevak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1
CVRF	Goodnews Bay	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0
CVRF	Hooper Bay	0	0	0	0	1	0	1	0	0	0	1	1	13	1	6	4	5	5	10
CVRF	Kipnuk	0	0	0	0	0	0	3	9	0	7	0	1	23	16	9	14	22	21	23
CVRF	Kongiganak	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
CVRF	Kwigillingok	0	0	0	0	0	2	1	0	0	1	1	0	0	1	0	0	0	0	0
CVRF	Mekoryuk	14	13	22	15	13	18	26	2	30	33	28	30	25	29	28	27	29	26	27
CVRF	Newtok	0	0	0	1	0	4	8	3	0	9	8	8	5	6	4	6	14	9	6
CVRF	Nightmute	0	0	0	1	10	12	14	8	0	15	12	8	6	4	8	10	9	7	7
CVRF	Scammon Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
CVRF	Toksook Bay	0	0	5	16	27	21	30	30	0	38	45	34	39	21	34	28	40	37	32
CVRF	Tuntutuliak	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
CVRF	Tununak	1	0	2	20	27	21	24	9	0	28	33	29	25	21	25	24	31	29	28

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

As noted in Section 4.5.2, first wholesale gross revenue data for shore-based processors sufficient to calculate processing diversity are not available. In the absence of first wholesale gross revenue information, ex-vessel gross revenue information for BSAI deliveries made at shore-based plants in presented in Table 17. As shown in that table, to preserve data confidentiality data from Chefornak, Kipnuk, and Toksook Bay are aggregated into a group, as are data from Hooper Bay, Mekoryuk, and Tununak. Annual average ex-vessel gross revenues of deliveries for the two groups of communities over the period 2010-2019 were \$290,000 and \$140,000, respectively, recognizing that these averages represent 10 years of data, six of which have a zero value for all communities. While there are modest values compared to some other regions, as shown in Table 19, these ex-vessel gross revenues associated with BSAI halibut deliveries are virtually the all of the ex-vessel gross revenues associated with any deliveries from any fishery to any shore-based processor in these communities over the period 2010-2019. In other words, this illustrates essentially a complete dependency of all shore-based processing on BSAI halibut in these communities, despite the fact that no BSAI halibut has been processed there for the six most recent years covered by the data.

As stated in an earlier analysis (AECOM 2015), according to Coastal Villages Seafoods management, in 2012 it was Coastal Villages Seafoods' assessment that the halibut quota was too low to economically run plants in each of these communities, so halibut processing operations in the communities of Chefornak, Hooper Bay, Kipnuk, Mekoryuk, Toksook Bay, and Tununak were mothballed in favor of operating a buying station in each community. Further, as stated the 2015 analysis, (1) in 2012 and 2013, halibut were offloaded in these communities, put on ice, and shipped to the Goodnews Bay Regional Processing Plant in Platinum (which does not appear in the current [2010-2019] data set used for this analysis⁹⁴); (2) in 2014, Coastal Villages Seafoods attempted to have some their local fishermen catch their halibut quota, but they were unable to catch it all and the operation proved uneconomical; (3) in 2015 Coastal Villages Seafoods leased out all of their CDQ halibut quota to a longliner; and (4) then-current plans were to keep the plants in these six communities mothballed until halibut quota increases sufficiently or economic conditions otherwise become more favorable.

⁹⁴ What appears to be this plant is shown in the data as being located in Anchorage but has a port name of Quinhagak (rather than either Platinum or Goodnews Bay) in a separate field.

Follow-up with Coastal Villages Seafoods management personnel for the current (2019/2020) analysis confirmed that the conditions described for the in-region halibut fishery in the earlier report have not changed. In addition, it was noted that salmon processing operations in Quinhagak were discontinued in 2009 when the Goodnews Bay Regional Processing Plant in Platinum came online; however, the plant in Platinum was subsequently closed, with 2015 being the most recent year of salmon production occurred at that facility (or elsewhere in the region) due to a combination of a relatively low volume of inputs and relatively high expenses of operation. In the absence of conditions that have been determined necessary to permit economically viable/sustainable in-region processing and local commercial fleet support initiatives for the BSAI halibut fishery in at least some of their member communities, CVRF has focused efforts on leveraging their CDQ quota holdings for the benefit of all of their constituents, according to senior Coastal Villages Seafoods management personnel. While this shift away from targeted support of in-region fisheries has unavoidably had adverse effects in communities most directly benefitting from this support (such as Mekoryuk, perhaps the most prominent case, which is shown in the data as participating in the fishery for 28 straight years through both local catcher vessel ownership and being the location of an active shore-based processing plant⁹⁵), leasing out CDQ quota has had the broader effect of distributing the returns from CVRF holdings of CDQ quota more widely among its member communities. This situation illustrates the challenges of the types of difficult decisions that must be made especially in times of decreased resource abundance and in the context of a complex constituency.

6.3.6 Engagement in the Subsistence BSAI Halibut Fishery

As described in an earlier NPFMC analysis (AECOM 2015)⁹⁶ for those CVRF communities for which subsistence data are available, the potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria 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.

Table 47 presents selected information from the ADFG Community Information System for the potentially substantially engaged or substantially dependent halibut communities in the CVRF region as selected by initial screening criteria. As discussed in Section 6.1.6, while these data are often dated (e.g., 1986 is the most recent year available for Tununak), they still represent the most comprehensive data encompassing all subsistence resources available that is comparable across regions. As shown, however, CVRF region potentially halibut dependent communities are underrepresented in the data compared to potentially halibut dependent communities in other regions covered by this analysis. Of the five communities for which there are data, three had over 75 percent of households and one had 100 percent of households using subsistence halibut. The percentage of retention of subsistence halibut from commercial fishing is only available for one community in one year (Quinhagak, 2013, three percent), although each of the communities shown on the table were known to have engaged in commercial halibut fishing during multiple years for which subsistence data, including retention from commercial fishing, were not collected.

⁹⁵ Mekoryuk was selected for characterization as a case study in a recent article on CDQs and non-economic factors in community well-being due to the social impact associated with the local plant closure and discontinuation of local fleet participation in the halibut fishery (Lyons, *et al.*, 2019).

⁹⁶ See Table 2-8 in that analysis (Proposed Bering Sea/Aleutian Islands Halibut PSC Limit Revisions Appendix C: Community Analysis)

Table 47. Selected CSIS Halibut, Fish, and All Resources Subsistence Harvest Information, CVRF Region Communities, Various Years

Community	Year(s) Data Are Available	Percent Using Halibut	Percent Harvesting Halibut	Halibut Reported Pounds Harvested	Halibut Estimated Total Pounds Harvested	All Fish Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Fish Harvested	Resources Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Resources Harvested	Estimated Pounds of Subsistence Halibut Harvested Retained from Commercial Fisheries	Percent of Subsistence Halibut Estimated Total Pounds Harvested Retained from Commercial Fisheries
Chefnak	none*	--	--	--	--	--	--	--	--	--	--
Hooper Bay	none*	--	--	--	--	--	--	--	--	--	--
Kipnuk	2017	77.6%	41.8%	7,972	11,877	107,991	11.0%	no data**	--	no data	--
Mekoryuk	2017	80.0%	48.0%	4,347	6,694	18,514	36.2%	no data**	--	no data	--
Newtok	none*	--	--	--	--	--	--	--	--	--	--
Nightmute	2017	76.5%	47.1%	3,492	5,545	57,387	9.7%	no data**	--	no data	--
Quinhagak	2013	68.8%	15.6%	5,118	7,606	108,422	7.0%	215,950	3.5%	233.5	3.1%
Quinhagak	2017	36.6%	16.1%	2,004	3,449	53,300	6.5%	no data**	--	no data	--
Toksook Bay	none*	--	--	--	--	--	--	--	--	--	--
Tununak	1986	100.0%	93.9%	15,800	30,643	254,651	12.0%	358,100	8.6%	no data	--

*Indicates no halibut subsistence use or harvest was reported for any year.

**Indicates no data was collected on overall non-fish subsistence use (as existing data was collected as part of the fishing-focused Central Yukon Kuskokwim Delta Non-Salmon project).

Source: ADFG Community Subsistence Information System <https://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvestCommSelComm> accessed 5/7/2020.

As part of the AFSC’s most recent compilation of baseline socioeconomic community profiles, researchers compiled subsistence data from Alaska Department of Fish and Game Division of Subsistence reports, U.S. Fish and Wildlife Service reports, and other published quantitative data. AFSC researchers also elicited qualitative information from some civic leaders via a survey regarding their community’s most important subsistence species. The following information is based in part on information published by the AFSC (Himes-Cornell *et al.* 2013). Additionally, both Hooper Bay and Tununak were the sites of community visits and in-person halibut subsistence harvest surveys by ADFG Subsistence Division staff working with local research assistants in 2019.

- In Chefnak, no information is available on household participation and limited records show 63 salmon taken in 2004 and four walrus taken between 2000-2010 for subsistence use.
- In Hooper Bay, SHARC records show that between 43 and 18 individuals were estimated to have fished for subsistence halibut from 2003 through 2007. Eleven or fewer fished from 2008 through 2018 (nine in 2018), and no participants were estimated from the 2012, 2014, and 2016 ADFG statewide harvest surveys. The largest estimated subsistence halibut harvests were around 3,500 pounds in 2005 and 2007. Estimated harvest in 2018 was 778 pounds. Other records suggest relatively high subsistence salmon (Chinook) harvests and subsistence take of ringed seals and other marine mammals.
- In Kipnuk, no Alaska Department of Fish and Game information is available on household participation in subsistence harvesting but other reports suggest that marine mammals are harvested throughout the year and that herring is also an important subsistence fishery within the larger region.
- In Mekoryuk, a 1990 Alaska Department of Fish and Game survey found that 100 percent of households used herring and herring sac roe as a subsistence resource; additionally, other records show an average of 1,062 salmon (chum) harvested per year between 2000-2008 and that a few marine mammals are harvested on an annual basis.

- In Newtok, a 1990 Alaska Department of Fish and Game survey found that 100 percent of households used herring and herring sac roe as a subsistence resource; additionally, other records show subsistence salmon (sockeye) harvesting and a limited amount of marine mammal harvesting between 2000 and 2010.
- In Nightmute, a 1990 Alaska Department of Fish and Game survey found that 100 percent of households used herring and herring sac roe as a subsistence resource; additionally, other records show subsistence salmon (sockeye) harvesting.
- In Quinagak, community leaders stated that fur seals, salmon, and beluga whales were the three most important subsistence marine resources in the community; a 1982 Alaska Department of Fish and Game survey found that several different species of marine mammals were harvested for subsistence by community residents, including bearded seal, ringed seal, spotted seal, and Steller sea lion.
- In Toksook Bay, ADFG has estimated subsistence participation and harvest for 2003 through 2018. Participation is highly variable, ranging from 121 in 2014 to 5 in 2012. Participation was 10 or fewer individuals from 2008 through 2012 (estimated harvest between 300 and 2,100 pounds) but estimates were higher both before and after. In 2006, 113 individuals harvested over 36,000 pounds and in 2014, 121 individuals harvested 32,000 pounds. In 2018, 39 individuals harvested 6,900 pounds (Fall and Koster 2020). Records show that salmon (chum) are the harvested for subsistence in addition to beluga whales and walrus.
- In Tununak, ADFG's estimates of subsistence halibut participation for 2003 through 2018 range from 82 individuals in 2014 to 3 individuals in 2012 (Fall and Koster 2020). The greatest number of pounds harvested occurred from 2014 through 2018 (11,000 pounds to 28,000 pounds), but the smallest harvest estimates occurred in the preceding years from 2009 through 2012 (84 pounds to 576 pounds). Records suggest some salmon (coho) subsistence harvest, as well as marine mammal harvests of bearded seal, ribbon seal, ringed seal, spotted seal, and Steller sea lion.

As noted in Section 5.4.3 and shown in Table 22, CVRF fishery participants retained approximately 8,294 pounds of halibut from CDQ halibut commercial fishery operations for subsistence use under an Area 4E/4D exemption on an annual average basis during the years 1998-2014 (i.e., before the suspension of the in-region commercial halibut fishery). What impact, if any, the effective loss of the ability to retain U32 halibut from the commercial harvest for subsistence/personal use had on estimates of other types of subsistence halibut harvest and/or overall subsistence halibut harvest volume (e.g., the large increases subsistence halibut harvest seen in subsequent years .in Toksook Bay and Tununak) is an open question. While the U32 halibut previously retained were included in ADFG estimates of total halibut removals, they were not included in standard/ongoing ADFG subsistence estimates for communities.

6.3.7 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

No direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any CVRF region community for any year in the 2010-2019 dataset used for this analysis. No CVRF region communities are shown in the Alaska Department of Revenue shared state Fisheries Resource Landing Tax revenue data as being a product transfer location for processed product offloaded from catcher/processors in any year 2010-2019.

6.3.8 CDQ Group Direct BSAI/Area 4 Halibut and/or Groundfish Amendment 80 Sector Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through use of CDQ quota ownership in a number direct and indirect of ways CVRF, like other CDQ entities, has also invested in capital assets in the catcher vessel and/or catcher/processor sectors as another avenue to meet the economic and social goals of the CDQ program. Among vessels shown in the dataset used for analysis as actively participating in the BSAI groundfish Amendment 80 sector fishery in at least one year 2010-2019, none were listed in the most recent CDQ ownership attribution Regulatory Impact Review (RIR) (NMFS 2017) as owned in whole or in part by CVRF. CVRF management confirmed that this is still the case as of 2020, with CVRF not owning or managing any vessels in the Amendment 80 fishery. CVRF does however, like some other CDQ groups, lease CDQ quota to entities in which it has no ownership or management interest, including entities participating in the Amendment 80 sector fishery.

As noted above, in the past CVRF has actively engaged in developing an in-region commercial halibut fishery, facilitating local entry into the harvest sector and establishing multiple shore-based processing locations to create local markets for landings. More recently, however, CVRF management determined that this was not an economically viable/sustainable strategy under current existing conditions, due to multiple factors.

6.4 Norton Sound Economic Development Corporation Region

6.4.1 Location

NSEDC is the CDQ entity that includes communities around Norton Sound, north to communities near the Bering Strait, including the communities on Little Diomed and St. Lawrence As identified through initial screening criteria, BSAI communities potentially substantially engaged in or dependent upon the BSAI/Area 4 halibut fishery within 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.

6.4.2 Historical 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, and evidence exists that Malemiut, Kauweramiut, and Unalikmiut Inupiat settled on the Seward Peninsula approximately 4,000 years ago (Himes-Cornell *et al.* 2013). Marine mammals were an important subsistence resource and the largest pre-contact settlements were located based to access this resource most easily (Harritt 2010). Numerous archaeological excavations in the region have found evidence of a focus on marine resources such as seal, walrus, and beluga bones as well as net sinkers and mollusk shells (Harritt 2010). Known for refined marine mammal hunting and fishing practices, the traditional subsistence economy is generally characterized as marine focused with an emphasis on mammals to the north and fish to the south (Tremayne, *et al.* 2018).

Inupiat in the region had existing trade relationships with villages in Siberia. Some coastal towns, including St. Michael and Unalakleet, became regional trade centers. Russians were active in the area starting in the mid-late 1800s. A large-scale fur trade was developed, and support services for whaling and trading ships increased trade activity in the Bering Strait region. 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).

A summary of the institutional structure of the contemporary NSEDC region communities relevant to this SIA analysis is shown in Table 48. Narrative summaries of the historic context of the communities listed are presented in the following sections.

Table 48. Community Institutional Summary (Selected NSEDC CDQ Communities)

Community	Borough	ANCSA Regional Corporation	ANCSA Village Corporation	Tribal Government	Municipal Government
Nome	Unorganized	Bering Straits Native Corporation	Sitnasuak Native Corporation	Nome Eskimo Community Native Village of Council King Island Native Community	City of Nome
Savoonga	Unorganized	Bering Straits Native Corporation	Kukulget, Incorporated	Native Village of Savoonga	City of Savoonga

6.4.2.1 Nome

Today, many Alaska Native residents of Nome trace their ancestry to original settlers of the Seward peninsula and currently identify with Inupiat culture. Until recently, Nome was not thought to have been a settlement site prior to Western contact and the discovery of gold in the area in the late 1800s. However, the 2005 discovery of the remains of a 300-year-old semi-subterranean house on the Snake River Sandspit in Nome provides evidence that the Native people lived here before the arrival of Westerners. A second semi-subterranean house and trash midden were discovered in 2006. Radiocarbon dating of animal bones from the midden suggest that Inupiat peoples may have lived at the site as early as 1700 AD (Himes-Cornell *et al.* 2013).

The City of Nome was incorporated in 1901. By 1902, the more easily reached gold claims were exhausted and large mining companies with better equipment took over the mining operations. Since the first strike on tiny Anvil Creek, Nome’s gold fields have yielded a total of \$136 million. The gradual depletion of gold, a major influenza epidemic in 1918, the Great Depression, and World War II each influenced Nome’s population. Nome’s role in war history was to serve as a station for troops and supplies during World War II.

The population of Nome is home to Inupiat and non-Native residents. Although some employment opportunities are available, subsistence activities are prevalent in the community. Former villagers from King Island⁹⁷ also live in Nome. Nome is the finish line for the 1,100-mile Iditarod Trail Sled Dog Race from Anchorage, held each March.

Nome was incorporated in 1901 and is organized as a 1st Class City. Three federally recognized Tribes, the Nome Eskimo Community, King Island Native Community, and the Native Village of Council⁹⁸ have their Tribal government offices in the community and members residing in Nome. The self-governing

⁹⁷ The 1960 census showed 49 residents of King Island; by the time of the 1970 census the population was zero as residents of the island at least some of whom would previously typically spend summers in Nome and winter on King Island became year-round residents of Nome (<https://dccc.dmaps.arcgis.com/apps/MapJournal/index.html?appid=2d2fac3050df42b38377ba96e129c6b0#>, accessed 8/17/2019)

⁹⁸ Council, about 60 miles northeast of Nome and approximately 15 miles northwest of White Mountain, traditionally a summer fish camp area, became a townsite in the Gold Rush era. While the town itself is now abandoned, the area is now primarily used as a fish camp site by residents of Nome and for recreation by Nome and White Mountain residents.

Tribe for Nome itself, recognized by the Bureau of Indian Affairs, is the Nome Eskimo Community (NEC). In addition to acting as the local tribal governing body, NEC offers social services and programs, including family services, tribal services, tribal youth programs, a tribal housing program, and a tribal resources program, which seeks to educate tribal members about local and broader environmental issues. Tribes in Nome are also member villages of Kawerak Inc., a tribal non-profit organization with a mission of “Advancing the capacity of our People and Tribes for the benefit of the region.” Kawerak, Inc. is one of the 12 regional Alaska Native 501(c)(3) nonprofit organizations that were identified under ANCSA and charged with naming incorporators to create regional for-profit corporations.

6.4.2.2 Savoonga

St. Lawrence Island has been inhabited intermittently for the past 2,000 years by Yup’ik Eskimos. In the 1800s, numerous villages were located on the island with a population totaling about 4,000 people. The population was dramatically reduced when a famine swept across the island between 1878 and 1880. Given its strategic location, the island was an important defense site during World War II and maintained that role throughout the Cold War due to its proximity to the former Soviet Union. The U.S. Army and U.S. Navy built radar, sonar, and communication installations, and an airstrip was constructed by the Civil Aeronautics Commission along with lodgings and support buildings. (Himes-Cornell *et al.* 2013).

In the years leading up to the 1971 passage of ANCSA, St. Lawrence Island’s status as a federal reserve meant that Savoonga and the neighboring community of Gambell underwent a different process during land claims settlement than other Alaska Native villages. Under ANCSA, most Alaska Native villages received a combination of money and land entitlement. In addition, previous federal reserves were granted land ownership under ANCSA and controlled by Native corporations. Because Savoonga and Gambell were located within the St. Lawrence Island Reserve, they had the option to choose a larger land entitlement in lieu of the monetary portion of the ANCSA settlement. Together, the communities of Gambell and Savoonga received title to the entire 1.136-million acres of land that made up the former St. Lawrence Island Reserve. Today, St. Lawrence Island remains jointly owned by Savoonga and Gambell (Himes-Cornell *et al.* 2013).

Savoonga is a traditional St. Lawrence Yup’ik village with a subsistence lifestyle based on walrus and whale hunting. Due to the island’s isolation, most residents are bilingual – Siberian Yup’ik is still the first language, with English as the second language (Himes-Cornell *et al.* 2013). Subsistence harvest of marine mammals and fish provides a foundation for Savoonga’s local economy. Important subsistence species include walrus, seal, fish, and bowhead and gray whales (Himes-Cornell *et al.* 2013).

Savoonga was incorporated in 1969 as a 2nd Class City. The authorized traditional entity, recognized by the BIA, is the Native Village of Savoonga. The ANCSA village corporation, Kukulget, Incorporated, that runs businesses in tourism and gravel sales. Savoonga is also a member village of Kawerak Inc.

6.4.3 Demographics

Demographic and socioeconomic characteristics for the communities in the region identified as potentially BSAI halibut-dependent are presented in Table 49. Most 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.

Nome, with a population of approximately 3,600 in 2010, is the largest community in the region and has a relatively even split between Alaska Native and non-Native residents. In contrast, Savoonga is a much smaller community with a total population of less than 700 in 2010, with approximately 95 percent of those residents indicating they were Alaska Native. The population in Nome is also more diverse than in Savoonga: 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 Native residents.

Socioeconomic indicators are very different between the two communities as well. As shown in Table 49, in 2018, Nome had a much higher per capita income, median household income, and median family income than Savoonga. The percentage of low-income residents in Nome was approximately 10 percent, while approximately 40 percent of Savoonga residents were considered low-income.

Neither Nome nor Savoonga (or any of the other three NSEDC communities that appear in the database used for this analysis as directly participating in the BSAI/Area 4 halibut fishery in any year 2010-2019 – Gambell, Unalakleet, and White Mountain) have school enrollments anywhere near low enough to risk the loss of state school funding, which could lead to school closings. The White Mountain school had the lowest total enrollments of the five communities with 48 and 54 students Kindergarten through Grade 12 and Pre-Kindergarten through Grade 12, respectively, for the 2019-2020 school year; the enrollment for threshold for state funding is 10 students.

Table 49. NSEDC Region BSAI Halibut Dependent Communities and State of Alaska Selected Demographic Indicators

Community	2010 Decennial Census Data				2018 American Community Survey Data				
	Total Population	Alaska Native/ Native American 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 House- holds	Median Family Income (dollars)	Low-Income*** Residents (percent of total population)
Nome	3,598	54.8%	70.5%	5.3%	\$32,552	\$81,449	883	\$80,703	10.3%
Savoonga	671	94.5%	95.1%	0.0%	\$10,487	\$41,875	186	\$41,429	40.0%
State of Alaska	626,932	14.1%	37.1%	1.8%	\$35,874	\$76,715	167,633	\$90,284	10.8%

*Defined as all persons other than those self-identified being in both "white" and "non-Hispanic" census categories.

**Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.

***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2014-2018 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of \$25,926 in 2019.

Source: US Census 2010; US Census 2019.

Table 50 provides information on school enrollments, for both kindergarten through 12th grade (KG-12) and pre-kindergarten through 12th grade (PK-12), by community for the 2019-2020 school year, the most recent year for which data are available. The NSEDC communities included in the table are those that directly participated in the BSAI/Area 4 halibut fishery, as measured by catcher vessels with local ownership addresses that were active in the fishery and/or locally operating shore-plants that accepted BSAI/Area 4 halibut deliveries during at least one year 2010-2019 as indicated in the dataset used for this analysis.

Table 50. Selected NSEDC Region Schools Total Enrollments, Kindergarten-Grade 12 and Pre-Kindergarten-Grade 12, by Community, 2019-2020 School Year (as of Oct 1, 2019)

Community	School District	School	Total KG-12	Total PK-12
Gambell	Bering Strait School District	Gambell School	166	178
Savoonga	Bering Strait School District	Hogarth Kingeekuk Sr. Memorial School	230	250
Unalakleet	Bering Strait School District	Unalakleet School	173	200
White Mountain	Bering Strait School District	White Mountain School	48	54
Nome	Nome Public Schools*	Nome Elementary	373	376
Nome	Nome Public Schools*	Nome-Beltz Jr/Sr High	264	264

*Also known as the Nome City School District.

Source: <https://education.alaska.gov/data-center>, accessed 8/3/2020.

6.4.4 Local Economy

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

According to the NSEDC website, NSEDC began supporting regional fisheries in 1993 through joint ventures with Glacier Fish Company for buying and processing pink salmon and herring, and NSEDC-run operations for buying, processing and marketing other species of salmon, red king crab, halibut, and bait. In 1995, NSEDC established Norton Sound Seafood Products, which manages NSEDC's commercial seafood activities in the region. Norton Sound Seafood Products operates multiple facilities in the region including processing plants in Unalakleet, Savoonga, and Nome, as well as buying stations at Elim, Golovin, and Shaktoolik.⁹⁹

According to senior NSEDC management, the plant in Unalakleet focuses almost exclusively on processing salmon, although a modest amount of herring is processed for use as bait in the local crab and halibut fisheries. In contrast, the plant in Savoonga has in the past focused exclusively on halibut processing but has recently run “a little cod” as well, as there is interest in diversifying the Savoonga community fisheries. The plant in Nome includes halibut as well as salmon and crab processing among its primary activities and processes saffron cod (locally known as tomcod) for bait. The Nome plant has also run some Pacific cod and has recently made investments in capacity (e.g., the acquisition of a fillet machine) to do more, but the Pacific cod fishery is described by senior NSEDC management as still being in its infancy at the plant. NSEDC is similarly interested in developing a local, small boat directed Pacific cod fishery and has reportedly taken initial steps toward that end.

⁹⁹ <https://www.nsedc.com/fisheries/nssp/> accessed 5/7/2020.

6.4.5 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

6.4.5.1 Catcher Vessels with Local Ownership Addresses and Ex-Vessel Gross Revenues

Table 51 provides trend information on the number of vessels with ownership addresses in NSEDC region communities that were active in the BSAI/Area 4 commercial halibut fisheries 2010-2019. Unlike Table 11, which lists only those two NSEDC region communities with an annual average of two or more active BSAI halibut catcher vessels on an annual average basis (Nome and Savoonga), this table shows all regional communities with even one vessel active in any one year during 2010-2019 (i.e., an additional three regional communities). As shown, average annual participation ranged widely during the period 2010-2019. Two regional communities (Gambell and White Mountain) participated with only one vessel and in only one year (2013 and 2012 Gambell and White Mountain, respectively) for an annual average of 0.1 vessels per year; a third community (Unalakleet), participated with only one vessel in each of two years (2012 and 2019) for an annual average of 0.2 vessels per year. In contrast, Savoonga had an annual average of 11 vessels and Nome had an annual average of six vessels participating in the fishery 2010-2019.

Table 51. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, NSEDC Region Communities, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019
NSEDC	Gambell	0	0	0	0	1	0	0	0	0	0	0.1	0.1%	1
NSEDC	Nome	8	8	7	4	5	5	5	7	6	5	6.0	3.4%	13
NSEDC	Savoonga	11	10	14	13	13	13	10	10	7	10	11.1	6.2%	34
NSEDC	Unalakleet	0	0	1	0	0	0	0	0	0	1	0.2	0.1%	2
NSEDC	White Mountain	0	0	1	0	0	0	0	0	0	0	0.1	0.1%	1
NSEDC	Regional Subtotal	19	18	23	17	19	18	15	17	13	16	17.5	9.8%	51

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Information on BSAI halibut ex-vessel gross revenues of vessels with ownership addresses in the regional communities, to the extent possible within confidentiality constraints, is provided in Table 13. If a regional total is to be calculated, only Savoonga or Nome but not both could be broken out separately. Given the larger number of vessels associated with Savoonga, information for that community is presented. As shown, BSAI halibut ex-vessel gross revenues for Savoonga ranged from \$53,000 to \$347,000 per year during 2010-2019, averaging \$193,000 per year. Nome and the other active NSEDC communities combined averaged \$286,000 per year during that same period (and except for 2012, 2014, and 2019, all ex-vessel gross revenues for the period were associated with vessels with Nome ownership addresses. Information on BSAI halibut vessel diversity, as measured by relative dependency on BSAI halibut ex-vessel gross revenues compared to total ex-vessel gross revenues for all species, gear, and area fisheries pursued by those same vessels on an annual average basis 2010-2019, is provided in Table 14. As shown, the Savoonga halibut fleet was 100 percent dependent on the halibut fishery (i.e., those vessels did not participate in any other commercial fisheries), while the analogous dependency figure for the Nome/all other NSEDC communities (except Savoonga) halibut fleet was 27 percent (in other words, vessels with Nome, Gambell, Unalakleet, and White Mountain ownership addresses that participated in

the BSAI halibut fishery had ex-vessel gross revenues from other fisheries that were, on average, about 2.8 times higher than the ex-vessel gross revenues from the halibut fishery itself).

For that same 2010-2019 period, Table 15 shows the annual average number of BSAI halibut catcher vessels with local ownership addresses, the annual average number all commercial fishing catcher vessels (all species, gear, and area fisheries) with local ownership addresses (i.e., the local “community commercial fishing fleet”), BSAI halibut ex-vessel gross revenues for the community commercial fishing fleet, total ex-vessel gross revenue for the commercial fishing fleet (from all species, gear, and area fisheries), and the percentage of halibut ex-vessel gross revenues as a percentage of the total ex-vessel gross revenues of the community commercial fishing fleet (i.e., the “dependency” of the community fleet on BSAI halibut as measured in the proportion of ex-vessel revenues derived from that fishery). For Savoonga, the community fleet dependency on BSAI halibut was virtually 100 percent for the period. In other words, no vessels with Savoonga ownership addresses pursued any commercial fisheries other than the BSAI halibut fishery. For Nome, Gambell, Unalakleet, and White Mountain community commercial fishing fleets combined, the level dependency on BSAI halibut compared to total ex-vessel gross revenues from all fisheries combined was 14 percent for the period 2010-2019.

It is important to note that from the NSEDC perspective, engagement in the BSAI/Area 4 halibut fishery (and development of a local Pacific cod fishery) is not taking place in a vacuum. Specific to evolving conditions in 2020, NSEDC management has noted that the local halibut fishery is taking on increased importance given the concurrent decline of the Norton Sound red king crab fishery, which is of both commercial and subsistence importance to multiple NSEDC communities. Of more general concern to all fisheries in the region is the northern movement of fish stocks due to changes in ocean temperatures and the related lack of knowledge of changes in behaviors of species of commercial (and subsistence) importance in response to the changing environment. NSEDC senior management noted that they are actively involved in the pursuit of that type of data, having recently worked with the IPHC on a regional halibut pop-up satellite tagging project.

Another challenge facing NSEDC in terms of local halibut fishery management is accommodating the needs of two very different local halibut fleets and their associated processing operations in the region. Savoonga has a much smaller scale (16- to 24-foot aluminum skiff-based) catcher vessel fleet that hauls skates by hand whereas Nome has a larger vessel, hydraulics equipped, higher capacity fleet. To accommodate the two fleets, local harvests are staggered, with Savoonga getting a “head start” on halibut harvest, given the ability of Nome vessels to catch higher volumes of halibut in a shorter period of time, and NSEDC has leased additional A-share halibut IFQ and pursued leasing additional CDQ halibut for the benefit of the Savoonga fleet, but the opportunities to do so have proven to be limited. In short, the potential for competing interests between the two fleets and local processing operations is an acknowledged issue that NSEDC routinely seeks to address as a part of their ongoing in-region fishery management role, according to senior NSEDC staff.¹⁰⁰

With respect to impacts of the COVID-19 pandemic on 2020 fishery conditions, unlike the experience of some other BSAI communities, the local halibut fishery has continued unabated in both Savoonga and Nome. NSEDC processing operations are fully staffed with local residents which, according to NSEDC management, in combination with COVID-19 safety protocols established through NSEDC’s Community & Workforce Protection Program, has helped the communities feel somewhat more comfortable in moving forward with fishery operations. As in past years, NSEDC has leased additional quota in 2020 to supplement their allocation of Area 4D CDQ.

¹⁰⁰ Savoonga was selected for characterization as a case study in a recent article on CDQs and non-economic factors in community well-being due to the complexities of its relationship with Nome and the NSEDC in the regional halibut fishery (Lyons, *et al.*, 2019).

6.4.5.2 Other Measures of CDQ Community BSAI/Area 4 Halibut Harvest Engagement

As shown in Table 52, the only community in the NSEDC region with any residents who hold halibut quota shares is Nome. Nome is located in IPHC Area 4E. Also shown are the 2019 and 2020 IFQ pounds of halibut by community of quota holder as calculated by community shareholding as described in the bullets that follow the table and relevant quota share units to IFQ pounds ratios shown in Table 28 and Table 29, respectively.

Table 52. Halibut Quota Share Holders and Quota Share Units Held, NSEDC Region Communities, 2019 and 2020

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held	Percent of QS Units Held in Region	2019 IFQ Pounds	2020 IFQ Pounds
Nome	4E	2	238,250	100.00%	10,338	9,477
Regional Total	--	2	238,250	100.00%	10,338	9,477

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

NSEDC region community halibut quota share holding is exclusively concentrated in Nome, but participation in the commercial halibut fishery is not.

- Communities in the NSEDC region span two different IPHC regulatory areas. Nome and Savoonga, the two communities shown as directly active in the BSAI halibut fishery in the 2010-2019 dataset used for this analysis, are located in the two different areas (see Figure 1).
 - Nome and all other NSEDC communities except Savoonga, Gambell, and Diomedes, are in Area 4E. Area 4E has a 100 percent CDQ reserve that is allocated 70 percent to CVRF and 30 percent to BBEDC.
 - Savoonga and Gambell, located on St. Lawrence Island, and Diomedes, located on Little Diomedes Island, are the only communities in Area 4D. Area 4D has a 30 percent CDQ reserve that is allocated 30 percent to NSEDC, 26 percent to BBEDC, 24 percent to CVRF, and 20 percent to the Yukon Delta Fisheries Development Association (YDFDA) CDQ group.
- One individual in Nome holds quota shares in Area 4E¹⁰¹ exclusively; another holds quota shares in Areas 3A and 3B (but none in 4E).
- Savoonga, where no residents hold halibut quota shares, actively participates in the commercial halibut fishery exclusively by accessing CDQ quota.

Another important way that communities are engaged in the commercial halibut fishery harvest sector, beyond local individuals owning vessels active in the fishery or holding halibut quota share units, is through employment of local residents as crew members on vessels participating in the fishery. However, as noted in Section 4.5.4, sources of systematically collected quantitative data on crew employment and earnings are not available for the halibut fishery in this or other regions.

¹⁰¹ As noted in the discussion contained in the footnote in Section 6.1.5.2, any individuals shown in the data as holding quota share units in Area 4E, which has a 100 percent CDQ reserve, did not qualify for compensatory shares. As there is no TAC set in 4E, those shares are not issued quota pounds (i.e., they cannot be fished and typically have no sale value).

6.4.5.3 Shore-Based Processors and First Wholesale Gross Revenues

As shown in Table 16, one shore-based processor in Nome and one in Savoonga appear in the dataset used for this analysis as having accepted BSAI halibut deliveries each year during the period 2010-2019. All revenue data for these processors individually or combined are confidential. As a result, Table 17 combines revenue data for the two processors in the NSEDC region with the data from processors in the BBEDC region communities of Togiak and Twin Hills that would also otherwise be confidential. As noted in Section 4.5.2, first wholesale gross revenue data for shore-based processors are not available, so ex-vessel values associated with deliveries of BSAI halibut at these plants are used as a rough proxy. As shown in Table 17 annual average ex-vessel value of landings for the four communities was approximately \$640,000. This represented approximately seven percent of all ex-vessel values associated with all deliveries of all species at the involved plants (Table 18) as well as all of the plants operating in those communities combined (Table 19), as the plants that were involved in halibut processing were the only plants active in those communities. Caution, however, is warranted in the interpretation of these relative economic dependency data, however, as the relative reliance of processing activity on halibut in these four communities is known to vary widely. For example, halibut is the only local commercial fishery in Savoonga, while a general knowledge of the industry would suggest that the plants Togiak and Twin Hills are primarily focused on herring and salmon.

6.4.6 Engagement in the Subsistence BSAI Halibut Fishery

As described in an earlier NPFMC analysis (AECOM 2015)¹⁰² 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.¹⁰³

Table 53 presents selected information from the ADFG Community Information System for the potentially substantially engaged or substantially dependent halibut communities in the NSEDC region as selected by initial screening criteria. As discussed in Section 6.1.6, while these data are often dated (e.g., 2006 is the most recent year available for Savoonga), they still represent the most comprehensive data encompassing all subsistence resources available that is comparable across regions. As shown, however, only one of the two NSEDC region potentially halibut dependent communities (Savoonga) is represented in the data. In Savoonga, half of all households are reported as using subsistence halibut, while the percentage of halibut of all subsistence fish harvested is eight percent and the percentage of retention of subsistence halibut from commercial fishing is approximately 11 percent.

¹⁰² See Table 2-8 in that analysis (Proposed Bering Sea/Aleutian Islands Halibut PSC Limit Revisions Appendix C: Community Analysis)

¹⁰³ Data for Savoonga for 2012 are confidential and are not included in the average.

Table 53. Selected CSIS Halibut, Fish, and All Resources Subsistence Harvest Information, NSEDC Region Communities, 2006

Community	Year(s) Data Are Available	Percent Using Halibut	Percent Harvesting Halibut	Halibut Reported Pounds Harvested	Halibut Estimated Total Pounds Harvested	All Fish Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Fish Harvested	Resources Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Resources Harvested	Estimated Pounds of Subsistence Halibut Harvested Retained from Commercial Fisheries	Percent of Subsistence Halibut Estimated Total Pounds Harvested Retained from Commercial Fisheries
Nome	none*	--	--	--	--	--	--	--	--	--	--
Savoonga	2006	49.6%	48.9%	6,014	6,269	76,422	8.2%	1,474,291	0.4%	660	10.5%

*Indicates no halibut subsistence use or harvest was reported for any year.

Source: ADFG Community Subsistence Information System <https://www.adfg.alaska.gov/sbi/CSIS/index.cfm?ADFG=harv/info.harvestCommSelComm> accessed 5/7/2020.

Nome community leaders have stated that residents rely on salmon (chum and coho), seal, walrus, crab, whale, halibut, and herring for subsistence (Himes-Cornell *et al.* 2013). Much of the subsistence salmon harvest that occurs in the community is done at seasonal fish camps outside of the community itself. For the 2000 through 2010 period, between 134 and 877 Nome households per year were issued subsistence salmon permits. Of harvests that were reported, pink was the most heavily harvested salmon species over time, with an average harvest of 7,567 fish per year. Sockeye, coho, and chum salmon were the next most heavily harvested species, with an average of 3,133 sockeye, 1,723 coho, and 1,570 chum harvested per year. A small number of Chinook were also harvested by Nome residents each year.

Nome residents were issued between 10 and 25 SHARC cards each year between 2003 and 2010. In 2010, 23 SHARC cards were issued, seven were fished, and 941 pounds of halibut were harvested. The only other years during that period when subsistence halibut harvest was reported on SHARCs were 2008 and 2009, when 1,145 pounds and 1,281 pounds were harvested, respectively. In 2018, 18 SHARCs were issued. ADFG estimated that six SWHS respondents fished, harvesting 19 halibut for a total of 450 pounds (Fall and Koster 2020).

Subsistence harvest of land and marine mammals is also a consistent part of the community's wild food source. From 2000 through 2010, AFSC was able to report harvest of walrus, polar bears, and beluga whales. Walrus harvests were reported from 2000 through 2007, ranging from four to 56 animals. Three total polar bear harvests were reported – two animals in 2001 and one in 2007. Between two and 11 beluga whales were harvested in the years reported during this period; the report notes that 2007 through 2010 harvest were part of a combined harvest total for the communities of Nome and Brevik.

In Savoonga, subsistence harvests are focused on marine mammals (including whale, seal, and walrus) and reindeer (Himes-Cornell *et al.* 2013). From 2000 to 2010, average harvest was available for walrus (546) and polar bears (six). Harvest information on beluga whale, sea otter, sea lion, and seal were not reported during that period. Data for annual subsistence halibut harvest show a substantial decline in the number of residents holding SHARC cards as well as a decline in the number of SHARC cards reported as fished and the number of pounds of halibut harvested per year. ADFG reports that the number of SHARCs held have declined in the following pattern: 43 SHARCs in 2007 (estimate of 15 fished); 17 SHARCs in 2009 (seven fished); 17 SHARCs in 2010 (six fished); 17 SHARCs in 2011 (nine fished); six SHARCs in 2012 (five fished); six SHARCs in 2014 (one fished); and one SHARC holder in 2016 and 2018 that did not fish (Fall and Koster 2020). ADFG states that Savoonga is the principal halibut harvesting community in Area 4D.

As noted in Section 5.4.3 and shown in Table 22, NSEDC region fishery participants also retained an annual average of approximately 3,447 pounds of U32 halibut from CDQ halibut commercial fishery operations for subsistence/personal use under an Area 4E/4D exemption during the years 2002-2019.

While U32 halibut retained are included in ADFG estimates of total halibut removals, they are not included in standard/ongoing ADFG subsistence estimates for communities.

6.4.7 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

No direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any NSEDC region community for any year in the 2010-2019 dataset used for this analysis. No NSEDC region communities are shown in the Alaska Department of Revenue shared state Fisheries Resource Landing Tax revenue data as being a product transfer location for processed product offloaded from catcher/processors in any year 2010-2019. Additionally, no Amendment 80 port calls are shown for any NSEDC community in the 2010-2019 port call data used for this analysis.

6.4.8 CDQ Group Direct BSAI/Area 4 Halibut and/or Groundfish Amendment 80 Sector Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through use of CDQ quota ownership in a number direct and indirect of ways NSEDC, like other CDQ entities, has also invested in capital assets in the catcher vessel and/or catcher/processor sectors as another avenue to meet the economic and social goals of the CDQ program. Among vessels shown in the dataset used for analysis as actively participating in the Amendment 80 of the BSAI groundfish fishery in at least one year 2010-2019, four of those were listed in the most recent CDQ ownership attribution RIR (NMFS 2017) as owned at least in part by NSEDC. These vessels are listed in Table 54.

Table 54. CDQ Ownership of Vessels Participating in BSAI Groundfish Amendment 80 Sector, NSEDC, 2010-2019

	ADFG Number	Vessel Name	Groundfish Sector	CDQ Group	CDQ Ownership
1	57228	ARICA	A80	NSEDC	9%
2	55921	CAPE HORN	A80, CDQ	NSEDC	9%
3	51873	REBECCA IRENE	A80, CDQ	NSEDC	9%
4	57211	UNIMAK	A80	NSEDC	9%

Note (1): Vessel ownership addresses are all listed as Seattle WA.

Note (2): Each of the listed vessels participated in the BSAI groundfish Amendment 80 catcher/processor sector during at least one year 2010-2019.

Source: NOAA 2017, AKFIN 2019.

According to NSEDC management, NSEDC does not lease CDQ quota directly to entities participating in the Amendment 80 sector fishery, instead using an AFA catcher/processor operated by a firm that has been a long-term industry partner with NSEDC. NSEDC-owned quota is, however, sometimes harvested in at least modest amounts by Amendment 80 vessels when quota swaps between BSAI groundfish fishery participants occur as they attempt to fill out their harvest plans over the course of a season. As noted in Section 6.2.8, NSEDC manages the coordinated leasing of both its own and CBSFA's BSAI groundfish CDQ.

As noted above, NSEDC is directly involved with in-region management of the local commercial halibut fishery, in part to mitigate the potential for competition between NSEDC communities for halibut, with

the specific aim of protecting the ability of Savoonga, which is essentially fully dependent halibut as their only commercial fishery at present, while balancing that protection with the needs of the larger Nome-based fleet. NSEDC and its subsidiaries have been actively engaged in developing in-region processing capacity for halibut landings and directly involved in the marketing of halibut (along with other regionally caught and processed species).

6.5 Other CDQ Regional Engagement in the BSAI Groundfish Amendment 80 and/or the BSAI/Area 4 Halibut Fisheries

6.5.1 Overview

No direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any BBEDC and/or YDFDA region community for any year in the 2010-2019 dataset used for this analysis.

As identified through initial screening criteria, communities in the BBEDC region potentially substantially engaged in or dependent upon the BSAI/Area 4 halibut fishery include Dillingham, Togiak, and Twin Hills, but further analysis of catcher vessel and shore-based processor diversity suggests that none of these communities would be considered substantially dependent on the fishery. As a result, regional and community characterization is briefer in this section. BBEDC communities in addition to those already mentioned include Aleknagik, Clarks Point, Egegik, Ekuk, Ekwok, King Salmon, Levelock, Manokotak, Naknek, Pilot Point, Portage Creek, Port Heiden (Meschick), South Naknek, and Ugashik.

Table 55 provides information on school enrollments, for both kindergarten through 12th grade (KG-12) and pre-kindergarten through 12th grade (PK-12), by BBEDC community for the 2019-2020 school year, the most recent year for which data are available. The specific BBEDC communities included in the table are those that directly participated in the BSAI/Area 4 halibut fishery, as measured by catcher vessels with local ownership addresses that were active in the fishery and/or locally operating shore-plants that accepted BSAI/Area 4 halibut deliveries during at least one year 2010-2019 as indicated in the dataset used for this analysis.

Table 55. Selected BBEDC Region Schools Total Enrollments, Kindergarten-Grade 12 and Pre-Kindergarten-Grade 12, by Community, 2019-2020 School Year (as of Oct 1, 2019)

Community	School District	School	Total KG-12	Total PK-12
Aleknagik	Southwest Region School District	Aleknagik School	30	37
Clarks Point	Southwest Region School District	Clarks Point School	13	13
Dillingham	Dillingham City Schools	Dillingham Elementary	213	216
Dillingham	Dillingham City Schools	Dillingham Middle/High School	226	226
King Salmon	Bristol Bay Borough School District	*See notes below.	na	na
Manokotak	Southwest Region School District	Manokotak School	111	120
Naknek	Bristol Bay Borough School District	Naknek Elementary	59	61
Naknek	Bristol Bay Borough School District	Bristol Bay Middle/High School	45	45
South Naknek	Bristol Bay Borough School District	*See notes below.	na	na
Togiak	Southwest Region School District	Togiak School	209	222
Twin Hills	Southwest Region School District	Twin Hills School	27	32

*Notes: Students from King Salmon and South Naknek attend school in Naknek and are included in the student enrollment totals for Naknek, where the BBBSD school is located (with the elementary and middle/high schools in the same building). District bus service is available for students living in King Salmon, which is located 15 miles from Naknek on the Alaska Peninsula Highway; daily flights are available to fly students (and parents) living in South Naknek across the Naknek River to Naknek (<http://www.bbbsd.net/> accessed 8/13/2020). In the 2019-2020 school year, a total of seven KG-12 (and PK-12) students district-wide were enrolled in Bristol Bay Correspondence School.

Source: <https://education.alaska.gov/data-center>, accessed 8/3/2020.

No CDQ member communities of YDFDA are shown in the 2010-2019 dataset as having directly participated in the BSAI/Area 4 halibut commercial fishery as indicated by active vessels with local ownership addresses or locally operating shore-based processors. Additionally, no halibut quota shares are held by any individuals in YDFDA communities in 2019. YDFDA communities include Alakanuk, Emmonak, Grayling, Kotlik, Mountain Village, and Nunam Iqua (Sheldon Point), all of which are in Area 4E. Given the lack of direct engagement in the BSAI/Area 4 directed halibut fishery, YDFDA regional and community characterization has not been included section.

6.5.2 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

6.5.2.1 Harvester Engagement

Catcher Vessels with Local Ownership Addresses and Ex-Vessel Gross Revenues

Table 56 provides trend information on the number of vessels with ownership addresses in BBEDC region communities that were active in the BSAI/Area 4 commercial halibut fisheries 2010-2019. Unlike Table 11, which lists only those two communities (Dillingham and Togiak) with an annual average of two or more active BSAI halibut catcher vessels on an annual average basis (one of the initial screening criteria for halibut dependency), this table shows all regional communities with even one vessel active in any one year during 2010-2019 (i.e., an additional six regional communities). As shown, average annual participation ranged widely during the period 2010-2019: one community (King Salmon) participated with only one vessel and in only one year (2010) for an annual average of 0.1 vessel per year, while Dillingham and Togiak had annual averages of two and 12 vessels, respectively, participating in the fishery. The remaining communities (Aleknagik, Clark's Point, Manokotak, Naknek, and South Naknek) averaged between 0.2 and 0.8 vessels active per year during the 2010-2019 period with no clear pattern of entering and exiting the fishery, although the region as a whole saw a general increase in vessels with BBEDC community ownership addresses becoming active in the BSAI halibut fishery over the period.

Table 56. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, BBEDC Region Communities, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
BBEDC	Aleknagik	0	0	1	0	0	0	0	0	0	1	0.2	0.1%	2
BBEDC	Clarks Point	0	0	1	0	0	0	0	1	0	1	0.3	0.2%	3
BBEDC	Dillingham	0	1	2	3	2	2	2	3	4	4	2.3	1.3%	10
BBEDC	King Salmon	1	0	0	0	0	0	0	0	0	0	0.1	0.1%	1
BBEDC	Manokotak	0	0	0	0	0	1	2	2	1	1	0.7	0.4%	4
BBEDC	Naknek	1	0	1	1	0	0	0	1	2	2	0.8	0.5%	4
BBEDC	South Naknek	0	0	0	0	0	0	1	1	1	1	0.4	0.2%	2
BBEDC	Togiak	8	12	16	10	13	13	14	13	12	13	12.4	7.0%	31
BBEDC	Regional Subtotal	10	13	21	14	15	16	19	21	20	23	17.2	9.7%	56

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

Information on BSAI halibut ex-vessel gross revenues of vessels with ownership addresses in the regional communities, to the extent possible within confidentiality constraints, is provided in Table 13. If a regional total is to be calculated, only Togiak or Dillingham but not both could be broken out separately. Given the larger number of vessels associated with Togiak, information for that community is presented. As shown, BSAI halibut ex-vessel gross revenues for Togiak ranged from \$106,000 to \$270,000 per year during 2010-2019, averaging \$170,000 per year. Dillingham and the other active BBEDC communities combined averaged \$87,000 per year during that same period. Information on BSAI halibut vessel diversity, as measured by relative dependency on halibut compared to all species, gear, and area fisheries pursued by those same vessels on an annual average basis 2010-2019, is provided in Table 14. As shown, the Togiak BSAI halibut fleet was 17 percent dependent on the halibut fishery (i.e., those vessels derived about 83 percent of their total ex-vessel gross revenues from fisheries other than the BSAI halibut fishery), while the analogous dependency figure for the Dillingham/all other BBEDC communities (except Togiak) halibut fleet was 15 percent (in other words, vessels with Dillingham, Aleknagik, Clark’s Point, King Salmon, Manokotak, Naknek, and South Naknek ownership addresses that participated in the BSAI halibut fishery had ex-vessel gross revenues from other fisheries that amounted to approximately 85 percent of their total ex-vessel revenues).

For that same 2010-2019 period, Table 15 shows the annual average number of BSAI halibut catcher vessels with local ownership addresses, the annual average number all commercial fishing catcher vessels (all species, gear, and area fisheries) with local ownership addresses (i.e., the local “community commercial fishing fleet”), BSAI halibut ex-vessel gross revenues for the community commercial fishing fleet, total ex-vessel gross revenue for the commercial fishing fleet (from all species, gear, and area fisheries), and the percentage of halibut ex-vessel gross revenues as a percentage of the total ex-vessel gross revenues of the community commercial fishing fleet (i.e., the “dependency” of the community fleet on BSAI halibut as measured in the proportion of ex-vessel revenues derived from that fishery). For Togiak, the community fleet dependency on BSAI halibut was seven percent for the period. For Dillingham, Aleknagik, Clark’s Point, King Salmon, Manokotak, Naknek, and South Naknek community commercial fishing fleets combined, the level dependency on BSAI halibut compared to total ex-vessel gross revenues from all fisheries combined was 0.5 percent for the period 2010-2019, which points to the overwhelming importance of the salmon fisheries to the communities of the Bristol Bay region.

It is important to note that residents of BBEDC CDQ communities are eligible to participate in BBEDC’s 4E Halibut Program. That program makes halibut CDQ available at no cost to fishers participating in a

near-shore small boat halibut fishery in the southern portion of Area 4E east of Cape Newenham that is managed by BBEDC. Vessels used in the fishery must also be owned by CDQ community residents, are limited to 32-feet or less in length and, in cases where the fisher does not own the boat to be used, both the fisher and boat owner must meet residency requirements. Eligibility for the program also predicated on meeting relevant state vessel licensing and longline permit requirements otherwise necessary to participate in the 4E commercial halibut fishery.¹⁰⁴

According to BBEDC management, this program allows residents to participate in the fishery at a lower cost than would otherwise be possible, with the focus of effort concentrated in May and early June as fishers are preparing for salmon season. Participants often sell to shore-based processors operating in the Togiak/Twin Hills area, but dockside/direct marketing sales are also reported to occur in Dillingham and Naknek, with some sales direct to markets in Anchorage (Cline, personal communication 2020). While BBEDC in-region fisheries strongly focus on the fundamentally important salmon fisheries, the BSAI/Area 4 halibut fishery program importantly represents a relatively low-cost fisheries employment and income diversification opportunity, with the potential to increase economic resilience for participating fishermen in years when salmon and/or other income and employment opportunities are in a down cycle.

Other Measures of CDQ Community BSAI/Area 4 Halibut Harvest Engagement

As shown in Table 57, communities in the BBEDC region whose residents hold halibut quota shares are in Area 4E. Also shown are the 2019 and 2020 IFQ pounds of halibut by community of quota holder as calculated by community shareholding as described in the bullets that follow the table and relevant quota share units to IFQ pounds ratios shown in Table 28 and Table 29, respectively. As detailed in the bulleted notes, halibut quota share holding by local residents is heavily focused on Area 4E.

Table 57. Halibut Quota Share Holders and Quota Share Units Held, BBEDC Region Communities, 2019 and 2020

Community	Community Located in IPHC Area	Number of Unique Quota Share Holders	Total Quota Share Units Held	Percent of QS Units Held in Region	2019 IFQ Pounds	2020 IFQ Pounds
Dillingham	4E	5	1,508,315	99.34%	98,404	88,975
King Salmon	4E	1	798	0.05%	24	23
Naknek	4E	5	6,655	0.44%	111	102
South Naknek	4E	2	1,416	0.09%	0	0
Togiak	4E	5	892	0.06%	22	20
Twin Hills	4E	1	270	0.02%	11	10
Regional Total	--	19	1,518,346	100.00%	98,572	89,130

Source: Adapted from <https://www.fisheries.noaa.gov/alaska/sustainable-fisheries/alaska-fisheries-management-reports> accessed 4/22/2020

¹⁰⁴ Persons wishing to be direct marketers must meet additional requirements, including registering with the state as a catcher-seller and with NMFS as a registered buyer. They are also required to register with the State of Alaska's eLandings website and provide BBEDC with log-in information; in turn, BBEDC assists participants with eLandings reporting to ensure avoidance of problems that could put future individual and/or program access to the fishery at risk. Additional details of the program are available at http://www.bbedc.com/?page_id=183, accessed 7/31/2020).

Except for the holdings of CDQ flagged¹⁰⁵ quota shares, halibut quota shares held by individuals in BBEDC region communities are exclusively Area 4E shares.¹⁰⁶ Ownership of CDQ flagged quota shares is more common in the BBEDC region than in other regions, but still involve only six individuals in five communities.

- All BBEDC communities are located in Area 4E (see Figure 1). Area 4E has a 100 percent CDQ reserve that is allocated 30 percent to BBEDC and 70 percent to CVRF.
- BBEDC itself owns 99.95 percent of all the halibut quota share units held in Dillingham, with none of those being Area 4E quota shares.
- Individuals hold 811 of the 1.5 million quota share units held in Dillingham. Three individuals hold quota shares in Area 4E exclusively. Another individual holds quota shares in Area 4E plus CDQ flagged quota shares in Areas 2C, 3B, and 4A.
- One individual in King Salmon holds quota shares in Area 4E plus CDQ flagged quota shares in Areas 3B and 4A.
- Four individuals in Naknek hold quota shares in Area 4E exclusively. Another individual holds quota shares in Area 4E plus CDQ flagged quota shares in Areas 2C, 3A, 3B and 4A.
- Two individuals in South Naknek hold quota shares in Area 4E exclusively.
- Two individuals in Togiak hold quota shares in Area 4E exclusively. Two individuals hold quota shares in Area 4E plus CDQ flagged quota shares in Areas 2C and 4A.
- One individual in Twin Hills holds quota shares in Area 4E plus CDQ flagged quota shares in Areas 2C, 3A, 3B and 4A.

Another important way that communities are engaged in the commercial halibut fishery harvest sector, beyond local individuals owning vessels active in the fishery or holding halibut quota share units, is through employment of local residents as crew members on vessels participating in the fishery. However, as noted in Section 4.5.4, sources of systematically collected quantitative data on crew employment and earnings are not available for the halibut fishery in this or other regions.

6.5.2.2 Shore-Based Processors and First Wholesale Gross Revenues

As shown in Table 16, during 2010-2019, one shore-based processor operating in Twin Hills accepted BSAI/Area 4 halibut deliveries each year and one shore-based processor operating in nearby Togiak accepted deliveries each of the four most recent years covered by the data (2016-2019) only. All revenue information associated with BSAI halibut processing in these communities is confidential. To allow reporting on a regional (or combined regions) basis, data from these BBEDC region plants have been aggregated with data from plants in the NSEDC region and are presented in detail in Table 17, Table 18, and Table 19, and summarized in Section 6.4.5.3. As noted in Section 4.5.2, first wholesale gross revenue data for shore-based processors sufficient to calculate processing diversity are not available.

¹⁰⁵For more information on CDQ flagged shares, see the discussion contained in the footnote in Section 6.1.5.2.

¹⁰⁶ As noted in the discussion contained in the footnote in Section 6.1.5.2, any individuals shown in the data as holding quota share units in Area 4E, which has a 100 percent CDQ reserve, did not qualify for compensatory shares. As there is no TAC set in 4E, those shares are not issued quota pounds (i.e., they cannot be fished and typically have no sale value).

6.5.3 Engagement in the Subsistence BSAI Halibut Fishery

Table 58 presents selected information from the ADFG Community Information System for the potentially substantially engaged or substantially dependent halibut communities in the BBEDC region as selected by initial screening criteria. As discussed in Section 6.1.6, while these data are often dated (e.g., 1999 is the most recent year available for Twin Hills), they still represent the most comprehensive data encompassing all subsistence resources available that is comparable across regions. For all three communities shown (Dillingham, Togiak, and Twin Hills), in the most recent year for which data are available (2010, 2008, and 1999 respectively) estimated subsistence harvest of halibut is less than 120 pounds, and no retention of subsistence halibut from commercial fisheries is reported. For all three communities for all reporting years, halibut accounts for less than one percent of all subsistence fish harvest by weight (and accounts one-tenth of one percent or less in three of the five reporting years of the three communities combined).

Table 58. Selected CSIS Halibut, Fish, and All Resources Subsistence Harvest Information, BBEDC Region Communities, Various Years

Community	Year(s) Data Are Available	Percent Using Halibut	Percent Harvesting Halibut	Halibut Reported Pounds Harvested	Halibut Estimated Total Pounds Harvested	All Fish Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Fish Harvested	All Resources Estimated Total Pounds Harvested	Halibut as a Percentage of Estimated Total Pounds of All Resources Harvested	Estimated Pounds of Subsistence Halibut Retained from Commercial Fisheries	Percent of Subsistence Halibut Estimated Total Pounds Harvested Retained from Commercial Fisheries
Dillingham	1984	no data	0	0	0	393,781	0.0%	597,394	0.0%	0	--
Dillingham	2010	19.0%	1.0%	17	88	316,260	0.0%	486,532	0.0%	0	0.0%
Togiak	1999	15.6%	9.4%	no data	702	77,617	0.9%	179,005	0.4%	no data	--
Togiak	2008	32.5%	7.5%	36	85	135,782	0.1%	243,208	0.0%	no data	--
Twin Hills	1999	25.0%	16.7%	60	115	18,833	0.6%	34,398	0.3%	no data	--

Source: ADFG Community Subsistence Information System <https://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvestCommSelComm> accessed 5/7/2020.

As noted in Section 5.4.3 and shown in Table 22, BBEDC region fishery participants also retained an annual average of approximately 4,221 pounds of U32 halibut from CDQ halibut commercial fishery operations for subsistence/personal use under an Area 4E/4D exemption during the years 1998-2019. While U32 halibut retained are included in ADFG estimates of total halibut removals, they are not included in standard/ongoing ADFG subsistence estimates for communities.

6.5.4 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

No direct participation in the BSAI groundfish Amendment 80 sector fishery through local vessel ownership address is shown for any BBEDC or YDFDA region communities for any year in the 2010-2019 dataset used for this analysis.

Togiak, in the BBEDC region, is notable as a product transfer location for catcher/processors engaged in BSAI groundfish fisheries. As shown in Table 33, on an average annual basis 2010-2019, Togiak received approximately \$114,000 per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax and Fisheries Resource Landing Tax revenues combined. Of this amount about \$78,000, or about 68.5 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$36,000, or about 31.5 percent of the total, derived from Fishery Resource Landing Tax

shared revenue. To put these figures in perspective, total revenues for the City of Togiak in Fiscal Year 2019 were approximately \$1.3 million,¹⁰⁷ of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$114,000) would have accounted for roughly 9.1 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$36,000) would have accounted for roughly 2.9 percent of fiscal year 2019 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.¹⁰⁸

As shown in Table 6, over the period 2010-2019, Togiak had an annual average of approximately 18 Amendment 80 vessel port calls per year, making it the community with the third highest average of Amendment 80 port calls in the BSAI region (behind Unalaska/Dutch Harbor and Adak) over this period. All of these port calls occurred in the most recent six years covered by the data, ranging between 16 to 40 port calls in any given year in that six year span, with the number of Amendment 80 port calls in Togiak equaling or exceeding the number of port calls in Adak in four of those six years. According to BBEDC management, however, private sector economic activity in Togiak related to Amendment 80 port calls is modest, primarily due to a lack of support facilities and service providers of a scale that could routinely accommodate such relatively large vessels. According to city of Togiak personnel, the city dock can accommodate barges under favorable tidal conditions, but not deep draft vessels. Typically, larger vessels come in Togiak Bay as far as Anchor Point (approximately eight miles from the main portion of the community) and transfer product while at anchor (Thompson, personal communication, 8/7/2020).

No other BBEDC region communities and no YDFDA region communities are shown in the Alaska Department of Revenue shared state Fisheries Resource Landing Tax revenue data as being a product transfer location for processed product offloaded from catcher/processors in any year 2010-2019.¹⁰⁹ Similarly, no other BBEDC or YDFDA region communities are shown in Table 6 as Amendment 80 vessel ports of call in any year 2010-2019.

6.5.5 CDQ Group Direct BSAI/Area 4 Halibut and/or Groundfish Amendment 80 Sector Engagement

In addition to participating in the BSAI halibut and/or BSAI groundfish fisheries through use of CDQ quota ownership in a number direct and indirect of ways BBEDC and YDFDA, like other CDQ entities, have also invested in capital assets in the catcher vessel and/or catcher/processor sectors as another avenue to meet the economic and social goals of the CDQ program. Among vessels shown in the dataset used for analysis as actively participating in the BSAI groundfish Amendment 80 sector fishery in at least one year 2010-2019, none were listed in the most recent CDQ ownership attribution Regulatory Impact Review (RIR) (NMFS 2017) as owned in whole or in part by BBEDC and/or YDFDA. Contacts with BBEDC management and YDFDA management confirmed that is still the case as of 2020. Both BBEDC and YDFDA do, however, like some other CDQ groups, lease CDQ quota to entities in which they have

¹⁰⁷ City of Togiak, Certified Financial Statement for the Year Ending June 30, 2019, available at: <https://www.commerce.alaska.gov/dcra/DCRARepoExt/RepoPubs/FinDocs/TogiakFY2019CertifiedFinancialStatement.pdf>. Accessed 4/25/2020.

¹⁰⁸ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

¹⁰⁹ One other BBEDC community, the City of Aleknagik, shows up in the Alaska Department of Revenue data as having received shared Fisheries Resource Landing Tax revenue during the 2010-2019 period. However, this occurred in only one year (2013) and the negligible amount of revenue involved suggests this was a reporting anomaly rather than the result of an actual product transfer.

no ownership or management interest, including, in both cases, entities participating in the Amendment 80 sector fishery.

6.6 Alaska Communities Outside of the CDQ Regions

6.6.1 Engagement in the Commercial BSAI/Area 4 Halibut Fishery

Table 59 provides trend information on the number of vessels with Alaska ownership addresses outside of the CDQ regions that were active in the BSAI/Area 4 commercial halibut fisheries 2010-2019. Unlike Table 11, which lists only those six communities with an annual average of two or more active BSAI halibut catcher vessels on an annual average basis (one of the initial screening criteria for halibut dependency), this table shows all communities CDQ regions with even one vessel active in any one year during 2010-2019 (i.e., an additional seven communities).

Table 59. Individual BSAI Halibut Catcher Vessels by Community of Vessel Historical Ownership Address, Alaska Communities Outside of the CDQ Regions, 2008-2019 (number of vessels)

Region	Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Average 2010-2019 (number)	Annual Average 2010-2019 (percent)	Unique Vessels 2010-2019 (number)
GOA	Anchorage	2	2	3	2	1	3	2	2	2	2	2.1	1.2%	6
GOA	Cordova	2	1	1	1	1	2	2	2	1	1	1.4	0.8%	3
GOA	Homer	12	14	15	13	11	11	12	15	15	14	13.2	7.4%	30
GOA	Kodiak	16	12	13	11	10	10	13	11	10	11	11.7	6.6%	24
GOA	Nikolaevsk	0	1	1	0	0	0	0	0	0	0	0.2	0.1%	1
GOA	Palmer	0	0	0	1	1	0	0	0	0	0	0.2	0.1%	2
GOA	Petersburg	1	0	2	0	0	0	0	0	0	0	0.3	0.2%	4
GOA	Port Lions	1	1	1	1	1	1	0	0	0	0	0.6	0.3%	4
GOA	Seward	1	2	1	1	1	1	1	1	2	1	1.2	0.7%	5
GOA	Sitka	7	8	5	2	2	3	3	3	3	3	3.9	2.2%	9
GOA	Wasilla	1	3	3	2	2	2	2	2	2	2	2.1	1.2%	4
GOA	Yakutat	0	0	0	0	0	0	0	0	1	1	0.2	0.1%	1
GOA	Juneau/Douglas	5	5	4	4	4	4	4	1	1	0	3.2	1.8%	7
GOA	Regional Subtotal	48	49	49	38	34	37	39	37	37	35	40.3	22.7%	97

Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive_FT

As shown in Table 14, as measured by economic diversity, BSAI/Area 4 halibut vessels from these communities (or groups of these communities where aggregation of data is dictated by data confidentiality considerations), range from approximately 16 to 60 percent dependent on the BSAI/Area 4 halibut fishery as an annual average percentage of total ex-vessel gross revenues, 2010-2019. However, as shown in Table 15, BSAI/Area 4 annual average 2010-2019 halibut ex-vessel gross revenues account for between 0.8 percent and 3.5 percent of the total ex-vessel gross revenues for all commercial fishing vessels in those same communities or groups of communities.

As shown in Table 16, shore-based processors in King Cove, Kodiak, Sand Point, and Seward accepted deliveries of BSAI/Area 4 halibut each year 2010-2019. Additionally, shore-based processors in Anchorage and Homer accepted deliveries of BSAI/Area 4 halibut in nine of the 10 years during this same period. However, the combined ex-vessel values paid for these deliveries was approximately 1.5 percent of total ex-vessel values paid for all deliveries (from all fisheries occurring in all areas) at these

same plants (Table 18) and approximately one percent of total ex-vessel values paid for all deliveries at all of the shore-based processors in these same communities (not just the processors participating in the BSAI/Area 4 halibut fishery) during this same time period (Table 19).

6.6.2 Engagement in the Commercial BSAI Groundfish Amendment 80 Sector Fishery

Sand Point, located in the Western GOA region, does serve as a product transfer location for catcher/processors, but the origin (BSAI or GOA) of the fish processed into the product transferred is not discernable from the available data and the level of local activity or local economic returns associated with these transfers is/are minor relative to other fishery sector local activities. As shown in Table 33, on an average annual basis 2010-2019, Sand Point received approximately \$201,000 per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax and Fisheries Resource Landing Tax revenues combined. Of this amount about \$188,000, or about 94 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$13,000, or about six percent of the total, derived from Fishery Resource Landing Tax shared revenue. To put these figures in perspective, total general revenues and transfers for the City of Sand Point in Fiscal Year 2018 (the most recent year for which data are available) were approximately \$2.1 million,¹¹⁰ of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$201,000) would have accounted for roughly 9.6 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$13,000) would have accounted for roughly 0.6 percent of fiscal year 2018 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.¹¹¹

As shown in Table 6, Sand Point experienced only three Amendment 80 port calls during the years 2010-2019, one each year in 2011, 2012, and 2015. Given the modest size and scale of local support services businesses, which do not have the capacity to accommodate large vessels on a routine basis, and the infrequent nature of Amendment 80 port calls, it is unlikely that Sand Point derives substantial economic returns from the Amendment 80 fleet on an ongoing basis. The only other community outside of the CDQ regions that experienced Amendment 80 port calls 2010-2019 was Kodiak, which is shown in Table 6 as having one port call in 2011.

6.7 The Pacific Northwest Region

Among communities outside of Alaska, engagement in the BSAI groundfish Amendment 80 sector most directly affected by the proposed action alternatives is highly concentrated in the Pacific Northwest and specifically in the Seattle MSA.

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

¹¹⁰ City of Sand Point, Alaska, Basic Financial Statements, Required Supplementary Information, Supplementary Information, and Government Auditing Standards Reports, Year Ended June 30, 2018, available at: <https://www.commerce.alaska.gov/dkra/DCRAREpoExt/RepoPubs/FinDocs/SandPointFY2018Audit.pdf>. Accessed 11/05/2019.

¹¹¹ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

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 fishery sectors relevant to this analysis is not a salient issue for the Seattle MSA, the scale of engagement is profound, as is the importance to some individual operations.

- In the BSAI groundfish Amendment 80 catcher/processor sector, for the years 2010-2019, on an average annual basis, Seattle MSA ownership address vessels accounted for approximately 80 percent of all the vessels in the sector (Table 7) and for about 80 percent of all sector first wholesale gross revenues (Table 8).
- In terms of vessel dependency as measured by percentage of total first wholesale gross revenues, among Seattle MSA ownership address BSAI groundfish Amendment 80 catcher/processors, relevant BSAI groundfish first wholesale gross revenues accounted for about 80 percent of the total first wholesale gross revenues for these same vessels for all area, species, and gear fisheries combined (Table 9); the analogous figure for the Seattle MSA "community commercial catcher/processor fleet" as a whole was 24.5 percent (Table 10).

The Seattle MSA is also substantially engaged in the BSAI/Area 4 halibut fishery as measured by ownership address of actively participating catcher vessels, among other indicators of engagement. Specifically:

- In the BSAI/Area 4 halibut catcher vessel sector, for the years 2010-2019, on an average annual basis, Seattle MSA ownership address vessels accounted for about 10 percent of all vessels in the sector (Table 12).
- Seattle MSA ownership address vessels alone accounted for 24 percent of all ex-vessel gross revenues of all BSAI/Area 4 halibut catcher vessels on an annual average basis during this time period (Table 13).
- Seattle MSA ownership address BSAI/Area 4 halibut vessels were 19.4 percent dependent on relevant BSAI halibut harvest as measured by a percentage of all ex-vessel gross revenues for these same vessels (Table 14); the analogous figure for the Seattle MSA "community commercial catcher vessel fleet" as a whole was 1.9 percent (Table 15).

Additionally, the Seattle MSA is the location of regional or company headquarters for several the processing firms engaged in the BSAI/Area 4 halibut fishery through ownership of shore-based processing plants operating in Alaska. 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).

6.8 Cross-Cutting Community Engagement Ties

Communities, of course, are not engaged in the relevant BSAI groundfish fisheries in isolation. Rather, they often have multiple interconnections or cross-cutting ties. In this section data are presented or referenced to illustrate the correspondence between: (1) community of ownership address of BSAI groundfish Amendment 80 sector catcher/processors and the homeport of those vessels; (2) community of ownership address of BSAI groundfish Amendment 80 sector catcher/processors and the community of ownership LLPs used on those vessels for the relevant fisheries; (3) levels of employment aboard Amendment 80 catcher/processors and the communities where crew members on those vessels reside.

Data from 2019, the most recent data available, are used in the tables in this section. These data should be taken as illustrating patterns of interactions between communities, rather than an exact representation on the individual entity level. Not illustrated due to the lack of useable product transfer report data (noted in Section 4.5.1) is the nevertheless important relationship of community of catcher/processor ownership address and the communities where processed product is offloaded/transshipped. These landings from catcher/processors can and typically do confer a range of benefits to coastal Alaska communities, including tax revenues tied to those landings and demand for support services and related income and employment, among others.

Table 60 provides information on the correspondence between community of vessel ownership address and homeport community for BSAI groundfish Amendment 80 sector catcher/processors. As shown vessel ownership addresses are concentrated in Seattle and Maine as are homeport designations although there is more variability in the latter. Specifically:

- Among the 15 Amendment 80 vessels with Seattle MSA ownership addresses, 80 percent (12 out of 15 vessels) have Washington (Seattle or Anacortes) homeport designations, while the remaining vessels have Alaska (Dutch Harbor or Kodiak) homeport designations.
- For those vessels with ownership addresses outside the states of Alaska, Washington, and Oregon, 80 percent (4 out of 5 vessels) also have homeport community designations outside of Alaska, Washington, and Oregon, while the remaining vessel has a Washington (Seattle) homeport designation.

Table 60. Correspondence of Community of Vessel Ownership Address and Homeport of BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2019 (most recent data year)

Vessel Ownership Address Community	Vessel Homeport					Total
	Dutch Harbor Alaska	Kodiak Alaska	Anacortes Washington	Seattle* Washington	States Other Than AK/WA/OR	
Seattle MSA, Washington	1	2	1	11		15
All States other than AK, WA, and OR				1	4	5
All Communities Total	1	2	1	12	4	20

*denotes community in the Seattle MSA

Table 61 illustrates the correspondence between community of vessel ownership address and community of LLP license ownership address for those same Amendment 80 catcher/processors in 2019. As shown, LLP license ownership addresses more highly concentrated than vessel ownership or vessel homeport.

Table 61. Correspondence of Community of Vessel Ownership Address and Community of LLP License Ownership Address of BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2019 (most recent data year)

Vessel Ownership Address Community	Community of LLP License Ownership Address		Total
	Seattle* Washington	States Other Than AK/WA/OR	
Seattle MSA, Washington	15		15
All States other than AK, WA, and OR		5	5
All Communities Total	15	5	20

*denotes community in the Seattle MSA

Table 62 provides a summary of the average number of positions and total number of employees aboard Amendment 80 catcher/processors for 2019.¹¹² Table 63 provides information on state of residence of Amendment 80 catcher/processors crew members by state for 2019 (with more detailed information by crew residence by community by state provided in Table 76 in Attachment B [Section 10.2]). As shown, the large majority of crew members hold crew licenses with Washington addresses. Among crew members designating Alaska addresses on their crew licenses, 11 designated Unalaska/Dutch Harbor, eight designated Anchorage, and there was one each from Barrow, Kotzebue, Ninilchik, Ouzinkie, and Wasilla. Table 77 (in Attachment C [Section 10.3]) provides some BSAI groundfish Amendment 80 sector catcher/processor crew demographic information as supplied directly by industry for an earlier Council analysis.

Table 62. Summary Number of Positions and Employees Onboard BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2019 (most recent data year)

Community of Vessel Ownership Address	No. of CPs	Average Number of Positions Onboard				Number of Employees Onboard			
		Fishing (Deck Crew)	Processing	All Other*	Total	Fishing (Deck Crew)	Processing	All Other*	Total
Seattle MSA	15	5.5	28.7	8.9	43.1	180	1,184	340	1,704
Other WA and Other States	5	4.2	25.4	8.2	37.8	31	406	86	523
All Geographies	20	5.2	27.9	8.7	41.8	211	1,590	426	2,227

*Includes officers, engineers, cooks, etc.
Source: Amendment 80 EDR Data

¹¹² Analogous data for 2015-2018 are presented in Section 10.2 (Attachment B).

Table 63. State or Territory of Crew License Address of BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2019 (most recent data year)

State or Territory of Crew Member Residence	Number of Crew Licenses	Number of Communities
Washington	443	51
Alaska	24	8
California	20	15
Maine	15	14
Oregon	10	7
Idaho	8	6
Texas	8	5
Arizona	6	3
Florida	4	4
Utah	4	4
Hawaii	3	2
Minnesota	3	2
Georgia	2	2
Michigan	2	2
Missouri	2	2
New Hampshire	2	1
Puerto Rico	2	1
Connecticut	1	1
Illinois	1	1
Indiana	1	1
Iowa	1	1
Louisiana	1	1
Massachusetts	1	1
Mississippi	1	1
Montana	1	1
Nebraska	1	1
Nevada	1	1
Tennessee	1	1
Virginia	1	1
TOTAL	570	141

Source: Amendment 80 EDR Data

7 Regional and Community-Level Social Impacts by Alternative

7.1 Community Engagement, Dependence, Vulnerability, Resilience, and Risks to Fishing Community Sustained Participation in the BSAI Groundfish Fisheries

The proposed action alternatives for abundance-based management of halibut PSC in the BSAI groundfish fisheries are focused exclusively on the Amendment 80 sector. No direct impacts to communities exclusively engaged in and/or dependent upon other sectors within the commercial BSAI groundfish fisheries (e.g., AFA groundfish catcher/processors operating in the BSAI groundfish fisheries, BSAI groundfish catcher vessels of any size and gear type, and/or shore-based processors that accept deliveries from those catcher vessels) are anticipated.

Community engagement (participation) in the BSAI groundfish Amendment 80 sector fisheries was detailed in terms of the distribution of sectors across communities in Section 5 and within the context of regions and communities in Section 6. Vulnerability of communities to adverse community-level impacts from the proposed action alternatives is in part a function of dependence of the community on the potentially affected BSAI groundfish Amendment 80 sector fisheries and the economic resiliency and diversity of the community. Dependency is influenced by the relative importance of the relevant BSAI groundfish Amendment 80 fisheries to vessels participating directly in the fisheries in comparison to all area, species, and gear fisheries in which those same vessels participate (community Amendment 80 sector vessel diversity); the relative importance of the relevant BSAI groundfish fisheries to all local ownership address catcher/processor vessels participating in all area, species, and gear fisheries combined (community catcher/processor 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 and community resilience is the specific nature of local engagement in the potentially affected BSAI groundfish Amendment 80 fishery sector 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.

Importantly, all the Alaska communities engaged in or dependent upon the BSAI Amendment 80 groundfish fishery are also engaged in or dependent upon the BSAI/Area 4 commercial halibut fishery. The nature, direction, and order of magnitude of potential impacts of the proposed alternatives based on relevant engagement in and/or dependency on the Amendment 80 fishery and the BSAI/Area 4 halibut fishery is described in this section for those Alaska communities engaged in both fisheries. The nature, direction, and order of magnitude of potential impacts of the proposed alternatives based on relevant community engagement in and dependency on the BSAI/Area 4 halibut fishery is described for those communities engaged in that fishery but not in the Amendment 80 fishery in Section 7.2.

7.1.1 BSAI Groundfish Amendment 80 Fishery Dependency and Vulnerability to Community-Level Impacts of the Proposed Action Alternatives among Alaska Communities

The relative importance of the BSAI groundfish Amendment 80 sector fishery likely to be affected by the proposed alternatives 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.

7.1.1.1 Unalaska/Dutch Harbor

Unalaska, unique in scale among Alaska communities, derives substantial public benefit in the form of state shared Fishery Resource Landing Tax revenue from BSAI groundfish catcher/processors, including Amendment 80 sector vessels, making processed-at-sea product transfers in port either for immediate shipping or into cold storage for subsequent shipping. As shown Table 33, on an average annual basis 2010-2019, Unalaska received approximately \$8.3 million per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax (associated with shore-based processing) and Fisheries Resource Landing Tax (associated with product transfers from at-sea processing) revenues combined. Of this amount, about \$3.6 million, or about 44 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$4.7 million, or about 56 percent of the total, derived from Fishery Resource Landing Tax shared revenue. To put these figures in perspective, general fund revenues for the City of Unalaska in Fiscal Year 2019 were approximately \$36 million, of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$8.3 million) would have accounted for roughly 22.8 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$4.7 million) would have accounted for roughly 12.9 percent of fiscal year 2019 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.¹¹³

Table 64 provides information on City of Unalaska tax revenues deriving from direct fishery revenue sources (the city raw seafood tax, the state shared fisheries business tax, and the state shared fisheries resource landing tax) compared to all general fund revenues received by the city for fiscal years 2010-2019.¹¹⁴ As shown, for the City of Unalaska, between roughly 37 percent and 50 percent of all general fund revenues in any given year derive from direct fishery revenue sources, which does not take into account revenues from other taxes and fees from activities in the community that are fishing related (e.g. property taxes paid by fisheries businesses, fuel transfer tax revenues, and harbor fund fee revenues, among others).

¹¹³ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

¹¹⁴ Note that the data in Table 64 (and/or in the analogous tables for Atka [Table 65] and Adak [Table 66] later in this section) are derived from community financial documents and thus may differ from other data sources. Specifically, state shared fisheries revenue may be categorized differently in community documents than in state documents, e.g., DOR and DCCED administered revenues may be lumped or split or revenue may be recognized during different reporting periods. The datasets are internally consistent and should be used as indicators of relative scale rather than compared dollar for dollar across the different datasets.

Table 64. City of Unalaska Selected Fisheries-Related General Fund Revenues, Fiscal Years 2010-2019

Fiscal Year	Revenue (dollars) by Direct Fishery Revenue Source				Direct Fishery Revenue Source Total	All General Fund Revenue	Direct Fishery Revenue Source Total as a Percent of All General Fund Revenue
	Direct Fishery Revenue Source			Direct Fishery Revenue Source Total			
	City Raw Seafood Tax	Shared State Fisheries Business Tax	Shared State Fisheries Resource Landing Tax				
FY 2010	\$3,594,173	\$4,547,084	\$4,676,603	\$12,817,860	\$29,604,371	43.3%	
FY 2011	\$5,371,768	\$3,199,290	\$3,531,739	\$12,102,797	\$29,152,912	41.5%	
FY 2012	\$5,260,999	\$4,143,777	\$3,469,263	\$12,874,039	\$31,634,417	40.7%	
FY 2013	\$4,784,198	\$4,398,441	\$4,898,543	\$14,081,182	\$32,609,892	43.2%	
FY 2014	\$4,449,921	\$4,377,934	\$6,974,887	\$15,802,742	\$34,376,971	46.0%	
FY 2015	\$4,981,770	\$3,639,448	\$5,014,309	\$13,635,527	\$34,525,170	39.5%	
FY 2016	\$5,123,372	\$4,099,315	\$3,034,438	\$12,257,125	\$30,723,626	39.9%	
FY 2017	\$4,657,385	\$4,276,287	\$8,272,661	\$17,206,333	\$34,371,441	50.1%	
FY 2018	\$4,475,150	\$4,014,323	\$4,532,106	\$13,021,579	\$30,300,957	43.0%	
FY 2019	\$4,761,506	\$3,528,499	\$5,220,958	\$13,510,963	\$36,419,248	37.1%	

Source: City of Unalaska, Alaska. Comprehensive Annual Financial Reports, Fiscal Years 2010-2019.
<https://www.commerce.alaska.gov/dcra/dcrarepoext/Pages/FinancialDocumentsLibrary.aspx>. Accessed 4/25/2020.

In terms of support services, Unalaska, with its relatively well-developed fishery support service sector, as noted in Section 6.1.7, and its role as the major shipping port of the BSAI area, could experience indirect impacts from the proposed action alternatives through a decline in economic activity related to the Amendment 80 catcher/processor fleet if product transfers and/or other port calls were to decline as a result of the proposed action; however, there is no straightforward way to quantitatively estimate these impacts.

It is important to note that Unalaska, unlike other ports in the region, has seen the development of a considerable amount of business activity related specifically to the BSAI groundfish catcher/processor fleets, including investment in the local support infrastructure (AECOM 2010). As noted in Table 6 (in Section 4.5.3), Unalaska/Dutch Harbor accounted for two-thirds of all Amendment 80 Alaska port calls during the years 2010-2019, averaging 169 port calls per year by Amendment 80 vessels during that span.¹¹⁵

As noted in Table 76, based on EDR data, in 2019 (the most recent year for which data are available), 11 persons listing Unalaska/Dutch Harbor as their residence address served as crew aboard Amendment 80 vessels, which accounted for 46 percent of all Amendment 80 sector crew members providing Alaska addresses that year. All other Alaska residence address Amendment 80 crew in that same year came from communities outside of the BSAI region.¹¹⁶

¹¹⁵ Also, as shown on Table 60 (in Section 6.8) Dutch Harbor is the only BSAI community currently (as of 2019) listed as the homeport for any Amendment 80 vessels, and only one of two Alaska ports so listed (Dutch Harbor is listed as the homeport for one vessel; Kodiak for two). However, as noted in that section, there is no known information available that correlates homeport designation with expenditures in the community (or even time spent in the community) compared to other vessels in the Amendment 80 fleet that also make port calls in Unalaska/Dutch Harbor.

¹¹⁶ Other Amendment 80 crew members listing Alaska residence addresses in 2019 were from Anchorage (eight individuals), along with Barrow, Kotzebue, Ninilchik, Ouzinkie, and Wasilla (one each). None of communities were otherwise considered substantially engaged in or dependent on the Amendment 80 fishery or the BSAI/Area 4 commercial halibut fishery for the purposes of this analysis.

While Unalaska/Dutch Harbor is clearly the Alaska community most closely associated with activity of the Amendment 80 fleet and therefore potentially the most vulnerable to adverse impacts under the proposed action alternatives, it is also substantially engaged in the commercial directed BSAI/Area 4 halibut fishery, both in terms of its local catcher vessel fleet and local shore-based processing operations and therefore potentially vulnerable to adverse impacts under the no-action alternative. BSAI halibut is a mainstay of the local small vessel fleet, which over the period 2010-2019 generated higher annual average ex-vessel gross revenue from BSAI/Area 4 halibut landings than any other local community fleet in the BSAI region except St. Paul (which was the only community besides Unalaska/Dutch Harbor in the BSAI region with annual average BSAI halibut ex-vessel gross revenue for the local fleet of over \$1 million).

Unalaska/Dutch Harbor was also the only community in the BSAI region with multiple shore-based processors accepting deliveries of BSAI/Area 4 halibut on an annual average basis 2010-2019 and, in combination with the shore-based processor in nearby Akutan, these shore-based processors accounted for more than half of all ex-vessel gross revenue paid to catcher vessels (from all communities combined) participating in the BSAI/Area 4 halibut fishery. In summary, Unalaska/Dutch Harbor could potentially experience adverse impacts under the no-action alternative (in halibut low abundance conditions) or the action alternatives, if Amendment 80 product transfers and/or port calls were to decline, but the local economic sectors, and the individuals participating in those sections, would be different.

No systematically collected information on the demographics of ownership and employment at support services businesses in Unalaska/Dutch Harbor is known to exist. However, a general knowledge of the community would suggest that the individuals working in the support sector are broadly reflective of the general/residential population of the community.

Similarly, while the Unalaska/Dutch Harbor local commercial fishing fleet is typically represented in the Council and other regulatory processes by the Unalaska Native Fishermen's Association which, according to tribal leadership has a close working relationship with the Qawalangin Tribe of Unalaska, membership is not limited to those residents of Alaska Native descent. The demographics of the owners and crew of the specific halibut vessels that would potentially be most likely to experience adverse impacts under the no-action alternative in low abundance conditions are unknown, but a general knowledge of the fleet would suggest that its demographics are largely reflective of the general/residential population of the community as a whole.

In contrast, processing workers in Unalaska/Dutch Harbor have tended to be relatively distinct demographically in relation to the rest of the local population. Processing workers 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 (other than some management personnel) in the community, 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. As of 2018, 7.2 percent of Unalaska's residents were considered low-income, compared to 10.8 percent of Alaska's general population (Table 25 and Section 4.4).

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/Dutch Harbor, if any, from the action alternatives would primarily accrue to those portions of the support sector that focus on the Amendment 80 fleet, while adverse impacts of the no-action alternative that would potentially occur under low abundance conditions would be focused on the local halibut catcher vessel fleet and/or locally operating processors accepting halibut deliveries.

Unalaska, while the largest fishing port in the nation in terms of volume and second largest in terms of value of commercial fishery landings, has a small resident-owned commercial fishing fleet, both in terms of numbers of vessels and the size of those vessels. It is also not a CDQ community, despite having a greater number of Alaska Native residents than any of the APICDA member communities.¹¹⁷ As a result, the local fleet does not have direct access to CDQ quota to use as a stable underpinning of the fleet or a hedge against their vulnerability to potential adverse impacts under the no-action alternative.

Impacts to processing workers could occur as the result of implementation of the no-action alternative in the form of reduced income or employment opportunities, depending on how specific plants and, importantly, their delivering fleets, adapt to changing conditions. While the dependency of these plants on BSAI/Area 4 halibut deliveries is not high compared to other high value species (or other high volume but relatively low value per unit volume species), it is not insignificant and an absolute level of economic dependency as measured by ex-vessel value of landings does not capture the importance a particular fishery may have in the overall annual cycle of the plant (e.g., these landings may occur during otherwise slow times when processing work availability may be down) or the labor hour effort that may be needed, as how labor-intensive processing a particular species or a given product form produced from that species may vary widely. It is not likely, however, that implementation of the no-action alternative would result in high and adverse impacts to processing workers in the form of substantial processor workforce reductions, given the relatively modest level of dependency of the shore-based processing plants in Unalaska/Dutch Harbor on BSAI/Area 4 halibut deliveries compared to those from other BSAI fisheries in which these plants are engaged (although a reduction in processing worker earnings through the loss of labor hours, including overtime hours, may occur).

7.1.1.2 Atka and Adak

Atka

Atka serves as a product transfer location for catcher/processors. As shown Table 33, on an average annual basis 2010-2019, Atka received approximately \$52,000 per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax and Fisheries Resource Landing Tax revenues combined. Of this amount about \$28,000, or about 53 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$25,000, or about 47 percent of the total, derived from Fishery Resource Landing Tax shared revenue.

To put these figures in perspective, total general fund revenue for the City of Atka in Fiscal Year 2019 was approximately \$319,000, of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$52,000) would have accounted for roughly 16.4 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$25,000) would have accounted for roughly 7.8 percent of fiscal year 2019 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.¹¹⁸

¹¹⁷As noted in Section 6.1.1, in 2010, Unalaska's Aleut population was larger than the Aleut populations of the potentially BSAI halibut dependent APICDA member communities (Akutan, Atka, and St. George) combined, and it was only about seven percent smaller than the Aleut populations of all APICDA member communities combined.

¹¹⁸ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

Table 65 provides information on City of Atka tax revenues deriving from direct fishery revenue sources (the city raw seafood tax, the state shared fisheries business tax, and the state shared fisheries resource landing tax) compared to all general fund revenues received by the city for fiscal years 2010-2019. As shown, for the City of Atka, between roughly 37 percent and 65 percent of all general fund revenue in any given year in this period derived from direct fishery revenue sources, which does not take into account revenues from other taxes and fees from activities in the community that are fishing related.

Table 65. City of Atka Selected Fisheries-Related General Fund Revenues, Fiscal Years 2010-2019

Fiscal Year	Revenue (dollars) by Direct Fishery Revenue Source					All General Fund Revenue	Direct Fishery Revenue Source Total as a Percent of All General Fund Revenue
	Direct Fishery Revenue Source				Direct Fishery Revenue Source Total		
	City Raw Seafood Tax	Shared Raw Fish Tax	Shared State Fisheries Business Tax*	Shared State Fisheries Resource Landing Tax*			
FY 2010	\$26,000	na	\$382,458		\$408,458	\$698,370	58.5%
FY 2011	\$41,640	na	\$190,217		\$231,857	\$625,289	37.1%
FY 2012	\$66,860	na	\$319,859		\$386,719	\$993,645	38.9%
FY 2013	\$72,224	na	\$296,627		\$368,851	\$891,192	41.4%
FY 2014	\$64,395	na	\$276,489	\$90,162	\$431,046	\$662,577	65.1%
FY 2015	\$61,168	\$29,615	\$133,931	\$21,349	\$246,063	\$433,073	56.8%
FY 2016	\$69,619	\$34,706	\$113,826	\$13,411	\$231,562	\$392,360	59.0%
FY 2017	\$49,392	na	\$248,632	\$53,611	\$351,635	\$634,547	55.4%
FY 2018	\$23,051	\$15,479	\$177,100	\$23,950	\$239,580	\$508,597	47.1%
FY 2019	\$21,656	\$11,318	\$171,137	\$0	\$204,110	\$318,642	64.1%

*Note: These categories were not reported separately in Atka financial statements for fiscal years 2012 and 2013 and it is not clear if Atka received only state shared fisheries business tax revenues in fiscal year 2010 and 2011 or whether these two categories were combined for those years as well.

Source: City of Atka, Alaska. Certified Financial Statements, Fiscal Years 2014-2019; Certified Financial Audits Fiscal Years 2010-2013. <https://www.commerce.alaska.gov/dcr/dcrarepoext/Pages/FinancialDocumentsLibrary.aspx>. Accessed 4/25/2020.

In terms of support services, Atka has little in the way of a fishery support service sector aside from what is necessary to support its small local fleet. As shown in Table 6 (and noted in Section 4.5.3), Atka averaged approximately two Amendment 80 vessel port calls per year 2010-2019; between one and six of these port calls occurred per year 2015-2018, but none occurred in 2010-2014 or in 2019. While Atka does not have the infrastructure to provide routine support services for larger vessels, it could experience indirect impacts from implementation of the proposed action alternatives through a decline in tax revenues and/or other economic activity related to the Amendment 80 catcher/processor fleet if product transfers and/or other port calls were to decline as a result of the proposed action. While it is assumed that the magnitude of these impacts, particularly in the private sector, would likely be modest, there is no straightforward way to quantitatively estimate these impacts.

Additionally, as Atka is an APICDA CDQ community, its residents benefit at least indirectly from Amendment 80 operations to the extent that APICDA leases out CDQ quota to the Amendment 80 sector, which it does on a regular basis. Like four of the six CDQ groups, APICDA works with Amendment 80 industry partners to have its BSAI multispecies groundfish quota harvested. These operations are dependent on access to some level of BSAI/Area 4 halibut PSC to pursue the groundfish fisheries; if an action alternative is implemented that constrains the harvest of APICDA's CDQ to levels substantially below full utilization, residents of the CDQ communities, including Atka, would potentially be adversely

impacted. The quantification of those impacts, however, are not possible with existing information at present, given the range of potential adaptive responses to the situation.

While Atka is potentially vulnerable to adverse impacts under the proposed action alternatives, at least to a modest degree, it has historically been substantially engaged in and substantially dependent on the commercial directed BSAI/Area 4 halibut fishery, both in terms of its local catcher vessel fleet and the local shore-based processing operation and therefore potentially vulnerable to adverse impacts under the no-action alternative in halibut low abundance conditions. As discussed in Section 6.1.5, however, the shore-based processing plant in Atka was closed in 2018 and 2019, and is not open in 2020, although mitigation measures put in place by APICDA has offset some of the direct economic impacts to local fishermen of this closure. Under the no-action alternative, adverse impacts to the BSAI/Area 4 directed halibut fishery under low abundance conditions could make the restart of the Atka plant and the reestablishment of an active local fleet more challenging than would otherwise be the case.

Atka is particularly vulnerable to adverse community level impacts as the local halibut fishery has been one of the few private sector sources of employment and income in the community and thereby potentially a key factor in retaining working age residents. As shown in Table 26, there were a total of 10 students enrolled in the Atka school for the 2019-2020 school year, the minimum number of students required for state funding; the loss of any families with school age children from the community raises concerns about the ability to keep the school open which, in turn, would make retention of families with school age children in the community all the more difficult.

Adak

Adak, like Atka, serves as a product transfer location for catcher/processors. As shown in Table 33, on an average annual basis 2010-2019, Adak received approximately \$194,000 per year from the Alaska Department of Revenue in the form of shared state Fishery Business Tax and Fisheries Resource Landing Tax revenues combined. Of this amount about \$115,000, or about 59 percent of the total, derived from Fishery Business Tax shared revenue and approximately \$79,000, or about 41 percent of the total, derived from Fishery Resource Landing Tax shared revenue.

To put these figures in perspective, total operating revenue for the City of Adak in Fiscal Year 2018 (the last full year for which data are available) was approximately \$1.5 million, of which an average year of shared state fisheries tax revenues combined 2010-2019 (\$194,000) would have accounted for roughly 12.5 percent of the total; shared state Fisheries Resource Landing Tax revenues alone for an average year 2010-2019 (\$79,000) would have accounted for roughly 5.1 percent of fiscal year 2018 total. It is also important to note that Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.¹¹⁹

Table 66 provides information on City of Adak tax revenues deriving from direct fishery revenue sources (the city raw seafood tax, the state shared fisheries business tax, and the state shared fisheries resource landing tax) compared to all general fund revenues received by the city for fiscal years 2010-2019. As shown, for the City of Adak, between roughly 25 percent and 49 percent of all general fund revenue in any given year during this period derived from direct fishery revenue sources, which does not take into account revenues from other taxes and fees from activities in the community that are fishing related.

¹¹⁹ As noted in the Amendment 80 fishery taxes discussion in economic analysis (Section 3.3.2.3) of the EIS to which this SIA is appended, much of the total Fisheries Resource Landing Tax revenue at the state level is likely generated in the at-sea sector of the AFA pollock fishery; that same section provides an estimate of total Amendment 80 sector Fishery Resource Tax revenue, which is not recapitulated here, but no estimates are available at the community level.

Table 66. City of Adak Selected Fisheries-Related General Fund Revenues, Fiscal Years 2010-2019

Fiscal Year	Revenue (dollars) by Direct Fishery Revenue Source						Direct Fishery Revenue Source Total	All General Fund Revenue	Direct Fishery Revenue Source Total as a Percent of All General Fund Revenue
	Direct Fishery Revenue Source								
	City Raw Seafood Tax	State Fisheries Business Tax from DOR	State Fisheries Resource Landing Tax from DOR	State Fisheries Business Tax from DCCED	State Fisheries Resource Landing Tax from DCCED	Direct Fishery Revenue Source Total			
FY 2010	na	\$311,439	\$97,736	\$308,178	\$0	\$717,353	\$1,464,483	49.0%	
FY 2011	na	\$13,567	\$54,949	\$98,973	\$92,919	\$260,408	\$1,015,485	25.6%	
FY 2012	na	\$143,848	\$40,219	\$122,743	\$165,964	\$472,774	\$1,916,341	24.7%	
FY 2013	\$108,094	\$75,469	\$61,035	\$145,816	\$115,360	\$505,774	\$1,507,930	33.5%	
FY 2014	\$140,193	\$168,370	\$86,452	\$139,135	\$111,999	\$646,149	\$1,410,574	45.8%	
FY 2015	\$65,349	\$122,489	\$54,660	\$108,405	\$40,443	\$391,346	\$1,310,497	29.9%	
FY 2016	\$76,313	\$67,968	\$1,683	\$110,149	\$14,351	\$270,465	\$1,084,898	24.9%	
FY 2017	\$108,602	\$44,636	\$103,209	\$82,413	\$158,858	\$497,718	\$1,208,202	41.2%	
FY 2018	\$290,839	\$34,908	\$74,247	\$121,121	\$79,832	\$600,947	\$1,549,197	38.8%	
FY 2019*	\$316,604	\$34,131	\$161,256	\$73,844	\$121,952	\$707,787	\$1,591,014	44.5%	

*Data for FY 2019 through 5/31/2019.

Source: City of Adak, Alaska. Annual Consolidated Financial Statements Fiscal Years 2010-2018 and Operating and Capital Budget, Fiscal Year 2020.

<https://www.commerce.alaska.gov/dca/dcrepoext/Pages/FinancialDocumentsLibrary.aspx>. Accessed 4/25/2020.

In terms of fishery support services, Adak has few capabilities aside from its deep water port, a fueling station capable of accommodating large vessels, available housing stock that can support crew changes, and the ability to support large-scale aircraft operations at its airport. However, within its equally modest local economy, marine fuel sales and other support service activity associated with the Amendment 80 port calls that do occur are important to the community. As noted in Table 6 (in Section 4.5.3), with an annual average of 29 port calls per year 2010-2019, Adak was second only to Unalaska/Dutch Harbor within the BSAI region. Adak could experience indirect impacts from implementation of the proposed action alternatives through a decline in tax revenues and/or other economic activity related to the Amendment 80 catcher/processor fleet if product transfers and/or other port calls were to decline as a result of the proposed action, but there is no straightforward way to quantitatively estimate these impacts.

While Adak is potentially vulnerable to impacts under the proposed action alternatives, at least to a modest degree, it has historically been engaged in the commercial directed BSAI/Area 4 halibut fishery, both in terms of its local catcher vessel fleet and the local shore-based processing operation and therefore potentially vulnerable to adverse impacts under low halibut abundance conditions under the no-action alternative as well. Adak has historically had difficulty attracting and keeping a residential catcher vessel fleet and, as discussed in Section 6.1.5, there has been instability in the management of the shore-based processing plant in Adak over the period 2010-2019, which included intermittent closures. Adak shore-based processing has faced, from the local perspective, a number of fishery management related challenges over the years, compounded by the basic logistical and economic challenges of operating in a local economy that remains in transition from that of relatively large military community to a small civilian community. The plant is not open as of late summer 2020, having shut down most recently in June 2020. Under the no-action alternative, adverse impacts to the BSAI/Area 4 directed halibut fishery under low abundance conditions could make the restart of the Adak plant and the establishment of an active residential fleet more challenging than would otherwise be the case.

Adak, like Atka, is particularly vulnerable to adverse community level impacts resulting from challenges in retaining working age residents, especially those with families. As shown in Table 26, there were a

total of 18 kindergarten through 12th grade students (and 19 pre-kindergarten through 12th grade students) enrolled in the Adak school for the 2019-2020 school year, but it is known that following the closure of the local processing plant a family with four school age children has left the community (Minor, personal communication, 8/6/2020). With a minimum of 10 students required for state funding, the potential for additional loss of families with school age children raises concerns about the ability to keep the school open which, in turn, would make retention of families with school age children in the community all the more difficult.

Potential Environmental Justice Concerns

As shown in Table 25, as of 2010, 95.1 percent of Atka's population was considered minority, which is the same proportion of Alaska Native residents in the community's population. As of 2018, 17.1 percent of Atka's residents were considered low-income, which is well above the proportion of low-income residents in Alaska's general population (10.8 percent). Given the nature of potential impacts to the community of Atka summarized above, disproportionate high and adverse impacts to either minority or low-income populations in Atka are theoretically possible, under both the action alternatives and, under halibut low abundance conditions, the no-action alternative.

Also as shown in Table 25, as of 2010, 81.9 percent of Adak's population was considered minority, with Alaska Native residents making up about 5.5 percent the community's population. As of 2018, 26.6 percent of Adak's residents were considered low-income, which was far above the proportion of low-income residents in Alaska's general population (10.8 percent).

Approximately two-thirds of Adak's population lived in group quarters in 2010 as, like in Unalaska/Dutch Harbor, processing workers in Adak have tended to live in processor-supplied housing; to be relatively distinct demographically in relation to the rest of the local population; to have been overwhelmingly recruited from a labor pool from outside the community; and 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. However, it is important to recognize with the locally operating shore-based processor shut down, the processing crew component of the population is not currently (as of August 2020) in the community. If baseline conditions are assumed to end in 2019, given the nature of potential impacts to the community of Adak summarized above, disproportionate high and adverse impacts to either minority or low-income populations in Adak are theoretically possible, under both the action alternatives and, under halibut low abundance conditions, the no-action alternative. If, however, the baseline condition for the assessment of impacts includes conditions extant at the time of the implementation of the ultimately selected alternative, both the minority population and the low-income population of Adak may more closely resemble that of the general population of Alaska, meaning that environmental justice concerns may be a non-issue.

7.1.1.3 Other Alaska Communities

Togiak

Togiak, as described in Section 6.5.4, is notable as a product transfer location for catcher/processors and while revenues show considerable variability over time, the level of contribution of Fishery Resource Landing Tax revenues relative to total general fund revenues received by the city is relatively modest, with the average annual contribution 2010-2019 (\$36,000) accounting for about 2.9 percent of total general fund revenues (\$1.3 million) in fiscal year 2019. Additionally, as noted in that section, Fisheries Resources Landing tax revenue represents tax revenues received from all catcher/processor product

transfers/offloads in all fisheries, not just those of Amendment 80 vessels participating in the BSAI groundfish fisheries, as no fishery specific data are available.

As shown in Table 6 (and discussed in Section 6.5.4), over the period 2010-2019, Togiak had an annual average of approximately 18 Amendment 80 vessel port calls per year, making it the community with the third highest average of Amendment 80 port calls in the BSAI region over this period. Private sector economic activity related to Amendment 80 port calls has been modest, however, due to a lack of support facilities and service providers of a scale that could routinely accommodate such relatively large vessels. Taken together with the tax revenue data, this information would suggest that Togiak is not particularly vulnerable to adverse community level impacts under the proposed action alternatives if Amendment 80 product transfers and/or the number port calls of those vessels were to decline somewhat under those alternatives.

With respect to engagement in and dependency on the BSAI/Area 4 commercial halibut fishery, as shown in Table 14, catcher vessels with Togiak ownership addresses active in the BSAI/Area 4 halibut fishery derived about 83 percent of their total ex-vessel gross revenues 2010-2019 from fisheries other than the BSAI/Area 4 halibut fishery; Table 15 shows that all commercial fishing vessels with Togiak ownership addresses derived approximately 93 percent of their total ex-vessel gross revenues from fisheries other than the BSAI halibut fishery during this same time period.

While potential loss of these levels of halibut revenue is not trivial, Togiak is not as acutely vulnerable in economic terms to community level adverse impacts under the no-action alternative during periods of low halibut abundance as are a number of other halibut communities. This is not to say that the BSAI/Area 4 halibut fishery is unimportant to Togiak harvesters and/or the shore-based processors in Togiak (and nearby Twin Hills) as resource that is available during an otherwise slow time and a diversification opportunity in an area that has otherwise been largely dependent on the herring and salmon fisheries.

Other CDQ Communities

CDQ entities and their constituent communities could be impacted by potential changes to the BSAI groundfish Amendment 80 sector fisheries related to the proposed action alternatives in multiple ways, two of the most direct of which are (1) through their quota holdings in the potentially affected BSAI groundfish multispecies fisheries and (2) through CDQ group investments in direct participation in the potentially affected Amendment 80 sector.

Four of the six CDQ groups routinely have their multispecies groundfish CDQ quota by industry partners in the Amendment 80 sector. None of these four groups has ownership interest in any of the Amendment 80 entities. To the extent that the proposed action alternatives have the potential to reduce royalty payments by Amendment 80 entities to CDQ groups due to increased harvest expenses and/or leave CDQ fish in the water, the harvest of which has been contracted to Amendment 80 entities, CDQ groups, and their constituent communities are at potential risk of adverse impacts under these alternatives. How effectively these risks would be mitigated by adaptive fishing behaviors on the part of the Amendment 80 partners is unknown and it is otherwise not possible to quantify these risks with available data.

A fifth CDQ group holds partial ownership interest in multiple vessels in the Amendment 80 sector and thus is at some financial risk under the proposed action alternatives, but again this risk is not quantifiable data. This CDQ group, as well as the sixth group, does not routinely use Amendment 80 entities to harvest their multispecies groundfish quota (including partially owned entities), but the quota of these groups normally leased out to an AFA entity, is sometimes harvested in at least modest amounts by Amendment 80 vessels when quota swaps between BSAI groundfish fishery participants occur as they attempt to fill out their harvest plans over the course of a season. While potential adverse impacts resulting from the amounts of quota at potential risk are not quantifiable with available data, they are understood to be minimal.

St. Paul, as shown in Table 6, has averaged the fourth highest number of port calls of Amendment 80 vessels among Alaska communities on an annual average basis 2010-2019. Alaska Department of Revenue

data suggest, however, that these port calls do not involve an amount of revenue from taxable product transfers that are substantial compared to other fishery tax revenue sources and, as noted in Section 6.2.7, St. Paul does not otherwise appear to experience substantial economic benefits from these port calls, based on a lack of port facilities and support service businesses of a scale capable of supporting relatively large vessels on a routine basis. As a result, no substantial adverse impacts to St. Paul related to any changes to patterns of Amendment 80 port calls resulting from implementation of either of the action alternatives are anticipated.

It is also important to note that efforts directed toward exploration or development of a greater degree of direct engagement in the BSAI Pacific cod fishery through local small vessel fleets is underway in some CDQ communities, including Nome, Savoonga, and St. Paul, and has previously been contemplated in False Pass and Atka. At present, it does not appear that the proposed action alternatives are likely to adversely impact these efforts, although potential adverse impacts under the no-action alternative in low halibut abundance conditions could make diversification more difficult, particularly if such diversification was to be capitalized through revenue earned in the BSAI/Area 4 halibut fishery.

Communities Outside of the CDQ Regions

Sand Point, as noted in Section 6.6.2, does serve as a product transfer location for catcher/processors, but the origin (BSAI or GOA) of the fish processed into the product transferred is not discernable from the available data and the level of shared tax revenue associated with these transfers returning to the city is relative to other fishery related tax revenues. As shown in Table 6, Sand Point experienced a three Amendment 80 port calls during the years 2010-2019. As shown in that same table, only other community outside of the CDQ regions that experienced Amendment 80 port calls 2010-2019 was Kodiak, which had one port call in 2011. Given the modest size and scale of local support services businesses in Sand Point and the infrequent nature of Amendment 80 port calls in Sand Point and Kodiak, neither community would appear vulnerable to substantial adverse impacts if local Amendment 80 product transfers or port calls were to decline from current levels under the proposed action alternatives.

As noted in Table 76, based on EDR data, in 2019 (the most recent year for which data are available), a total of 24 persons listing an Alaska residence address served as crew aboard Amendment 80 vessels. Of these, none were from CDQ communities and 13 (54 percent) were in communities outside the BSAI region.¹²⁰ Specifically, there were eight crew members from Anchorage and one each from Barrow, Kotzebue, Ninilchik, Ouzinkie, and Wasilla. None used Sand Point or Kodiak addresses.

As shown in Table 16 and discussed in Section 6.6.1, a single shore-based processor in Sand Point and multiple shore-based processors in Kodiak accepted deliveries of BSAI/Area 4 halibut in each year 2010-2019. No catcher vessels with Sand Point ownership addresses are shown in the data used for this analysis as participating in the BSAI/Area 4 halibut fishery in any year 2010-2019. As shown in Table 59, on an annual average basis 2010-2019, approximately 12 catcher vessels with Kodiak ownership addresses participated in the fishery. Potential impacts of the proposed alternatives to Sand Point and Kodiak's participation in the BSAI/Area 4 halibut fishery are discussed in Section 7.2.3.1, below.

7.1.2 BSAI Groundfish Amendment 80 Fishery Dependency and Vulnerability to Community-Level Impacts of the Proposed Action Alternatives among Pacific Northwest Communities

Given the degree of centralization of ownership of the BSAI groundfish Amendment 80 sector in the Seattle MSA (Table 7), the centralization of the support services provided by Seattle-based firms (described in Section 6.7), and the concentration of Amendment 80 crew member residence in the state of Washington (Table 63) potential adverse economic impacts associated with proposed action alternatives

¹²⁰ 11 used addresses in Unalaska/Dutch Harbor which, while not a CDQ community, is within the APICDA CDQ region (and the BSAI region).

described in the DEIS to which this SIA is appended would largely accrue to the Seattle MSA in particular and the Pacific Northwest in general, with the limited exceptions described in Section 7.1.1.

As noted in economic analysis in the DEIS, numerous variables influence the impacts of PSC limit reduction on the Amendment 80 sector during halibut low abundance conditions, including environmental, regulatory, and behavioral variables. While sector participants cannot directly modify environmental or regulatory variables, they can alter behavioral variables through halibut avoidance strategies, all of which come with avoidance costs. These avoidance strategies include search time looking for grounds with lower halibut bycatch, fishing less efficient areas where there are fewer halibut, and changing catch handling techniques such as deck sorting, among others. These costs, which impact net revenues, are incurred regardless of whether the PSC limit becomes a constraint and cannot be quantified with available data. Other costs associated with PSC reduction include foregone groundfish revenues if halibut becomes constraining. These costs impact gross revenues but quantifying costs of foregone groundfish revenue resulting from PSC reductions would be speculative and highly uncertain (see DEIS Section 6.3.2).

Potential Environmental Justice Concerns

In terms of absolute numbers (based on existing participation/engagement patterns), whatever adverse impacts related to BSAI groundfish Amendment 80 catcher/processor direct employment and income that would occur as the result of implementation of the proposed action alternative ultimately selected for implementation 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 the social impact assessment for an earlier BSAI halibut PSC limit revisions analysis (AECOM 2015), employee demographic information-based 2014 Equal Employment Opportunity Commission (EEOC) data were supplied by four firms with catcher/processers operating in the Amendment 80 catcher/processor sector. Together, these firms accounted for more than half of (10 of 18) trawl catcher/processers operating that year (2015) in the BSAI groundfish fisheries. The demographic data supplied by those firms are presented in Section 10.3 (Attachment C). As shown in that attachment, 66 percent of all employees working on the 10 catcher/processers 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 disproportionate high and adverse impacts were to accrue to the Seattle MSA ownership address BSAI groundfish Amendment 80 catcher/processor workforce due to implementation of a proposed action alternative, environmental justice would potentially be an issue of concern.

Of potential concern would be loss of income opportunities for crew, with increased expenses in operations with additional halibut avoidance measures, and/or more time away from home with time-consuming and/or labor-intensive measures such as increased deck sorting. Although there are theoretically many more alternate employment and income opportunities for workers in a large urban area than in smaller communities or rural settings, there may not be comparable employment and earning potential ashore as is available to workers aboard these vessels, even in an otherwise robust job market, especially employees who have worked their way up from entry level positions.

7.2 Community Engagement, Dependence, Vulnerability, Resilience, and Risks to Fishing Community Sustained Participation in the Relevant BSAI Halibut Fisheries

7.2.1 Overview

The problematic nature of the no-action alternative for directed halibut fishery participants under halibut low abundance conditions is inherently recognized in the Council's purpose and need statement. The potential for BSAI halibut-related community-level impacts from the proposed action alternatives in any given community is in part a function of present and future engagement in and dependence of the community on the potentially affected BSAI halibut fisheries. Similar to what was described for BSAI Amendment 80 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 the BSAI/Area 4 commercial halibut fishery would potentially benefit in low halibut abundance conditions from implementation of the action alternatives due to the effective redistribution of overall allocations of halibut between the groundfish and directed halibut fisheries that would occur to greater or lesser degrees under the different action alternatives. These beneficial impacts, were they to occur, would be realized in the near-term following action alternative implementation (and the occurrence of low abundance conditions relevant to the design of the alternative) and potentially in the long-term, if low abundance conditions were to persist over time.

It is further assumed that directed BSAI halibut fisheries, including the commercial, subsistence, and sport halibut fisheries, would potentially benefit from implementation of the proposed action alternatives relative to the degree that the BSAI halibut spawning stock biomass itself would potentially benefit in low abundance conditions, if at all, from implementation of the individual action alternatives. These potential benefits, were they to occur, would not be immediately apparent in the relevant halibut fisheries and the full extent of their impact would not be realized for several years.

Within a relatively few Alaska communities, specifically those discussed in Section 7.1.1, beneficial impacts to these directed halibut fisheries could, under specific conditions, potentially serve to partially mitigate if not offset adverse impacts to participation in BSAI Amendment 80 groundfish fisheries at the community level, if not at the individual or sector operational level, given the different combinations of engagement in and dependency on the different fisheries, although differences between the fisheries and sectors within the fisheries make potential assessments of net outcomes on the community level less than straightforward. Many of the Alaska communities most heavily engaged in or dependent upon the BSAI/Area 4 halibut fisheries are not engaged in the BSAI Amendment 80 groundfish fisheries (except, in

many cases, through participation in the CDQ program and then, in most cases, only through multispecies groundfish CDQ quota lease fees).

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 Amendment 80 groundfish fishery participants under some of the proposed action alternative scenarios, at least over the short term, as discussed in the economic analysis in the DEIS to which this community analysis is appended. These figures, of course, do not consider 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 potentially improving the overall vitality of the BSAI halibut fisheries over the long run.

7.2.2 Background

In general, the potential beneficial impacts to the various halibut fisheries under the proposed action alternatives in low abundance conditions would be spread more widely among Alaska communities than would be the potential adverse impacts to the Amendment 80 fisheries. While there are many more Alaska communities directly engaged in the BSAI halibut fisheries than in the BSAI groundfish fisheries in general, among the communities that are assumed to have the greatest potential for realizing substantial beneficial impacts under the proposed action alternatives under low abundance conditions are the 20 communities in the BSAI region selected by use of initial screening criteria for communities potentially substantially engaged in and/or substantially dependent on the BSAI halibut fishery¹²¹ and those 16 communities across all regions identified by the PCFA exercise as highly engaged in either BSAI commercial halibut harvesting or processing sectors (described in overview in Section 4.3.2 and in detail in Section 10.1 [Attachment A]).

It is important to note that as described in detail in the DEIS to which this SIA 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 (along with ex-vessel gross revenues and crew payments, influenced both by volume of harvest and price per pound received by the vessel). While price may fluctuate due to many factors, it is assumed that low abundance conditions under the no-action alternative would result in adverse impacts to potentially substantially engaged or substantially dependent BSAI halibut communities. Adverse impacts could be compounded for those CDQ communities, such as St. Paul, that have chosen to focus local community fisheries development investments on direct engagement in the BSAI/Area 4 halibut fishery in terms of infrastructure, processing, and/or harvesting capacity.

¹²¹ The initial screening criteria for communities potentially substantially engaged in and/or substantially dependent on the BSAI halibut fishery included all communities with a 2010-2019 annual average harvest engagement of 2.0 or more catcher vessels with local ownership addresses active in the BSAI/Area 4 halibut fishery and/or communities with a 2010-2019 annual average BSAI/Area 4 halibut processing engagement of 0.5 or more locally operating shore-based processors that accepted BSAI/Area halibut deliveries. A total of 20 communities in the BSAI region met these criteria. Eighteen are listed by name in Table 11 as having met the harvester criteria (Akutan, Atka, St. George, and Unalaska/Dutch Harbor, APICDA region; St. Paul, CBSFA region; Chefornak, Hooper Bay, Kipnuk, Mekoryuk, Newtok, Nightmute, Quinhagak, Toksook Bay, and Tununak, CVRF region; Nome and Savoonga, NSEDC region; and Dillingham and Togiak, BBEDC region) and two additional communities appear in Table 18 as having met the processor criteria (Adak, APICDA region; and Twin Hills, BBEDC region) in addition to those listed in that table that also met the harvester criteria.

7.2.3 Potential Differential Distribution of Impacts to Communities Engaged in the Commercial Halibut Fishery

7.2.3.1 Alaska Communities

As noted in Section 5.2, 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 BSAI region community with easily the highest 2010-2019 annual average catcher vessel Area 4 halibut ex-vessel gross revenues (at approximately \$2.4 million, one-third higher than Unalaska, the next closest community in the BSAI region), was also one of three communities with virtually complete community fleet dependency on BSAI halibut ex-vessel gross revenues (99.4 percent) (Table 15). The other two communities with equally high local fleet dependency on BSAI halibut ex-vessel gross revenues, St. George (100 percent) and Savoonga (99.9 percent), have smaller scale community fleets, each with total annual average ex-vessel gross revenues 2010-2019 of just under \$200,000.

Among the other communities or small groups of communities for which ex-vessel gross revenue totals can be disclosed, three other communities (Adak/Atka, Akutan, and Mekoryuk) have local ownership address catcher vessels fleets that were 85 percent or more dependent on BSAI halibut ex-vessel gross revenues on an annual average basis for the years 2010-2019, while two others were 25 percent or more dependent (Unalaska/Dutch Harbor and Toksook Bay) (Table 15). In terms of ex-vessel gross revenues to BSAI halibut vessels specifically, among the potentially substantially engaged or substantially dependent halibut communities for which revenues can be disclosed on an individual community or aggregated community basis (as shown in Table 14), nine have dependencies of 90 percent or greater and one is more than 85 percent dependent.

As described in Section 6, in all but two cases (Adak and Unalaska/Dutch Harbor), potentially substantially engaged or substantially dependent BSAI halibut communities located in the BSAI region itself are member communities of CDQ entities one of which has partial ownership interest in Amendment 80 vessels and four of which routinely lease CDQ quota for harvest to Amendment 80 industry partners. These CDQ entities and their constituent communities would be vulnerable to potential decreases in revenues during low abundance halibut conditions under the proposed alternatives being considered. Ultimately, the level of direct impact to an individual CDQ entity and level of direct or indirect impact to its member communities cannot be quantitatively estimated given the role of individual entity business decision making, specific contractual agreements, levels of investment, range of investments with regard to fishery and geography, and/or overall portfolio holdings inside and outside of commercial fishing, among myriad other factors.

While each CDQ entity pursues individual strategies, 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. As detailed in the regional discussions in Section 6, different CDQ groups have faced different circumstances and pursued different strategies regarding the establishment or sustainment of an in-region small boat commercial halibut fishery. Some CDQ regions are coincident with Area 4E which has a 100 percent CDQ reserve, essentially meaning that engagement of small, locally owned vessels in a commercial halibut fishery would necessarily be mediated by the CDQ group; in other CDQ regions with different levels of CDQ reserve, individuals, assuming they own or otherwise have the means to acquire or access IFQ quota, have the option of engaging in the fishery directly without going through the local CDQ entity.

For those CDQ groups whose experience in, or assessment of, supporting an in-region small boat commercial halibut fishery would indicate that the effort is not or would not be sustainable, especially under low abundance conditions, it is unknown whether the beneficial impacts that may accrue from implementation of one or more of the proposed alternatives would be sufficient to pass a threshold whereby in-region halibut fisheries would be considered sustainable even in low abundance conditions. For this reason, it is not possible to predict whether implementation of any one of the proposed alternatives would potentially result in a different pattern of in-region CDQ community commercial small boat direct BSAI/Area 4 halibut fishery engagement than is seen at present.

Potential Environmental Justice Concerns

The potentially substantially engaged or substantially dependent BSAI/Area 4 halibut communities as determined by use of initial screening criteria that would potentially experience high and adverse impacts under halibut low abundance conditions under the no-action alternative, and that would potentially benefit the most from the proposed action alternatives under halibut low abundance conditions, include communities with high proportions of minority populations and high proportions of low-income populations. In terms of minority populations, of the 17 potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria, in 2010 minority residents (including Alaska Native residents) accounted for more than 90 percent of the population in 13 communities, between 80 and 90 percent of the population in two communities, and more than 65 percent of the population in the remaining two communities. In terms of Alaska Native populations specifically:

- Of the 17 communities identified as BSAI halibut dependent communities, 15 are members of CDQ groups.
- Of the potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria that are also CDQ communities, Alaska Native residents make up over 90 percent of the total population in 11 of the communities (Atka, Cheforak, Hooper Bay, Kipnuk, Mekoryuk, Newtok, Nightmute, Quinhagak, Toksook Bay, Tununak, and Savoonga), over 80 percent of the total population in two communities (St. Paul and St. George), and over 50 percent in one community (Nome).
- In the other BSAI halibut-dependent CDQ community (Akutan), and in the two BSAI halibut-dependent non-CDQ communities (Adak and Unalaska), Alaska Native residents make up between five and six percent of the total population of these communities. In the case of Akutan, if individuals residing in shore-based processor housing are excluded, most community residents are Alaska Native.

In terms of low-income populations, of the 17 potentially substantially engaged or substantially dependent BSAI halibut communities as determined by use of initial screening criteria, as of the 2014-2018 5-Year American Community Survey:

- One had 50 percent or more of the residents living below the poverty threshold (Hooper Bay).
- One had 40 percent or more of the residents living below the poverty threshold (Savoonga).
- Five had between 30 percent and less than 40 percent of their residents living below the poverty threshold (Kipnuk, Newtok, Nightmute, Quinhagak, and Tununak).
- Four had between 20 percent and less than 30 percent of their residents living below the poverty threshold (Adak, Cheforak, Mekoryuk, and Toksook Bay).
- Three had a higher percentage of their residents living below the poverty threshold than the State of Alaska as a whole did (10.8 percent) but less than 20 percent of their residents living below the poverty threshold (Akutan, Atka, and St. Paul).

- Three had smaller percentage of their residents living below the poverty threshold than the State of Alaska as a whole (St. George, Unalaska, and Nome).

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

7.2.3.2 Pacific Northwest Communities

As noted in Section 6.7, the Seattle MSA is also substantially engaged in the BSAI/Area 4 halibut fishery as measured by ownership address of actively participating catcher vessels, among other indicators of engagement. Its engagement in the BSAI halibut fishery is not as dominant relative to that of Alaska communities, however, compared to its relative engagement in the BSAI groundfish fisheries likely to be most directly affected by the proposed action alternatives. No community level adverse impacts related to the BSAI halibut fishery are anticipated to the Seattle MSA under either the no-action alternative or the proposed action alternatives.

7.2.4 Potential Impacts to BSAI Communities Engaged in the Subsistence Halibut Fishery

Subsistence harvest of halibut would not be directly affected by the proposed action alternatives. Unlike the commercial halibut fishery, the subsistence halibut fishery would not benefit from potential reallocations between the BSAI Amendment 80 groundfish fishery and the BSAI/Area 4 commercial halibut fishery under the proposed action alternatives. As noted in the DEIS to which this community analysis is appended, the IPHC accounts for incidental halibut removals in the groundfish fisheries, recreational and subsistence catches, and other sources of halibut mortality before setting commercial halibut catch limits each year. Each year, the IPHC estimates subsistence harvest by using the actual harvest level from the previous year as a base, and then adjusts the estimate by considering how accurate the previous year's harvest estimate was compared to actual harvest for that year. While subsistence removals are accounted for in setting the commercial halibut catch limits, subsistence halibut harvests are not constrained by this process. There are no caps on removals from Area 4 in the subsistence halibut fishery analogous to quotas established annually for the commercial halibut fishery, nor are there size limits on halibut harvested for subsistence use. In Areas 4A and 4B, encompassing the communities of Akutan, Unalaska, Nikolski, Atka, and Adak, under a SHARC permit there is a harvest limit of 20 halibut per person per day and no possession limit and a limit of 30 hooks per person onboard up to 90 hooks per vessel; in Areas 4C, 4D, and 4E, which encompass all of the other BSAI area communities, there are no daily or possession limits and there are no hook limits under SHARC permits.¹²²

Subsistence halibut harvests (and harvesters) could indirectly benefit from the implementation of the proposed action alternatives if the proposed action ultimately implemented were to result in changes to the spatial distribution of halibut spawning stock biomass, an overall improvement in availability of halibut for subsistence harvest, and/or an accompanying decrease in effort and expense in harvesting halibut for subsistence use (or if the action alternatives were to result in protection of the halibut spawning biomass in a manner that increased accessibility of halibut to subsistence users over the long term). Beyond direct use of halibut as a subsistence resource, the proposed alternatives could have impacts on other subsistence pursuits. These types of impacts fall into two main categories:

¹²² <https://www.fisheries.noaa.gov/alaska/subsistence-fishing/frequently-asked-questions-alaska-subsistence-halibut-program> accessed 8/11/2020.

- *Impacts to other subsistence pursuits because of loss of income from the BSAI Amendment 80 groundfish fishery under the action alternatives (or the BSAI/Area 4 halibut fishery under halibut low abundance conditions under the no-action alternative).* This income, typically derived from CDQ quota leasing fee revenue, could be used to purchase fuel, vehicles, or other subsistence-related gear, or otherwise offset expenses required to engage in a range of subsistence pursuits. These types of impacts could be experienced by anyone engaged in the potentially affected fisheries who uses income derived from the fishery to help capitalize subsistence pursuits, regardless of the community of residence of the individual involved or the location of those subsistence pursuits. These types of impacts, then, could occur in areas far removed from the location of the management action itself (e.g., these types of impacts could, for example, theoretically be felt by residents of relevant CDQ communities if there were a decline in BSAI Amendment 80-related groundfish revenues that would have otherwise been put to use in underwriting subsistence efforts).
- *Impacts to other subsistence pursuits because of the loss of opportunity to use commercial fishing gear and vessels for subsistence pursuits.* This would result from vessels not being ready to go as a result of being prepared for commercial fishing or from the simultaneous harvest of fish and game resources during commercial fishing forays, including retention of halibut from commercial catch for subsistence use, where these assets are used in such a manner that commercial and subsistence catches are jointly produced, based on shared use of fixed and variable inputs.

In general, however, while the indirect impact of the proposed action alternatives on subsistence is difficult to assess for multiple reasons, joint production impacts in particular are likely to be concentrated among small halibut catcher vessel owners under halibut low abundance conditions under the no-action alternative.

In terms of distribution of subsistence halibut fishing across communities, locally important subsistence halibut fishing takes place in many BSAI communities not directly engaged in the BSAI Amendment 80 groundfish fisheries; in a few cases, however, the communities most heavily engaged in the BSAI Amendment 80 fisheries are the communities most engaged in the subsistence halibut fishery. For example, Unalaska/Dutch Harbor, one of the communities most heavily engaged in the relevant BSAI Amendment 80 groundfish fisheries, also is one of the highest annual average halibut subsistence harvest communities as identified within the limitations of the available data. It is important to remember, however, that recent halibut subsistence data for BSAI communities are limited, so caution should be used in interpreting these data.

7.2.5 Potential Impacts to BSAI Communities Engaged in the Sport Halibut Fishery

Similar to the subsistence harvest of halibut, the sport harvest of halibut would not be directly affected by the proposed action alternatives as, unlike the commercial halibut fishery, the sport halibut fishery would not benefit from potential reallocations between the BSAI groundfish fishery and the BSAI commercial halibut fisheries if BSAI halibut PSC limits were reduced under low abundance conditions. As noted in Section 5.5, due to the relatively small volume of recreational use in Area 4 and the management under a daily bag limit rather than an area/sector allocation, IPHC accounts for recreational removals using a projection. There are no caps on removals from Area 4 in the sport halibut fishery analogous to quotas established annually for the commercial halibut fishery, but sport effort is constrained in Area 4 by a sport fishing season that extends from February 1 to December 31 and a bag limit of two halibut of any size per person per day unless otherwise specified, as noted in Section 5.5. Sport halibut harvests (and the guided and unguided sport halibut fisheries) could indirectly benefit from the implementation of the proposed action alternatives if reducing BSAI halibut PSC limits under low abundance conditions were to ultimately result in an overall improvement in availability of halibut for sport harvest, an accompanying decrease in effort and expense in harvesting halibut for sport use, and/or an increase in interest in halibut sport fishing in the region prompted by an increasing abundance of larger halibut.

7.2.6 Potential Cumulative Small/Rural Community and Cultural Context Issues

This SIA has largely focused on community impacts associated with the implementation of proposed BSAI halibut abundance-based management of PSC limit alternatives through the use of quantitative fishery information and through characterizations of a number of Alaskan regions and communities that describe the magnitude of engagement and dependency on both the BSAI Amendment 80 groundfish fishery and the BSAI/Area 4 commercial halibut fishery. This approach provides an analysis of anticipated socioeconomic impacts that may accompany implementation of the no-action and proposed action alternatives. It should be noted, however, that fishing regulatory actions can result in a wide range of sociocultural impacts in rural fishing communities. For many residents of these communities, commercial fishing is not seen as a stand-alone socioeconomic activity, 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. Several researchers have explored the relationship between contemporary fishery management actions and the sociocultural impacts that can result, including impacts to identity.

The cultural importance of halibut (as a species) and halibut fishing (as traditional activity) is well documented in the anthropological literature for Alaska Native tribal groups throughout Alaska, including the Yup'ik, Aleut, Alutiiq, and Tlingit. In addition to being a primary subsistence resource for many coastal groups, halibut feature prominently in legends and parables. It is not uncommon to see halibut iconography in carvings, paintings, and textile handicrafts throughout the region, suggesting its traditional cultural importance.

In the BSAI region specifically, comments on an earlier BSAI halibut PSC limit revision SIA analysis (AECOM 2015) highlighted sociocultural importance of halibut for the residents of St. George and St. Paul. As described by community leaders, the phasing out of the commercial fur seal harvest in early 1980s forced a transition to commercial halibut fishing that now involves a high proportion of residents in both communities either directly or indirectly. However, prior to the beginning of the commercial halibut fishery in the Pribilofs, halibut fishing was a key subsistence activity through which traditional practices and traditional knowledge was passed down from one generation to another. In one essay published by St. Paul resident Larry Merculieff, the author describes landing a large halibut while reflecting on his youth and the connection he feels to his ancestors by engaging in subsistence halibut fishing (Merculieff n.d.). He notes during his description of reeling the halibut aboard his skiff:

Prior to the invention of the cotton line, my ancestors used strong lengths of kelp for their hand-lines. The smell, taste, and feel of this wondrous place in the middle of the Bering Sea were the same as what my ancestors experienced. This Sea is my experiential history book and a personal link to my ancestors. ...

Like the kayak to the Sea, I had to intimately connect with the halibut in order to feel her every nuance and intention, in order to succeed in bringing her on board. This connection is the foundation for what is often termed by native peoples as our Traditional Knowledge and Wisdom.

I witnessed how the men would take information in through use of all their senses, about the clouds, color of water, direction of drift, speed of drift, timing between tides, movement of wind, cloud formations, type of sea bottom, and shape and movement of the Sea in the areas we were in. I began to understand the value of self-awareness and necessity of remaining connected to the Sea, the air, and the land for success in catching halibut and to be safe. I was learning an ancient language of communication with the Bering Sea, Mother Earth, and Father Sky, one that allowed our people survive and thrive in one of the most challenging of conditions for hundreds of generations.

The intersection of commercial fishery management and subsistence resource use has also been a topic of recent research in the Bering Sea. For example, a relatively recent study documenting subsistence activities in the Bering Sea communities of Akutan, St. Paul, Togiak, Emmonak, and Savoonga found that survey respondents provided a range of economic, environmental, and personal explanations for recent changes in their subsistence harvesting activities (Fall et al. 2013). Reedy-Maschner and Maschner (2012) also found that fishermen who participate in commercial fishing in the region are often central providers in subsistence networks in their local community and as involvement in commercial fishing changes in small, rural Alaskan communities, the level of access to subsistence resources can change. It is assumed that the decline of the in-region, small boat commercial halibut fishery in low halibut abundance conditions in the CVRF region likely has altered access to halibut as a subsistence resource (beyond the direct U32 retention from commercial catch described Section 5.4.3 as well as elsewhere above), no studies are apparently yet available to document how sharing networks may have evolved under those changed conditions.

While sustained participation of fishing communities in the BSAI Amendment 80 groundfish or BSAI/Area 4 commercial halibut fishery would not appear to be directly or at immediate risk from implementation of no-action or action alternatives, the available literature and recent NPFMC analyses 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 action alternatives would serve to provide for more opportunities for the success of small-scale commercial halibut fisheries during periods of low halibut abundance, overall sustained participation in a range of local fisheries by residents of the smaller communities in particular would be more secure.

In cumulative impact terms, some of the BSAI/Area 4 halibut communities are facing existential challenges based on myriad factors both fishing and non-fishing related. In several cases, including Atka and St. George (and Adak to a lesser degree), communities are particularly vulnerable to adverse community level impacts under halibut low abundance conditions as participation in the local halibut fishery has been one of the few private sector sources of employment and income in the community and thereby potentially a key factor in retaining working age residents in the community. School enrollments in Atka and Adak are near the minimum number required to retain state school funding; the loss of any families with school age children from the community raises concerns about the ability to keep the school open which, in turn, would make retention of other families with school age children in the community all the more difficult. In St. George, the closed in 2017 and remains closed.¹²³ While the sustainability of fishing communities

¹²³Beyond the Aleutian/Pribilof region, schools with enrollments near the minimum state funding threshold in communities formerly or intermittently engaged in the BSAI/Area 4 commercial halibut fisheries include Platinum, the site of a regional shore-based processing plant that formerly accepted deliveries of BSAI/Area 4 halibut and was the address of at least minimal catcher vessel participation in the fishery 2010-2019 in the CVRF region, and Clark's Point in the BBEDC region, which has had intermittent/minimal participation in the fishery in the last few years. The school in False Pass, an APICDA community which is the site of a shore-based processing plant that intermittently accepted

themselves depends on far more than any particular management action or set of actions, providing for socioeconomically viable access to the BSAI/Area 4 commercial halibut fishery under low abundance conditions would potentially make an incremental contribution toward community stability.

deliveries of BSAI/Area 4 halibut during the period 2010-2019, was below the state funding threshold for enrollments in the 2019-2020 school year.

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Angel Drobnica – Aleutian Pribilof Islands Community Development Association
Tom Enlow – UniSea
Luke Fanning – Aleutian Pribilof Islands Community Development Association
Mark Fina – United States Seafoods
Stephen Francis – Trident Seafoods
Abby Fredrick – Silver Bay Seafoods
Jeff Kauffman – Central Bering Sea Fishermen’s Association
Nicole Kimball – Pacific Seafood Processors Association
Simon Kineen – Norton Sound Economic Development Corporation
Ron Kjorsvik – UniSea
John Lepore – NOAA General Counsel
Todd Loomis – Ocean Peace, Inc.
Courtney Lyons – University of Alaska Fairbanks, College of Fisheries and Ocean Sciences
Jimmer MacDonald – Mac Enterprises/Charter Vessel Miss Alyssa
Dave Magone – Charter Vessel Lucile
Steven Minor – Ocean2Table Alaska, LLC
Grant Mirick – Aleutian Pribilof Islands Community Development Association
Julie Raymond-Yakoubian – Kawerak, Inc.
Tom Robinson – Qawalangin Tribe
Todd McMelon – Bering Select
Mateo Paz-Soldan – City of St. Paul
Darryl Pelkey – F/V Daybreak
Matt Robinson – Bristol Bay Economic Development Corporation
Trevor Shaisnikoff – F/V Cape Kalekta
Gary Torres – Trident Seafoods
Jim Touza – Icicle Seafoods
Chris Salts – Ounalashka Corporation
Nick Souza – Coastal Villages Seafoods
Darryl Thompson – City of Togiak
George Vernon – Charter Vessel Aftermath
Stephanie Warpinski – NOAA Fisheries Alaska Regional Office, Sustainable Fisheries
Sinclair Wilt – Westward Seafoods
Paul Wilkins – Coastal Villages Seafoods
Chris Woodley – Groundfish Forum

10 Attachments

10.1 Attachment A: Fisheries Engagement Indices for BSAI/Area 4 Halibut Communities

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The National Marine Fisheries Service (NMFS) has developed a framework to create quantitative indices to help understand community well-being and participation in marine fisheries.^{124, 125} The Alaska Fisheries Science Center's Economic and Social Sciences Research Program has adapted this framework to develop a set of performance metrics to track fisheries participation over time using pre-existing data for all communities participating in commercial fisheries. These performance metrics provide information to examine the degree to which Alaska communities participate in different aspects of commercial, recreational, and subsistence fisheries.^{126, 127} This analysis focuses specifically on those communities engaged in IPHC Area 4 halibut harvesting and processing activities. The purpose of this analysis is to explore the degree to which communities are engaged in Area 4 halibut harvesting and processing in Alaska fisheries and how their participation has changed over time. These indices can be used to provide information about the degree to which communities have sustained participation in this fishery over time to support NMFS and NPMFC decision making processes as they relate to National Standard 8.¹²⁸

10.1.1 Methods

10.1.1.1 Commercial Fisheries Engagement Indices

Communities were included in the analysis based on the activity of vessels that are prosecuting the IPHC Area 4 halibut fishery over the period 2010-2018. This analysis considers two somewhat distinct aspects of community engagement in commercial fisheries in Alaska: a) commercial processing engagement reflects activities associated with vessel landings and actual fish deliveries in the community and associated processing employment, municipal tax revenues, demand for supplies, and profits; b) commercial harvesting engagement reflects activities associated with the community of residence of the vessel owners engaged in this fishery as that community also benefits from the fisheries activity and associated income, including some portion of crew and other supplies that will also be procured in this

¹²⁴ Jepson, M., & Colburn, L. L. (2013). *Development of social indicators of fishing community vulnerability and resilience in the US southeast and northeast regions*. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

¹²⁵ A map of the most recent social indicators for coastal communities in the U.S. is available at: <https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map>

¹²⁶ Kasperski, S., & Himes-Cornell, A. (2014). Indicators of fishing engagement and reliance of Alaskan fishing communities. *Alaska Fisheries Science Center Quarterly Report feature (January-February-March 2014)*.

¹²⁷ Himes-Cornell, A., & Kasperski, S. (2016). Using socioeconomic and fisheries involvement indices to understand Alaska fishing community well-being. *Coastal Management*, 44(1), 36-70.

¹²⁸ National Standard 8 states "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirement of paragraph (2) [i.e., National Standard 2], in order to (a) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities."

location. The communities that are highly engaged in processing in Alaska are not always the same as those engaged in the harvesting, and this analysis will consider these two aspects of engagement and their impacts separately.

All communities in Alaska with activities in these fisheries are included in the analysis,¹²⁹ and non-Alaska communities are grouped into 5 groupings: the Seattle metropolitan statistical area (MSA), Other Washington, Oregon, and All Other States. Communities were included in the processing engagement analysis if any vessels made IPHC Area 4 halibut landings in the community from 2010-2018 and in the harvesting engagement analysis if the owner of a vessel that fished in the fisheries resided in the community for any year from 2010 through 2018.¹³⁰ Processing engagement is represented by the amount of landings and associated revenues from landings in the community, the number of vessels delivering any Area 4 halibut in the community, and the number of processors in the community processing Area 4 halibut. Harvesting engagement is represented by the Area 4 halibut landings and revenues associated with vessels owned by community residents (regardless of the location of landing), the number of vessels with Area 4 halibut landings owned by residents in the community, and the number of distinct resident vessel owners whose vessels made Area 4 halibut landings in any community. By separating commercial processing from commercial harvesting, the engagement indices highlight the importance of fisheries in communities that may not have a large amount of landings or processing in their community but have a large number of fishermen and/or vessel owners that participate in commercial fisheries based in the community.

To examine the relative harvesting and processing engagement of each community, a separate principal components factor analysis (PCFA) was conducted each year for each category to determine a community's engagement relative to all other Alaska communities. There are nine years in the study and two PCFAs are conducted each year (processing engagement and harvesting engagement) for a total of 18 different PCFAs summarized below.

PCFA is a variable reduction strategy that separates a large number of correlated variables into a set of fewer, linearly independent components. The first component from each PCFA, which by definition explains the most variation in the data, is used to create quantitative indices of engagement for each community by using the regression method of summing the standardized coefficient scores multiplied by the included variable values. A unique processing index and harvesting index value for each community in each year is created using the first un-rotated extracted factor from the PCFA, 14 of the 18 PCFAs resulted in single factor solutions with second factor eigenvalues below 1.00. Each index is normalized to have a mean of zero and a standard deviation of one for each year across communities. These indices are relative scores in that they represent each community's engagement in commercial fisheries within a single year relative to all other communities in that year. Indices are then appended across all years to create a time series of relative engagement in these two aspects of commercial fisheries over time.

Communities that scored above one (above one standard deviation from the mean of zero) for any year are classified as highly engaged for that particular year. These communities are used in additional analyses to explore the changes in their participation for communities that were highly engaged for all 9 years from 2010-2018 for processing engagement or harvesting engagement. It is important to note that since these are relative indices, a large change in the total number of active vessels over time will only cause a change in an index if one community loses a larger share of their vessels (or other commercial fisheries activities) than another community. If the change in number of active vessels (or other commercial fishing activities) are directly proportional to the existing number of vessels across communities, there will not be a change in the indices over time.

¹²⁹ Eagle River is included as part of Anchorage and Douglas is included as part of Juneau.

¹³⁰ The owner's community is determined from the CFEC vessel registration each year.

10.1.1.2 Regional Quotient

The regional quotient is a measure of the importance of the community's Area 4 halibut activities in terms of pounds landed or revenue generated from all Area 4 halibut fisheries. It is calculated as the landings or revenue attributable to a community, divided by the total landings or revenue from all communities and community groupings. The regional quotient is reported for revenue from landings in a community (similar to processing engagement). The regional quotient uses the same criteria for inclusion as the processing and harvesting engagement indices and is presented for all communities that were highly engaged for at least one year from 2010-2018.

10.1.2 Results

This section will report performance metrics of community participation in Alaska fisheries from 2010-2018. Data were collected for 59 communities or community groupings throughout the U.S. that had either some commercial Area 4 halibut fisheries landings or residents who owned vessels that were used in commercial Area 4 halibut fishing during this period. There were 27 communities that had some Area 4 halibut landings occurring in their community and were included in the commercial processing engagement analysis. In contrast, 54 of the 59 communities had a resident who owned a vessel that participated in commercial Area 4 halibut fishing and therefore were included in the commercial harvesting engagement analysis.

10.1.2.1 Area 4 halibut Commercial Processing Engagement

The results of the commercial processing engagement PCFA analyses are shown in Table 67 which presents the eigenvalues, factor loadings, total variance explained, and Armor's theta reliability coefficient (Armor, 1974) for all of the variables included in each PCFA. The results suggest somewhat strong relationships among variables, particularly among ex-vessel value, pounds, and number of delivering vessels, and that a single index based on the first extracted factor explains nearly 70% of the variation in each of the variables in each year.

Table 67. Commercial Processing Engagement PCFA Results

Year	Eigenvalues				Factor Loadings				1 st Eigenvalue Percent variance explained	Armor's Theta
	1	2	3	4	Ex- vessel value	Pounds landed in community	Number of vessels delivering	Number of processors		
2010	2.68	0.86	0.46	0.00	0.96	0.96	0.79	0.46	0.67	0.84
2011	2.79	0.82	0.39	0.00	0.93	0.94	0.83	0.59	0.70	0.85
2012	2.78	0.81	0.41	0.00	0.93	0.93	0.81	0.62	0.69	0.85
2013	2.77	0.77	0.45	0.00	0.94	0.93	0.80	0.61	0.69	0.85
2014	2.92	0.92	0.16	0.00	0.96	0.97	0.94	0.43	0.73	0.88
2015	3.25	0.68	0.07	0.00	0.97	0.97	0.97	0.64	0.81	0.92
2016	3.28	0.67	0.05	0.00	0.97	0.97	0.98	0.66	0.82	0.93
2017	3.06	0.90	0.04	0.00	0.98	0.99	0.99	0.39	0.76	0.90
2018	3.21	0.72	0.07	0.00	0.98	0.97	0.97	0.61	0.80	0.92

In addition to the goodness of fit statistics of the analyses provided in Table 67, each PCFA provides an index score for each of the 27 communities included in the analyses. These index scores are presented in Table 68 for the six communities that were highly engaged (index score above one, which is one standard

deviation above the mean of zero) for at least one year from 2010-2018, and these cells are shaded in Table 68. The index is an indicator of the degree of participation in a community relative to the participation of other communities. It is a measure of the presence of commercial fishing in the federal fisheries in Alaska through fishing activity including pounds landed, revenue, processors, and the number of delivering vessels in the Area 4 halibut fisheries.

Table 68. Communities highly engaged in Area 4 halibut commercial processing for one or more years from 2010-2018

	Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Adak		-0.75	0.14	0.86	0.20	0.22	0.29	0.34	0.34	1.52
Akutan		1.42	1.34	1.09	1.32	1.06	0.83	1.39	1.46	1.60
Anchorage		-0.50	1.51	1.48	1.03	0.78	-0.20	-0.60	-0.56	-0.29
Kodiak		0.59	0.35	0.28	0.55	0.75	1.27	1.31	0.66	0.08
Saint Paul Island		2.40	2.24	0.81	0.74	0.09	0.40	0.40	0.61	0.50
Unalaska/Dutch Harbor		3.58	3.33	3.80	3.93	4.35	4.39	4.21	4.34	3.93

Note: Shaded cells are index scores above one (highly engaged) for at least one year from 2010-2018.

Of the six communities found in Table 68 and displayed in Figure 3, only Unalaska/Dutch Harbor was highly engaged in commercial processing all 9 years from 2010-2018. Unalaska/Dutch Harbor has the highest engagement scores over time, with each of the other five communities starting from very different positions and experiencing different trends over time with Adak increasing in processing engagement since 2010, St. Paul Island and Anchorage experiencing declines over the same period, and Kodiak and Akutan remaining relatively consistent over time. Adak experienced the largest increase in its processing engagement index score in 2018 and was the first year in which the community's processing engagement index score was above one and therefore deemed a highly engaged community. Anchorage's decline may be due to changes in the way processing operations listing Anchorage as their *intent to operate location* even if the plant is not located in Anchorage. Future versions of this analysis will attempt to disentangle these relationships, especially as they relate to processing operations in the BSAI region.

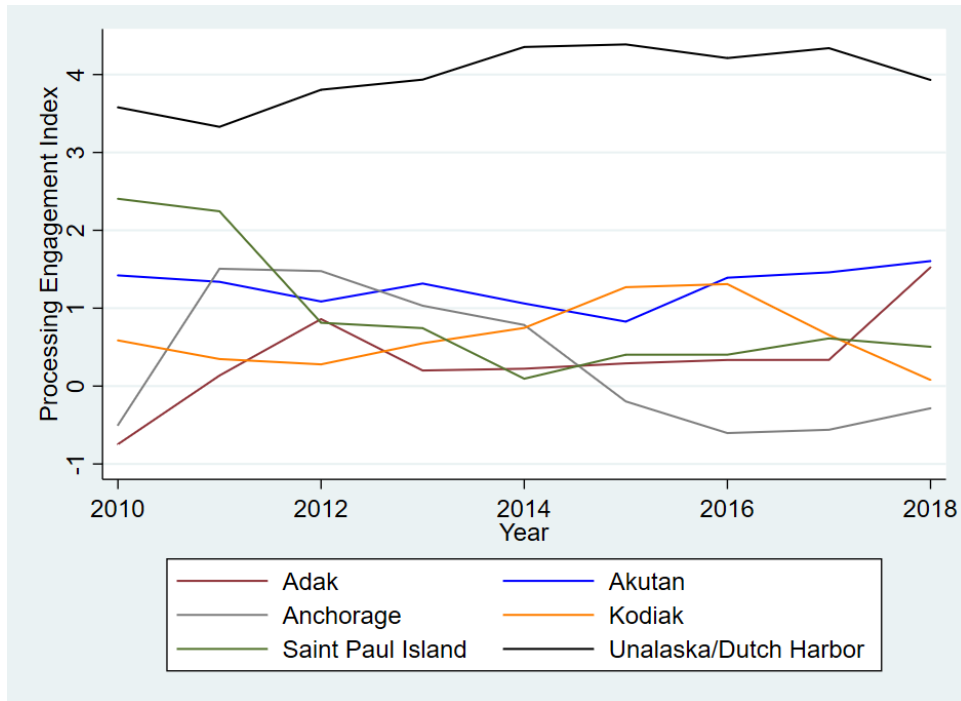


Figure 3. Index scores of communities highly engaged in commercial Area 4 halibut processing for at least one year from 2010-2018.

10.1.2.2 Processing Regional Quotient

Another measure of a community’s participation in commercial Area 4 halibut fisheries is its processing regional quotient of revenues, defined as the share of commercial revenues within a community out of the total North Pacific Area 4 halibut revenues.¹³¹ It is an indicator of the percentage contribution in revenue landed in that community relative the total revenue from all communities throughout the U.S. Figure 4 shows the processing regional quotient for revenue from 2010-2018.

¹³¹ The regional quotient for pounds is not calculated as pounds and revenues across communities are very highly correlated for a single species and does not show meaningful differences across communities, but is available

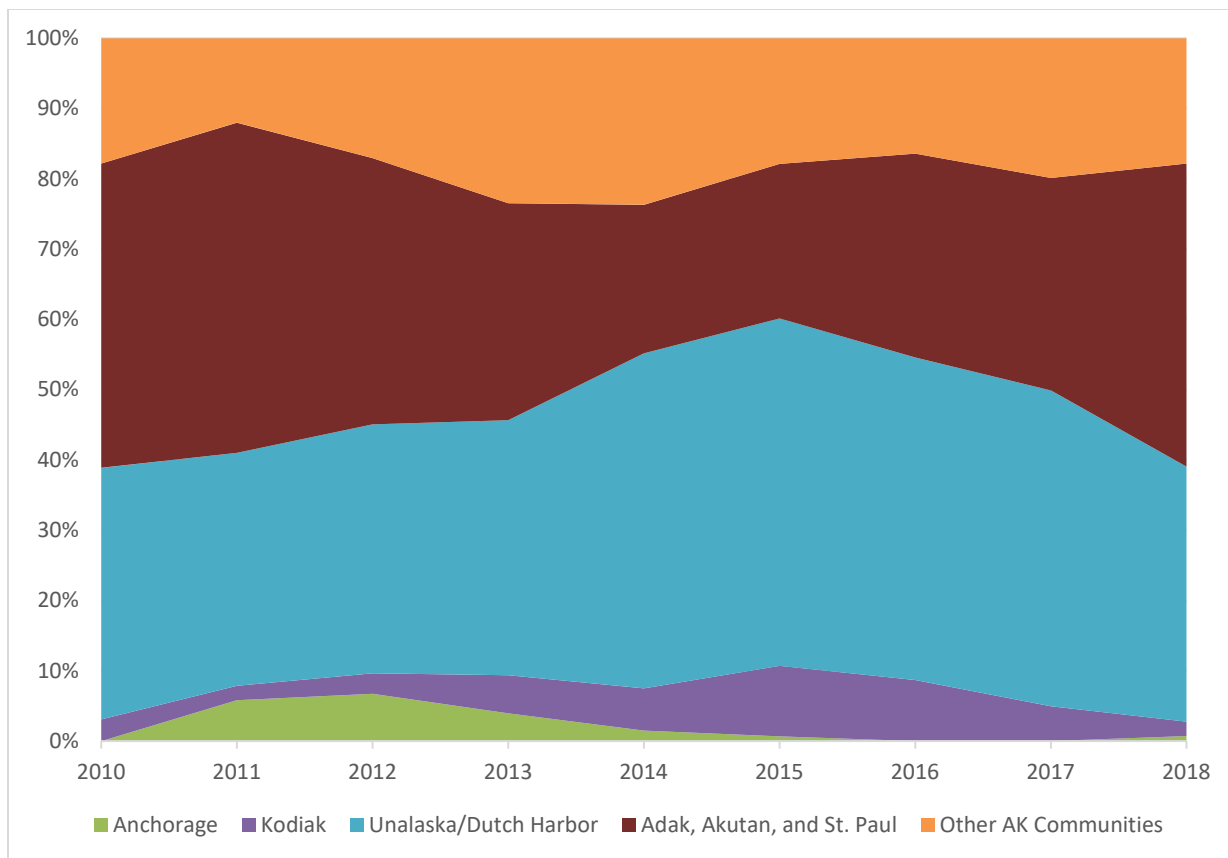


Figure 4. Processing regional quotient of revenue for communities highly engaged in commercial Area 4 halibut processing for all years from 2010-2018.

The most prominent community for processing Area 4 halibut in terms of ex-vessel revenue over this period has been Unalaska/Dutch Harbor, which accounts for approximately 41% of the value of Area 4 halibut retained in the North Pacific on average. This is followed by the grouping of Adak/Akutan/St. Paul Island (grouped for confidentiality purposes) at 34%, followed by all Other Communities at 18%.

10.1.2.3 Commercial Area 4 Halibut Harvesting Engagement

The results of the commercial Area 4 halibut harvesting engagement PCFA analyses are shown in Table 69 which presents the eigenvalues, factor loadings, total variance explained, and Armor’s theta reliability coefficient (Armor, 1974) for all of the variables included in each PCFA. The results suggest somewhat strong relationships among variables and that a single index based on the first extracted factor explains approximately 70% of the variation in each of the variables in each year.

Table 69. Commercial Harvesting Engagement PCFA Results

Year	Eigenvalues				Factor Loadings				1 st Eigenvalue Percent variance explained	Armor's Theta
	1	2	3	4	Ex- vessel value by resident owned vessels	Pounds landed by resident owned vessels	Number of vessels owned by residents	Number of vessel owners		
2010	2.89	1.11	0.00	0.00	0.85	0.85	0.85	0.85	0.72	0.87
2011	2.73	1.27	0.00	0.00	0.82	0.83	0.83	0.82	0.68	0.84
2012	2.85	1.14	0.00	0.00	0.84	0.85	0.84	0.84	0.71	0.87
2013	2.81	1.19	0.00	0.00	0.84	0.83	0.84	0.84	0.70	0.86
2014	3.41	0.59	0.00	0.00	0.92	0.93	0.93	0.92	0.85	0.94
2015	3.58	0.42	0.00	0.00	0.95	0.95	0.94	0.95	0.90	0.96
2016	3.63	0.36	0.00	0.00	0.95	0.95	0.95	0.95	0.91	0.97
2017	3.57	0.43	0.00	0.00	0.94	0.94	0.94	0.94	0.89	0.96
2018	3.69	0.31	0.00	0.00	0.96	0.96	0.96	0.96	0.92	0.97

Index scores derived from the PCFA results are presented in Table 70 for the 13 communities that were highly engaged (index score above one, which is one standard deviation above the mean of zero) for any year from 2010-2018. These cells are shaded in Table 70. The harvesting engagement index is an indicator of the degree of participation in a community relative to the participation of all other communities in Alaska. It is a measure of the presence of commercial Area 4 halibut fishing through residents who own commercial fishing vessels including Area 4 halibut pounds landed, revenue, the number of vessels harvesting Area 4 halibut, and the total number of vessel owners harvesting Area 4 halibut in a community.

Table 70. Communities highly engaged in commercial harvesting for one or more years from 2010-2018

	Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
All Other States		-0.24	-0.26	-0.20	0.08	0.46	0.26	0.47	0.54	1.02
Homer		1.22	1.63	2.03	1.55	1.90	2.10	2.40	2.74	3.00
Juneau		0.28	0.44	0.27	0.25	1.11	0.76	0.63	-0.13	-0.10
Kodiak		2.30	1.67	1.56	1.79	1.82	1.85	2.33	1.58	1.57
Mekoryuk		1.48	1.44	1.34	1.30	0.90	-0.54	-0.53	-0.53	-0.54
Other Washington		0.67	0.52	0.21	0.30	0.94	0.89	1.02	1.02	1.40
Saint Paul Island		1.91	1.81	1.95	2.13	2.71	2.04	1.76	2.37	2.59
Savoonga		0.21	0.02	0.54	0.39	1.08	1.02	0.74	0.81	0.42
Seattle MSA		4.59	4.55	4.70	4.61	4.67	5.11	4.96	4.86	4.31
Togiak		-0.05	0.17	0.64	0.15	1.04	1.16	1.22	1.25	1.12
Toksook Bay		1.82	2.13	1.92	1.94	0.49	-0.54	-0.53	-0.53	-0.54
Tununak		1.23	1.28	1.26	1.40	-0.35	-0.54	-0.53	-0.53	-0.54
Unalaska/Dutch Harbor		0.97	0.71	0.81	0.84	0.96	1.38	1.14	0.96	1.49

*Shaded cells are index scores above one (which is one standard deviation above the mean of zero) for at least one year from 2010-2018.

Figure 5 displays the commercial Area 4 halibut harvesting engagement index for the 13 communities listed in Table 70. These trends will be explored in more detail below, but the most apparent trend from Figure 5 is that the Seattle Metropolitan Statistical Area (MSA – which includes King, Snohomish and Pierce Counties in Washington) grouping has a substantially higher level of harvesting engagement than many of the Alaska communities and community groupings, averaging 4.71 over the entire period while the next two highest average index scores are for St. Paul Island and Homer at 2.14 and 2.06, respectively.

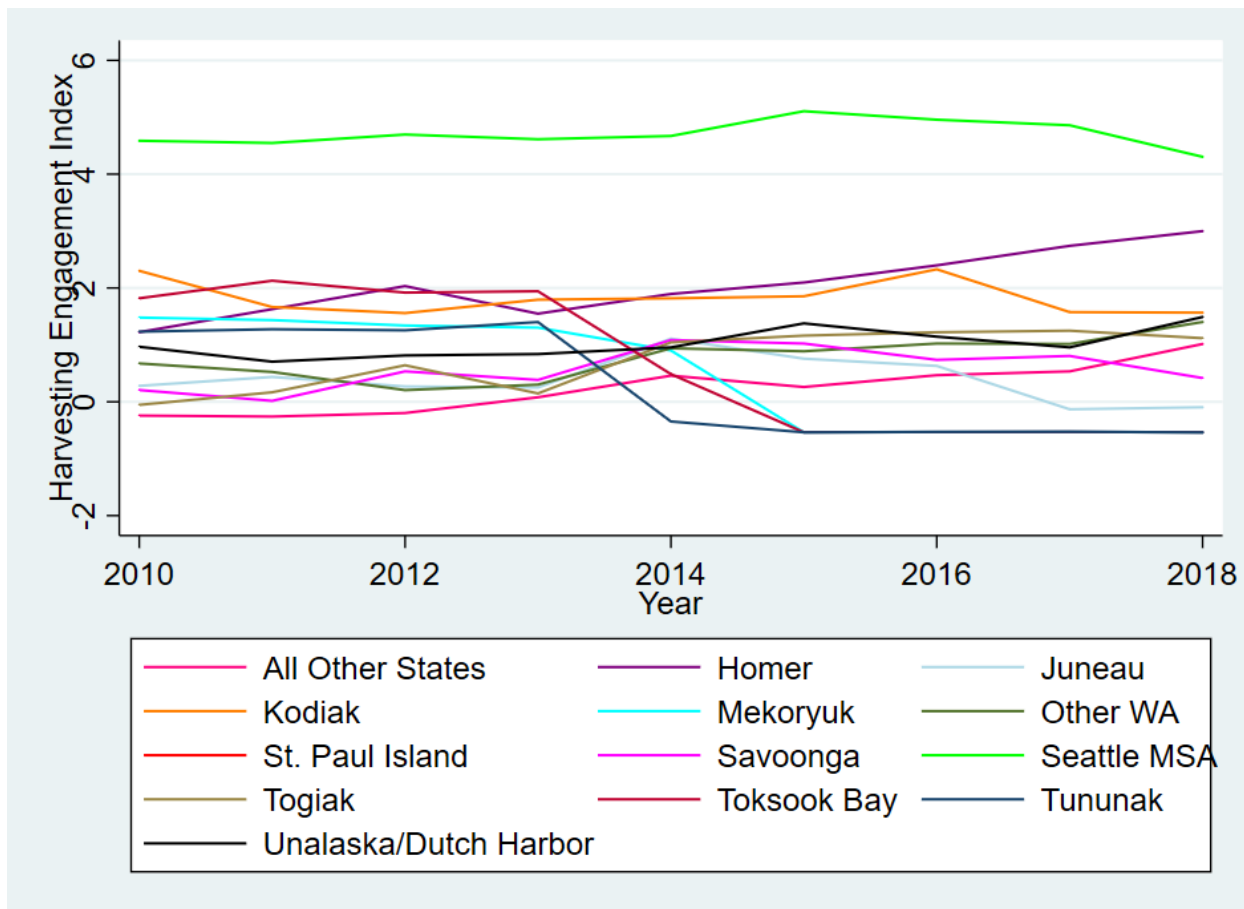


Figure 5. Index scores of communities highly engaged in commercial Area 4 halibut harvest for at least one year from 2010-2018.

Of the 13 communities listed in Table 70 and shown in Figure 5, four communities were highly engaged in commercial harvesting for all years from 2010-2018 (Figure 6). They are Homer, Kodiak, St. Paul Island, and the Seattle MSA. The Seattle MSA has by far the highest harvesting engagement scores over time, with fairly consistent index scores from 2010-2018 and experienced a slight decline 2018 relative to the average of 2013-2017. Both St. Paul Island and Kodiak have had periods of higher and lower engagement with this fishery over time but have experienced nearly opposite trends from 2016-2018 with St. Paul Island experiencing increases and Kodiak experiencing declines. Homer has experienced a fairly substantial increase in commercial Area 4 halibut harvesting engagement scores, which went up from 1.22 in 2010 to 3.00 in 2018.

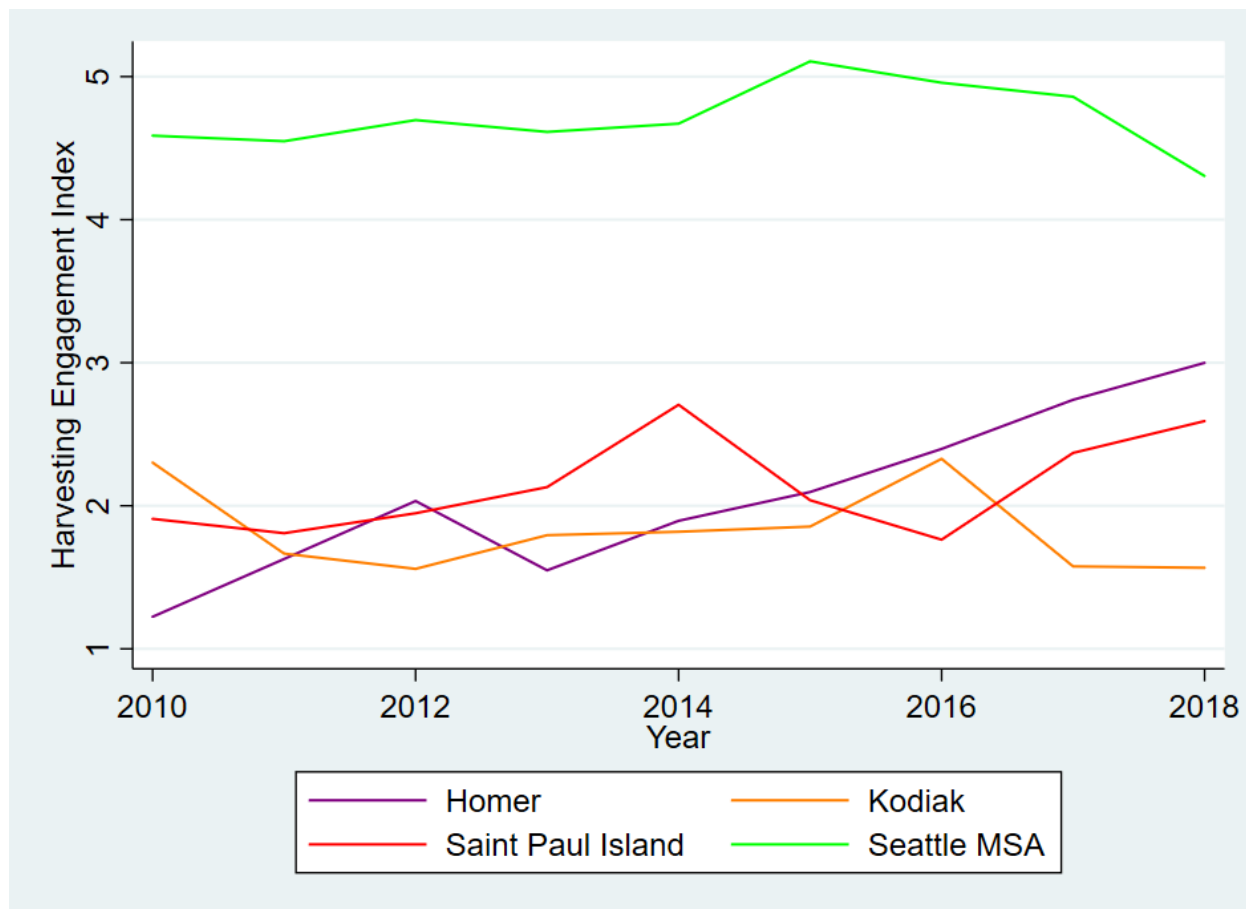


Figure 6. Index scores of communities highly engaged in commercial Area 4 halibut harvest for all years from 2010-2018.

Of the 13 communities highly engaged in commercial Area 4 halibut harvesting, three dropped entirely out of the harvesting portion of the fishery in a 2015 (Figure 7): Mekoryuk, Toksook Bay, and Tununak, but each experienced a decline in 2014 as well.

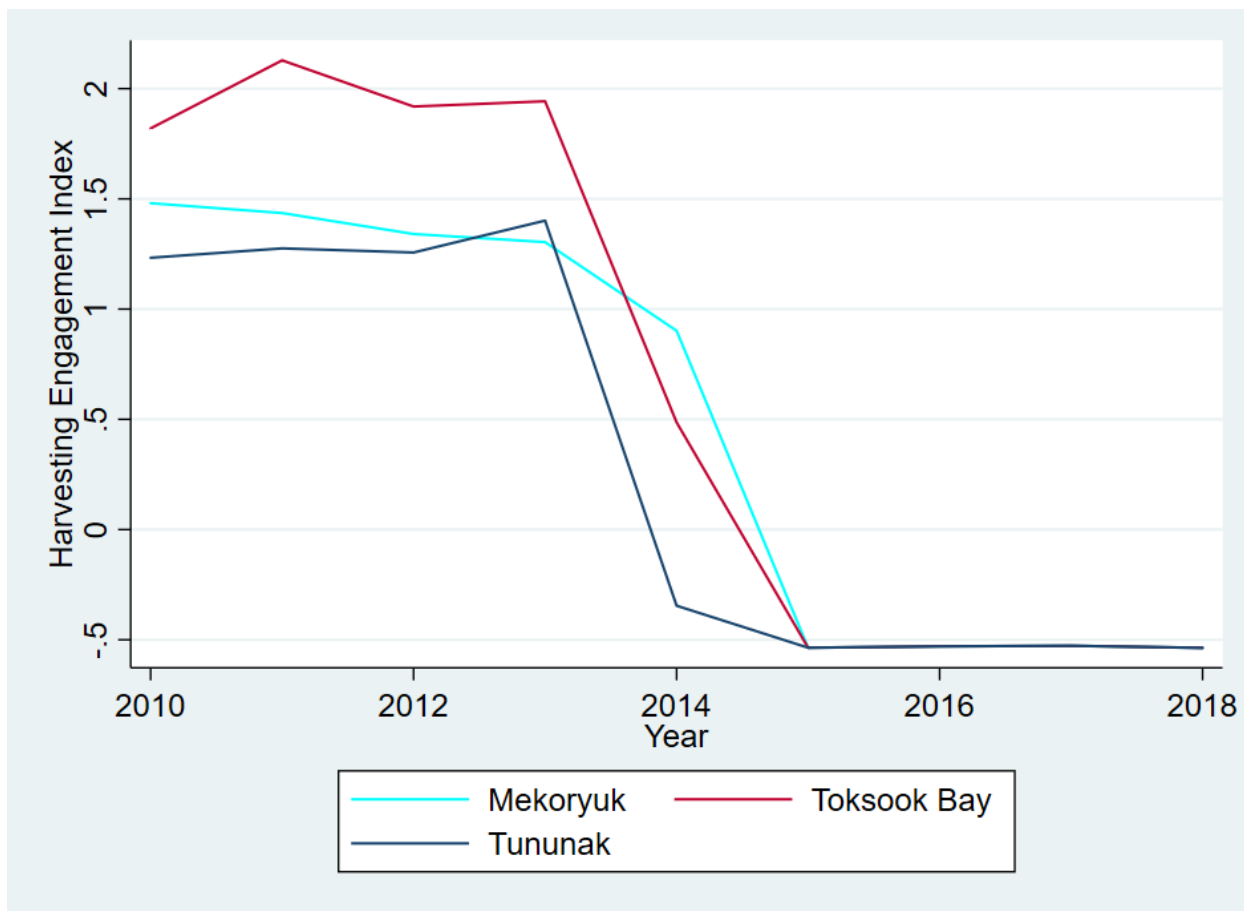


Figure 7. Index scores of communities exiting the harvesting of Area 4 halibut fishery over the period 2010-2018.

10.1.2.4 Harvesting Regional Quotient

Similar to the processing regional quotient, the harvesting regional quotient is defined as the share of IPHC Area 4 halibut commercial revenues attributable to vessel owners residing in each community compared with the total IPHC Area 4 halibut revenues. It is an indicator of the percentage contribution from resident vessel owners in a community relative the revenue from all communities throughout the U.S. Figure 8 shows the harvesting regional quotient for revenue from for all communities highly engaged for at least 1 year 2010-2018. The Seattle MSA grouping accounts for the largest percentage (24.3%) of Area 4 halibut in terms of ex-vessel harvesting revenues on average over this period, followed by Other Communities at 21.5%, Homer at 10.5% and Kodiak at 9.6%.

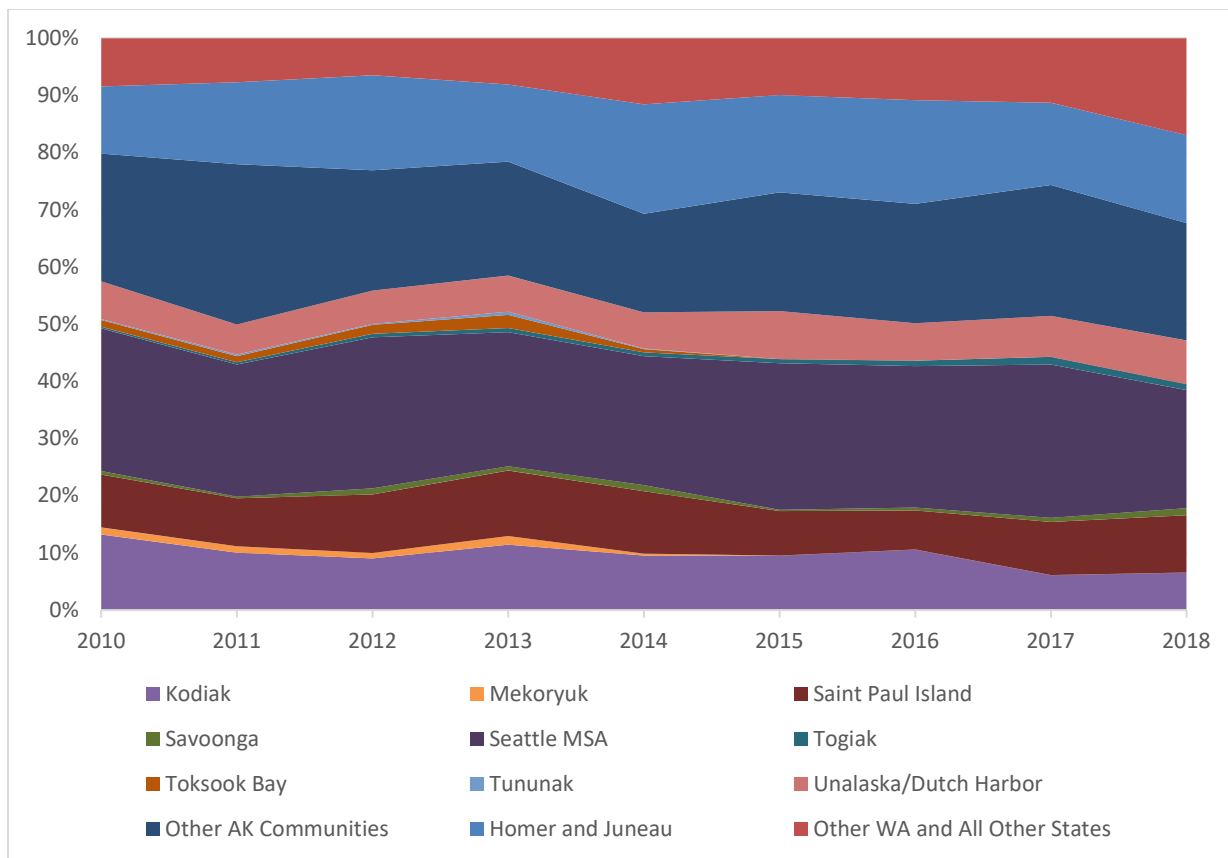


Figure 8. Harvesting regional quotient of revenue for communities highly engaged in commercial harvesting for at least 1 year from 2010-2018.

10.1.3 Participation Summary

Based on the community engagement index scores for both commercial Area 4 halibut processing and commercial Area 4 halibut harvesting engagement, communities were categorized into low (index scores below the mean of 0), medium (index scores between 0 and 0.5), medium-high (index scores between 0.50001 and 1), and high engagement (index scores above 1) for each year. The number of years a community is in each category for the processing and harvesting engagement indices is presented in Table 71. There are 31 communities or community groupings in Table 71 that had medium, medium-high, or high engagement in either commercial Area 4 halibut harvesting or commercial Area 4 halibut processing engagement. Sixteen communities were highly engaged in one aspect of commercial fisheries in any year from 2010-2018. There were six communities that were highly engaged in commercial Area 4 halibut processing engagement and 13 that were highly engaged in commercial Area 4 halibut harvesting engagement for at least one year from 2010-2018.

Table 71. Number of years by commercial Area 4 halibut processing and commercial Area 4 halibut harvesting engagement level. Alaska communities not listed had low commercial Area 4 halibut processing and commercial Area 4 halibut harvesting engagement in all years,2010-2018

Community	Harvesting Engagement				Processing Engagement			
	Low	Medium	Medium-High	High	Low	Medium	Medium-High	High
Adak	9	0	0	0	1	6	1	1
Akutan	9	0	0	0	0	0	1	8
All Other States	3	4	1	1	0	0	0	0
Anchorage	4	5	0	0	5	0	1	3
Atka	7	2	0	0	3	5	1	0
Chefornak	6	0	3	0	9	0	0	0
Delta Junction	5	4	0	0	0	0	0	0
Homer	0	0	0	9	8	1	0	0
Hooper Bay	7	2	0	0	9	0	0	0
Juneau	2	4	2	1	0	0	0	0
King Cove	0	0	0	0	8	1	0	0
Kipnuk	5	0	4	0	9	0	0	0
Kodiak	0	0	0	9	0	3	4	2
Mekoryuk	4	0	1	4	9	0	0	0
Newtok	8	1	0	0	0	0	0	0
Nome	4	4	1	0	8	1	0	0
Oregon	6	3	0	0	0	0	0	0
Other Washington	0	2	4	3	8	1	0	0
Quinhagak	7	1	1	0	0	0	0	0
Saint George Island	4	5	0	0	0	0	0	0
Saint Paul Island	0	0	0	9	0	3	4	2
Savoonga	0	4	3	2	7	2	0	0
Seattle MSA	0	0	0	9	9	0	0	0
Seward	9	0	0	0	7	1	1	0
Sitka	2	5	2	0	9	0	0	0
Togiak	1	2	1	5	9	0	0	0
Toksook Bay	4	1	0	4	5	1	3	0
Tununak	5	0	0	4	6	3	0	0
Twin Hills	0	0	0	0	8	1	0	0
Unalaska/Dutch Harbor	0	0	6	3	0	0	0	9
Wasilla	2	7	0	0	0	0	0	0

10.2 Attachment B: Available EDR Data for Crew Members on BSAI Groundfish Amendment 80 Sector Catcher/Processors

Table 72. Summary Number of Positions and Employees Onboard BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2015

Community of Vessel Ownership Address	No. of CPs	Average Number of Positions Onboard				Number of Employees Onboard			
		Fishing (Deck Crew)	Processing	All Other*	Total	Fishing (Deck Crew)	Processing	All Other*	Total
Seattle MSA	15	6.3	25.9	8.1	40.3	213	990	304	1,507
Other WA and Other States	3	4.0	20.0	6.7	30.7	18	170	34	222
All Geographies	18	5.9	24.9	7.8	38.7	231	1,160	338	1,729

*Includes officers, engineers, cooks, etc.

Source: Amendment 80 EDR Data

Table 73. Summary Number of Positions and Employees Onboard BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2016

Community of Vessel Ownership Address	No. of CPs	Average Number of Positions Onboard				Number of Employees Onboard			
		Fishing (Deck Crew)	Processing	All Other*	Total	Fishing (Deck Crew)	Processing	All Other*	Total
Seattle MSA	16	6.0	26.1	8.6	40.6	245	1,174	382	1,801
Other WA and Other States	3	4.0	20.0	6.7	30.7	17	183	35	235
All Geographies	19	5.7	25.1	8.3	39.1	262	1,357	417	2,036

*Includes officers, engineers, cooks, etc.

Source: Amendment 80 EDR Data

Table 74. Summary Number of Positions and Employees Onboard BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2017

Community of Vessel Ownership Address	No. of CPs	Average Number of Positions Onboard				Number of Employees Onboard			
		Fishing (Deck Crew)	Processing	All Other*	Total	Fishing (Deck Crew)	Processing	All Other*	Total
Seattle MSA	14	5.7	26.9	8.5	41.1	164	1,187	374	1,725
Other WA and Other States	5	4.6	25.4	8.2	38.2	38	346	72	456
All Geographies	19	5.4	26.5	8.4	40.4	202	1,533	446	2,181

*Includes officers, engineers, cooks, etc.

Source: Amendment 80 EDR Data

Table 75. Summary Number of Positions and Employees Onboard BSAI Groundfish Amendment 80 Sector Catcher/Processors, 2018

Community of Vessel Ownership Address	No. of CPs	Average Number of Positions Onboard				Number of Employees Onboard			
		Fishing (Deck Crew)	Processing	All Other*	Total	Fishing (Deck Crew)	Processing	All Other*	Total
Seattle MSA	14	5.5	28.5	8.9	42.9	144	1,215	300	1,659
Other WA and Other States	5	4.4	25.4	8.2	38.0	34	380	72	486
All Geographies	19	5.2	27.7	8.7	41.6	178	1,595	372	2,145

*Includes officers, engineers, cooks, etc.

Source: Amendment 80 EDR Data

**Table 76. Catcher/Processor Crew Community of Residence for BSAI Groundfish Amendment 80 Sector
Catcher/Processors, 2019**

State or Territory of Crew Member Residence	Community of Crew Member Residence	Number of Crew Licenses
1. Washington Total		443
1	Algona	2
2	Anacortes	4
3	Auburn	3
4	Bellevue	1
5	Blaine	1
6	Chelan	4
7	Clinton	4
8	Coupeville	1
9	Deer Park	1
10	East Wenatchee	1
11	Elmo	1
12	Everett	1
13	Federal Way	4
14	Ferndale	2
15	Gig Harbor	3
16	Kenmore	1
17	Kent	5
18	Lacey	1
19	Longview	1
20	Lynden	1
21	Lynnwood	2
22	Mill Creek	2
23	Monroe	2
24	Oak Harbor	3
25	Olympia	2
26	Orting	1
27	Pasco	2
28	Port Orchard	1
29	Poulsbo	2
30	Puyallup	2
31	Renton	1
32	Richland	1
33	Sea	1
34	Seattle	353

35	Selah	1
36	Shelton	1
37	Silver Creek	1
38	Silverdale	1
39	Snohomish	1
40	Soap Lake	1
41	Spanaway	3
42	Spokane	1
43	Stanwood	1
44	Sunnyside	1
45	Suquamish	1
46	Tacoma	8
47	Union Gap	1
48	Vancouver	1
49	Wapato	1
50	Yakima	1
51	Yelm	1
2. Alaska Total		24
1	Anchorage	8
2	Barrow	1
3	Dutch Harbor	10
4	Kotzebue	1
5	Ninilchik	1
6	Ouzinkie	1
7	Unalaska	1
8	Wasilla	1
3. California Total		15
1	Brea	2
2	Chatsworth	1
3	Cottonwood	1
4	Escondido	1
5	Fairfield	1
6	Fontana	1
7	Huntington Park	1
8	Indio	1
9	Murrieta	1
10	Orosi	1
11	Red Bluff	1
12	Redding	2
13	San Diego	2
14	Stockton	3
15	Westmorland	1

4. Maine Total		15
1	Boothbay	1
2	Camden	1
3	Cushing	1
4	Falmouth	1
5	Gorham	1
6	Hollis Center	1
7	Millirocket	1
8	Old Town	1
9	Portland	1
10	Richmond	1
11	Rockland	2
12	Rockport	1
13	South Portland	1
14	Union	1
5. Oregon Total		10
1	Bend	2
2	Fairview	1
3	Gresham	2
4	Hermiston	1
5	Philomath	1
6	Siletz	1
7	Silverton	2
6. Idaho Total		8
1	Blackfoot	1
2	Bonnors Ferry	1
3	Coeur D' Alene	1
4	Firth	1
5	Nampa	3
6	Osburn	1
7. Texas Total		8
1	El Paso	2
2	Killeen	1
3	Pharr	2
4	Tomball	2
5	Tualatin	1
8. Arizona Total		6
1	Surprise	1
2	Tucson	3
3	Vail	2
9. Florida Total		4
1	Baton Raton	1

	2	Dade City	1
	3	Gulf Breeze	1
	4	Jacksonville	1
10. Utah Total			4
	1	Clearfield	1
	2	N Slc	1
	3	North Salt Lake	1
	4	West Valley	1
11. Hawaii Total			3
	1	Kamuela	2
	2	Volcano	1
12. Minnesota Total			3
	1	Onamia	2
	2	Roseville	1
13. Michigan Total			2
	1	Muskegon	1
	2	Saginaw	1
14. Missouri Total			2
	1	Jefferson City	1
	2	Saint Louis	1
	3	Maple Wood	1
	4	Onamia	1
Other Total			14
15. Puerto Rico		Aguada	2
16. New Hampshire		Westmoreland	2
17. Georgia		Richmond Hill	2
18. Nevada		Las Vegas	1
19. Massachusetts		Kingston	1
20. Illinois		Lovington	1
21. Iowa		West Des Moines	1
22. Virginia		Suffolk	1
23. Indiana		Brazil	1
24. Louisiana		New Orleans	1
25. Connecticut		Niantic	1
26. Mississippi		Lumberton	1
27. Tennessee		Knoxville	1
28. Montana		Great Falls	1
29. Nebraska		Tacoma	1
Grand Total			570

Source: Amendment 80 EDR Data

10.3 Attachment C: Demographic Information by Job Category for Ten BSAI Groundfish Amendment 80 Sector Catcher/Processors Owned by Four Seattle MSA-Based Firms, 2014

Table 77. Demographic Information by Job Category for Ten Amendment 80 BSAI Groundfish Trawl Catcher/Processors Owned by Five 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 from 2014 Equal Employment Opportunity Commission data, in AECOM 2016.

10.4 Attachment D: State of Alaska Shared Fishery Tax Revenues, by Tax Type and Fiscal Year, 2010-2019

10.4.1 Alaska Department of Revenue Data

The Alaska communities appearing in the tables in this section are those that received Alaska Department of Revenue (DOR) shared Fishery Resource Landing Tax revenues, 2010-2019. Table 78 provides an overview of the DOR fishery tax revenue sharing program (and in item 4 in the Fisheries Business tax program row provides an overview of Alaska Department of Commerce, Community, and Economic Development [DCCED] fishery tax revenue sharing program, the data from which appears in Section 10.4.2).

Table 79 provides a list of communities that received DOR shared Fishery Resource Landing Tax revenues (shown as blue highlighted cells), and the total number of years they did so during the period 2010-2019.

Table 80 provides the 2010-2019 annual average of DOR shared revenue amounts by municipality, borough, and city, by fishery tax type, for Alaska communities receiving Fishery Resource Landing Tax revenues and all other Alaska communities receiving any shared fishery tax revenues combined. The next series of tables, from Table 81 through Table 90, break out this information by individual year 2010-2019.

Table 78. Alaska DOR Shared Fisheries Taxes Overview, Fiscal Years 2010-2019

Tax Program	Share Provision	Share Cycle	
		Disbursal Date	Period
Fisheries Business AS 43.75.130	50% of fisheries business taxes are shared with the municipalities where fishery resources were processed. Taxes are shared as follows: 1) If processing occurred within and incorporated city, which is not located within an organized borough, 50% of the tax collected is shared with the city. 2) If processing occurred within an incorporated city, which is located within an organized borough, 25% of the tax collected is shared with the city and 25% of the tax is shared with the borough. 3) If processing occurred at a location within an organized borough but not within an incorporated city, 50% of the tax is shared with the borough. 4) If processing occurred in the unorganized borough, 50% of the tax is shared with municipalities statewide through an allocation program administered by DCCED.	September (FY2010-2014) December (FY2015-2016) October (FY2017-2019)	Preceding Fiscal Year
Fishery Resource Landing AS 43.77.060	50% of fishery resource landing taxes are shared with the municipality where fishery resources were landed. The mechanics for sharing landing taxes are the same as fisheries business taxes, except that the proration applies to boroughs incorporated after January 1, 1994.	September (FY2010-2014) December (FY2015-2016) October (FY2017-2019)	Preceding Fiscal Year

Source: Alaska Dept of Revenue, FY 2019 Shared Taxes and Fees Annual Report.
<http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1571r> accessed 4/24/2020.

Table 79. Alaska Municipalities, Boroughs, and Cities Receiving DOR Administered Shared Fisheries Resource Landing Tax Revenues in any Fiscal Year 2010-2019

Municipality, Borough, or City	Fiscal Years Receiving DOR Shared Fishery Resource Landing Tax Revenues										Total Years 2010-2019
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
City and Borough of Juneau											1
City and Borough of Sitka											3
City and Borough of Wrangell											3
Aleutians East Borough											8
Kenai Peninsula Borough											8
Kodiak Island Borough											10
Lake and Peninsula Borough											1
Petersburg Borough	<i>(Incorporated January 3, 2013)</i>										3
Yakutat Borough											8
City of Adak											10
City of Akhiok											1
City of Akutan											6
City of Aleknagik											1
City of Atka											9
City of Cordova											3
City of Homer											2
City of Kodiak											10
City of Old Harbor											2
City of Ouzinkie											1
City of Petersburg											3
City of Saint Paul											10
City of Sand Point											7
City of Seward											6
City of Togiak											10
City of Unalaska											10
Total Number of Communities	15	17	16	16	14	13	13	14	8	10	na

Source: Alaska Dept of Revenue, FY 2010-2019 Shared Taxes and Fees Annual Reports. <http://tax.alaska.gov/programs/sourcebook/index.aspx> accessed 4/24/2020.

Table 80. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Annual Average 2010-2019

Municipality, Borough, or City	Total Shared Revenue	Shared Revenue by Source			Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Juneau	\$466,294	\$42,223	\$539	\$423,532	9.1%	0.1%	90.8%
City and Borough of Sitka	\$395,747	\$319,152	\$3,533	\$73,062	80.6%	0.9%	18.5%
City and Borough of Wrangell	\$83,183	\$75,178	\$202	\$7,804	90.4%	0.2%	9.4%
Aleutians East Borough	\$1,495,030	\$1,468,494	\$26,536	\$0	98.2%	1.8%	0.0%
Kenai Peninsula Borough	\$1,095,546	\$630,850	\$6,768	\$457,928	57.6%	0.6%	41.8%
Kodiak Island Borough	\$1,406,321	\$1,314,354	\$45,481	\$46,487	93.5%	3.2%	3.3%
Lake and Peninsula Borough	\$25,673	\$25,509	\$43	\$121	99.4%	0.2%	0.5%
Petersburg Borough	\$257,064	\$252,753	\$1,871	\$2,440	98.3%	0.7%	0.9%
Yakutat Borough	\$213,581	\$187,932	\$21,040	\$4,609	88.0%	9.9%	2.2%
City of Adak	\$196,245	\$115,021	\$78,864	\$2,360	58.6%	40.2%	1.2%
City of Akhiok	\$37	\$6	\$31	\$0	15.6%	84.4%	0.0%
City of Akutan	\$545,251	\$536,193	\$9,059	\$0	98.3%	1.7%	0.0%
City of Aleknagik	\$285	\$0	\$0	\$285	0.0%	0.1%	99.9%
City of Atka	\$52,315	\$27,539	\$24,776	\$0	52.6%	47.4%	0.0%
City of Cordova	\$309,533	\$248,875	\$1,215	\$59,444	80.4%	0.4%	19.2%
City of Homer	\$27,336	\$13,053	\$126	\$14,157	47.8%	0.5%	51.8%
City of Kodiak	\$1,099,444	\$986,442	\$16,772	\$96,230	89.7%	1.5%	8.8%
City of Old Harbor	\$1,213	\$1	\$1,134	\$78	0.1%	93.5%	6.4%
City of Ouzinkie	\$20	\$0	\$20	\$0	0.0%	100.0%	0.0%
City of Petersburg	\$299,693	\$294,202	\$1,791	\$3,700	98.2%	0.6%	1.2%
City of Saint Paul	\$924,965	\$902,759	\$20,086	\$2,120	97.6%	2.2%	0.2%
City of Sand Point	\$203,263	\$187,895	\$12,738	\$2,630	92.4%	6.3%	1.3%
City of Seward	\$518,608	\$285,427	\$6,199	\$226,983	55.0%	1.2%	43.8%
City of Togiak	\$115,849	\$78,355	\$36,069	\$1,425	67.6%	31.1%	1.2%
City of Unalaska	\$8,335,805	\$3,639,851	\$4,681,068	\$14,886	43.7%	56.2%	0.2%
Subtotal	\$18,068,302	\$11,632,063	\$4,995,961	\$1,440,278	64.4%	27.7%	8.0%
All Other AK Communities	\$28,358,030	\$10,109,583	\$0	\$18,248,447	35.6%	0.0%	64.4%
Grand Total	\$46,426,332	\$21,741,646	\$4,995,961	\$19,688,725	46.8%	10.8%	42.4%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

Source: Alaska Dept of Revenue, FY 2010-2019 Shared Taxes and Fees Annual Reports. <http://tax.alaska.gov/programs/sourcebook/index.aspx> accessed 4/24/2020.

Table 81. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2010

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Wrangell	\$140,564	\$105,537	\$447	\$34,580	75.1%	0.3%	24.6%
Aleutians East Borough	\$1,618,203	\$1,581,128	\$37,075	\$0	97.7%	2.3%	0.0%
Kenai Peninsula Borough	\$1,173,875	\$621,786	\$482	\$551,607	53.0%	0.0%	47.0%
Kodiak Island Borough	\$1,098,604	\$1,026,385	\$20,016	\$52,203	93.4%	1.8%	4.8%
Yakutat Borough	\$219,417	\$169,470	\$43,447	\$6,500	77.2%	19.8%	3.0%
City of Adak	\$72,216	\$13,567	\$54,949	\$3,700	18.8%	76.1%	5.1%
City of Akutan	\$707,992	\$685,996	\$21,996	\$0	96.9%	3.1%	0.0%
City of Atka	\$9,682	\$0	\$9,682	\$0	0.0%	100.0%	0.0%
City of Cordova	\$871,773	\$756,157	\$1,804	\$113,812	86.7%	0.2%	13.1%
City of Homer	\$131,040	\$73,801	\$482	\$56,757	56.3%	0.4%	43.3%
City of Kodiak	\$835,106	\$740,229	\$731	\$94,146	88.6%	0.1%	11.3%
City of Saint Paul	\$758,940	\$655,739	\$102,601	\$600	86.4%	13.5%	0.1%
City of Sand Point	\$177,721	\$160,704	\$14,517	\$2,500	90.4%	8.2%	1.4%
City of Togiak	\$48,664	\$46,940	\$455	\$1,269	96.5%	0.9%	2.6%
City of Unalaska	\$6,137,185	\$2,882,391	\$3,234,224	\$20,570	47.0%	52.7%	0.3%
Subtotal	\$14,000,982	\$9,519,830	\$3,542,908	\$938,244	68.0%	25.3%	6.7%
All Other AK Communities**	\$20,836,801	\$6,735,328	\$0	\$14,101,473	32.3%	0.0%	67.7%
Grand Total	\$34,837,783	\$16,255,158	\$3,542,908	\$15,039,717	46.7%	10.2%	43.2%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2010, Fisheries Business Tax revenues were shared with a total of 69 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2010 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 82. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2011

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Wrangell	\$282,246	\$265,498	\$1,038	\$15,710	94.1%	0.4%	5.6%
Aleutians East Borough	\$1,705,146	\$1,664,919	\$40,227	\$0	97.6%	2.4%	0.0%
Kenai Peninsula Borough	\$1,567,732	\$1,004,361	\$5,556	\$557,815	64.1%	0.4%	35.6%
Kodiak Island Borough	\$1,452,304	\$1,405,360	\$4,229	\$42,715	96.8%	0.3%	2.9%
Lake and Peninsula Borough	\$256,728	\$255,093	\$428	\$1,207	99.4%	0.2%	0.5%
Yakutat Borough	\$415,095	\$390,043	\$21,052	\$4,000	94.0%	5.1%	1.0%
City of Adak	\$185,567	\$143,848	\$40,219	\$1,500	77.5%	21.7%	0.8%
City of Akhiok	\$372	\$58	\$314	\$0	15.6%	84.4%	0.0%
City of Akutan	\$710,896	\$689,120	\$21,776	\$0	96.9%	3.1%	0.0%
City of Atka	\$68,238	\$57,861	\$10,377	\$0	84.8%	15.2%	0.0%
City of Kodiak	\$1,204,117	\$1,123,205	\$160	\$80,752	93.3%	0.0%	6.7%
City of Petersburg	\$676,807	\$655,901	\$3,006	\$17,900	96.9%	0.4%	2.6%
City of Saint Paul	\$762,970	\$736,836	\$22,134	\$4,000	96.6%	2.9%	0.5%
City of Sand Point	\$255,170	\$229,620	\$18,450	\$7,100	90.0%	7.2%	2.8%
City of Seward	\$996,650	\$596,097	\$5,310	\$395,243	59.8%	0.5%	39.7%
City of Togiak	\$91,640	\$85,308	\$4,919	\$1,413	93.1%	5.4%	1.5%
City of Unalaska	\$6,764,307	\$3,780,072	\$2,977,485	\$6,750	55.9%	44.0%	0.1%
Subtotal	\$17,395,985	\$13,083,200	\$3,176,680	\$1,136,105	75.2%	18.3%	6.5%
All Other AK Communities**	\$21,874,331	\$9,133,698	\$0	\$12,740,633	41.8%	0.0%	58.2%
Grand Total	\$39,270,316	\$22,216,898	\$3,176,680	\$13,876,738	56.6%	8.1%	35.3%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2011, Fisheries Business Tax revenues were shared with a total of 68 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2011 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 83. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2012

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Juneau	\$4,662,940	\$422,230	\$5,391	\$4,235,319	9.1%	0.1%	90.8%
City and Borough of Wrangell	\$409,023	\$380,741	\$532	\$27,750	93.1%	0.1%	6.8%
Aleutians East Borough	\$2,082,874	\$2,033,097	\$49,777	\$0	97.6%	2.4%	0.0%
Kenai Peninsula Borough	\$1,473,978	\$952,078	\$8,152	\$513,748	64.6%	0.6%	34.9%
Kodiak Island Borough	\$1,722,846	\$1,647,025	\$16,812	\$59,009	95.6%	1.0%	3.4%
Yakutat Borough	\$272,798	\$254,820	\$11,478	\$6,500	93.4%	4.2%	2.4%
City of Adak	\$139,604	\$75,469	\$61,035	\$3,100	54.1%	43.7%	2.2%
City of Akutan	\$1,014,327	\$990,609	\$23,718	\$0	97.7%	2.3%	0.0%
City of Atka	\$70,114	\$51,168	\$18,946	\$0	73.0%	27.0%	0.0%
City of Kodiak	\$1,371,504	\$1,252,420	\$15,586	\$103,498	91.3%	1.1%	7.5%
City of Petersburg	\$1,056,400	\$1,036,385	\$11,415	\$8,600	98.1%	1.1%	0.8%
City of Saint Paul	\$1,137,135	\$1,135,628	\$907	\$600	99.9%	0.1%	0.1%
City of Sand Point	\$365,756	\$337,198	\$26,058	\$2,500	92.2%	7.1%	0.7%
City of Seward	\$869,806	\$519,689	\$8,152	\$341,965	59.7%	0.9%	39.3%
City of Togiak	\$110,947	\$100,492	\$8,988	\$1,467	90.6%	8.1%	1.3%
City of Unalaska	\$8,542,195	\$3,968,378	\$4,558,307	\$15,510	46.5%	53.4%	0.2%
Subtotal	\$25,302,247	\$15,157,427	\$4,825,254	\$5,319,566	59.9%	19.1%	21.0%
All Other AK Communities**	\$23,228,238	\$9,419,151	\$0	\$13,809,087	40.6%	0.0%	59.4%
Grand Total	\$48,530,485	\$24,576,578	\$4,825,254	\$19,128,653	50.6%	9.9%	39.4%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2012, Fisheries Business Tax revenues were shared with a total of 68 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2012 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 84. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2013

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Sitka	\$1,353,344	\$1,183,956	\$7,108	\$162,280	87.5%	0.5%	12.0%
Aleutians East Borough	\$1,917,991	\$1,869,127	\$48,864	\$0	97.5%	2.5%	0.0%
Kenai Peninsula Borough	\$1,321,482	\$774,646	\$19,801	\$527,035	58.6%	1.5%	39.9%
Kodiak Island Borough	\$1,614,183	\$1,546,308	\$17,328	\$50,547	95.8%	1.1%	3.1%
Petersburg Borough***	\$778,093	\$760,516	\$9,077	\$8,500	97.7%	1.2%	1.1%
Yakutat Borough	\$213,078	\$202,334	\$6,744	\$4,000	95.0%	3.2%	1.9%
City of Adak	\$256,322	\$168,370	\$86,452	\$1,500	65.7%	33.7%	0.6%
City of Akutan	\$1,033,862	\$1,028,308	\$5,554	\$0	99.5%	0.5%	0.0%
City of Aleknagik	\$2,852	\$0	\$3	\$2,849	0.0%	0.1%	99.9%
City of Atka	\$144,872	\$54,710	\$90,162	\$0	37.8%	62.2%	0.0%
City of Kodiak	\$1,298,299	\$1,189,750	\$15,331	\$93,218	91.6%	1.2%	7.2%
City of Saint Paul	\$1,286,503	\$1,278,016	\$4,487	\$4,000	99.3%	0.3%	0.3%
City of Sand Point	\$288,518	\$255,282	\$28,636	\$4,600	88.5%	9.9%	1.6%
City of Seward	\$863,213	\$480,290	\$18,008	\$364,915	55.6%	2.1%	42.3%
City of Togiak	\$112,152	\$88,071	\$22,613	\$1,468	78.5%	20.2%	1.3%
City of Unalaska	\$10,600,375	\$3,957,391	\$6,636,364	\$6,620	37.3%	62.6%	0.1%
Subtotal	\$23,085,139	\$14,837,075	\$7,016,532	\$1,231,532	64.3%	30.4%	5.3%
All Other AK Communities**	\$26,587,497	\$8,328,246	\$0	\$18,259,251	31.3%	0.0%	68.7%
Grand Total	\$49,672,636	\$23,165,321	\$7,016,532	\$19,490,783	46.6%	14.1%	39.2%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2013, Fisheries Business Tax revenues were shared with a total of 68 Alaska communities, including those individually listed on this table.

***Petersburg Borough, a non-unified home rule borough, was incorporated on January 3, 2013.

Source: Alaska Dept of Revenue, FY 2013 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 85. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2014

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Sitka	\$1,466,546	\$1,127,772	\$13,914	\$324,860	76.9%	0.9%	22.2%
Aleutians East Borough	\$1,797,534	\$1,769,278	\$28,256	\$0	98.4%	1.6%	0.0%
Kenai Peninsula Borough	\$1,402,081	\$919,123	\$14,108	\$468,850	65.6%	1.0%	33.4%
Kodiak Island Borough	\$1,614,025	\$1,561,675	\$31,958	\$20,392	96.8%	2.0%	1.3%
City of Adak	\$180,249	\$122,489	\$54,660	\$3,100	68.0%	30.3%	1.7%
City of Akutan	\$890,075	\$877,450	\$12,625	\$0	98.6%	1.4%	0.0%
City of Atka	\$50,964	\$29,615	\$21,349	\$0	58.1%	41.9%	0.0%
City of Kodiak	\$1,274,151	\$1,164,404	\$31,958	\$77,789	91.4%	2.5%	6.1%
City of Petersburg	\$1,263,718	\$1,249,730	\$3,488	\$10,500	98.9%	0.3%	0.8%
City of Saint Paul	\$1,205,636	\$1,183,913	\$21,723	\$0	98.2%	1.8%	0.0%
City of Sand Point	\$243,817	\$236,923	\$4,394	\$2,500	97.2%	1.8%	1.0%
City of Seward	\$820,074	\$482,543	\$14,108	\$323,423	58.8%	1.7%	39.4%
City of Togiak	\$114,789	\$107,578	\$5,759	\$1,452	93.7%	5.0%	1.3%
City of Unalaska	\$8,218,176	\$3,307,022	\$4,890,289	\$20,865	40.2%	59.5%	0.3%
Subtotal	\$20,541,835	\$14,139,515	\$5,148,589	\$1,253,731	68.8%	25.1%	6.1%
All Other AK Communities**	\$30,365,125	\$10,772,654	\$0	\$19,592,471	35.5%	0.0%	64.5%
Grand Total	\$50,906,960	\$24,912,169	\$5,148,589	\$20,846,202	48.9%	10.1%	40.9%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2014, Fisheries Business Tax revenues were shared with a total of 63 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2014 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 86. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2015

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
Aleutians East Borough	\$2,088,104	\$2,067,182	\$20,922	\$0	99.0%	1.0%	0.0%
Kenai Peninsula Borough	\$1,162,737	\$629,725	\$14,338	\$518,674	54.2%	1.2%	44.6%
Kodiak Island Borough	\$1,352,566	\$1,301,537	\$19,897	\$31,132	96.2%	1.5%	2.3%
City of Adak	\$71,151	\$67,968	\$1,683	\$1,500	95.5%	2.4%	2.1%
City of Atka	\$48,116	\$34,706	\$13,411	-\$1	72.1%	27.9%	0.0%
City of Cordova	\$1,270,344	\$1,023,286	\$6,015	\$241,043	80.6%	0.5%	19.0%
City of Kodiak	\$1,116,054	\$1,021,500	\$10,858	\$83,696	91.5%	1.0%	7.5%
City of Old Harbor	\$9,237	\$11	\$8,835	\$391	0.1%	95.6%	4.2%
City of Ouzinkie	\$204	\$0	\$204	\$0	0.0%	100.0%	0.0%
City of Saint Paul	\$1,074,604	\$1,053,712	\$16,891	\$4,001	98.1%	1.6%	0.4%
City of Seward	\$716,111	\$334,691	\$14,338	\$367,082	46.7%	2.0%	51.3%
City of Togiak	\$102,038	\$91,511	\$9,077	\$1,450	89.7%	8.9%	1.4%
City of Unalaska	\$6,745,512	\$3,752,155	\$2,989,207	\$4,150	55.6%	44.3%	0.1%
Subtotal	\$15,756,778	\$11,377,984	\$3,125,676	\$1,253,118	72.2%	19.8%	8.0%
All Other AK Communities**	\$28,869,269	\$10,101,087	\$1	\$18,768,181	35.0%	0.0%	65.0%
Grand Total	\$44,626,047	\$21,479,071	\$3,125,677	\$20,021,299	48.1%	7.0%	44.9%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2015, Fisheries Business Tax revenues were shared with a total of 55 Alaska communities, including those individually listed on this table.

Note: Apparent errors of \$1 in City of Atka and All Other Communities rows cannot be reconciled with publicly available data, but are assumed to result from rounding error.

Source: Alaska Dept of Revenue, FY 2015 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 87. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2016

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
City and Borough of Sitka	\$1,137,579	\$879,793	\$14,311	\$243,475	77.3%	1.3%	21.4%
Aleutians East Borough	\$1,641,745	\$1,606,523	\$35,222	\$0	97.9%	2.1%	0.0%
Kodiak Island Borough	\$1,299,763	\$1,197,033	\$55,488	\$47,242	92.1%	4.3%	3.6%
Yakutat Borough	\$221,225	\$198,800	\$15,925	\$6,500	89.9%	7.2%	2.9%
City of Adak	\$150,945	\$44,636	\$103,209	\$3,100	29.6%	68.4%	2.1%
City of Atka	\$85,463	\$31,852	\$53,611	\$0	37.3%	62.7%	0.0%
City of Cordova	\$953,216	\$709,305	\$4,330	\$239,581	74.4%	0.5%	25.1%
City of Kodiak	\$685,304	\$525,670	\$52,979	\$106,655	76.7%	7.7%	15.6%
City of Old Harbor	\$2,896	\$0	\$2,509	\$387	0.0%	86.6%	13.4%
City of Saint Paul	\$896,427	\$879,802	\$16,625	\$0	98.1%	1.9%	0.0%
City of Sand Point	\$238,143	\$200,421	\$35,222	\$2,500	84.2%	14.8%	1.0%
City of Togiak	\$106,112	\$30,639	\$74,049	\$1,424	28.9%	69.8%	1.3%
City of Unalaska	\$11,820,247	\$4,018,888	\$7,776,504	\$24,855	34.0%	65.8%	0.2%
Subtotal	\$19,239,065	\$10,323,362	\$8,239,984	\$675,719	53.7%	42.8%	3.5%
All Other AK Communities**	\$26,167,024	\$5,911,807	\$0	\$20,255,217	22.6%	0.0%	77.4%
Grand Total	\$45,406,089	\$16,235,169	\$8,239,984	\$20,930,936	35.8%	18.1%	46.1%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2016, Fisheries Business Tax revenues were shared with a total of 54 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2016 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 88. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2017

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
Aleutians East Borough	\$2,098,704	\$2,093,687	\$5,017	\$0	99.8%	0.2%	0.0%
Kenai Peninsula Borough	\$1,501,883	\$771,171	\$4,469	\$726,243	51.3%	0.3%	48.4%
Kodiak Island Borough	\$1,082,940	\$1,022,586	\$12,985	\$47,369	94.4%	1.2%	4.4%
Petersburg Borough***	\$890,524	\$877,158	\$5,766	\$7,600	98.5%	0.6%	0.9%
Yakutat Borough	\$261,851	\$218,773	\$39,078	\$4,000	83.5%	14.9%	1.5%
City of Adak	\$110,655	\$34,908	\$74,247	\$1,500	31.5%	67.1%	1.4%
City of Akutan	\$1,095,361	\$1,090,445	\$4,916	\$0	99.6%	0.4%	0.0%
City of Atka	\$39,429	\$15,479	\$23,950	\$0	39.3%	60.7%	0.0%
City of Kodiak	\$1,036,269	\$926,525	\$9,587	\$100,157	89.4%	0.9%	9.7%
City of Saint Paul	\$906,129	\$892,296	\$9,833	\$4,000	98.5%	1.1%	0.4%
City of Sand Point	\$463,507	\$458,805	\$102	\$4,600	99.0%	0.0%	1.0%
City of Seward	\$920,229	\$440,958	\$2,071	\$477,200	47.9%	0.2%	51.9%
City of Togiak	\$100,900	\$64,130	\$35,339	\$1,431	63.6%	35.0%	1.4%
City of Unalaska	\$7,949,858	\$3,649,322	\$4,291,531	\$9,005	45.9%	54.0%	0.1%
Subtotal	\$18,458,239	\$12,556,243	\$4,518,891	\$1,383,105	68.0%	24.5%	7.5%
All Other AK Communities**	\$28,495,853	\$8,689,414	\$0	\$19,806,439	30.5%	0.0%	69.5%
Grand Total	\$46,954,092	\$21,245,657	\$4,518,891	\$21,189,544	45.2%	9.6%	45.1%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2017, Fisheries Business Tax revenues were shared with a total of 55 Alaska communities, including those individually listed on this table.

***Petersburg Borough, a non-unified home rule borough, was incorporated on January 3, 2013.

Source: Alaska Dept of Revenue, FY 2017 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 89. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2018

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
Kodiak Island Borough	\$1,974,407	\$1,742,302	\$177,159	\$54,946	88.2%	9.0%	2.8%
Petersburg Borough***	\$902,022	\$889,855	\$3,867	\$8,300	98.7%	0.4%	0.9%
Yakutat Borough	\$292,155	\$226,992	\$57,127	\$8,036	77.7%	19.6%	2.8%
City of Adak	\$198,487	\$34,131	\$161,256	\$3,100	17.2%	81.2%	1.6%
City of Kodiak	\$994,468	\$859,223	\$21,419	\$113,826	86.4%	2.2%	11.4%
City of Saint Paul	\$623,980	\$623,979	\$1	\$0	100.0%	0.0%	0.0%
City of Togiak	\$166,446	\$73,227	\$91,786	\$1,433	44.0%	55.1%	0.9%
City of Unalaska	\$8,196,954	\$3,306,990	\$4,855,139	\$34,825	40.3%	59.2%	0.4%
Subtotal	\$13,348,919	\$7,756,699	\$5,367,754	\$224,466	58.1%	40.2%	1.7%
All Other AK Communities**	\$38,142,311	\$15,953,859	\$0	\$22,188,452	41.8%	0.0%	58.2%
Grand Total	\$51,491,230	\$23,710,558	\$5,367,754	\$22,412,918	46.0%	10.4%	43.5%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2018, Fisheries Business Tax revenues were shared with a total of 54 Alaska communities, including those individually listed on this table.

***Petersburg Borough, a non-unified home rule borough, was incorporated on January 3, 2013.

Source: Alaska Dept of Revenue, FY 2018 Shared Taxes and Fees Annual Report. <http://tax.alaska.gov/programs/documentviewer/viewer.aspx?1499r> accessed 9/26/2019.

Table 90. Alaska DOR Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2019

Municipality, Borough, or City	Total Shared Revenue	Amount of Shared Revenue by Source			Percent of Total Shared Revenue by Source		
		Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*	Fisheries Business Tax	Fisheries Resource Landing Tax	All Other Sources*
Kenai Peninsula Borough	\$1,351,691	\$635,611	\$775	\$715,305	47.0%	0.1%	52.9%
Kodiak Island Borough	\$851,575	\$693,326	\$98,935	\$59,314	81.4%	11.6%	7.0%
Yakutat Borough	\$240,188	\$218,086	\$15,549	\$6,553	90.8%	6.5%	2.7%
City of Adak	\$597,253	\$444,822	\$150,931	\$1,500	74.5%	25.3%	0.3%
City of Atka	\$6,269	\$0	\$6,269	\$0	0.0%	100.0%	0.0%
City of Homer	\$142,315	\$56,729	\$776	\$84,810	39.9%	0.5%	59.6%
City of Kodiak	\$1,179,170	\$1,061,495	\$9,115	\$108,560	90.0%	0.8%	9.2%
City of Saint Paul	\$597,330	\$587,670	\$5,660	\$4,000	98.4%	0.9%	0.7%
City of Togiak	\$204,805	\$95,658	\$107,701	\$1,446	46.7%	52.6%	0.7%
City of Unalaska	\$8,383,238	\$3,775,900	\$4,601,633	\$5,705	45.0%	54.9%	0.1%
Subtotal	\$13,553,834	\$7,569,297	\$4,997,344	\$987,193	55.8%	36.9%	7.3%
All Other AK Communities**	\$39,013,849	\$16,050,581	\$0	\$22,963,268	41.1%	0.0%	58.9%
Grand Total	\$52,567,683	\$23,619,878	\$4,997,344	\$23,950,461	44.9%	9.5%	45.6%

*Other sources of shared revenue, depending on the community, may include: aviation fuel taxes, commercial passenger vessel excise taxes, electric cooperative taxes, liquor license fees, and/or telephone cooperative taxes.

**In FY 2019, Fisheries Business Tax revenues were shared with a total of 53 Alaska communities, including those individually listed on this table.

Source: Alaska Dept of Revenue, FY 2019 Shared Taxes and Fees Annual Report. <http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1571r> accessed 4/24/2020.

10.4.2 Alaska Department of Commerce, Community, and Economic Development Data

The Alaska communities appearing in the tables in this section are those with a minimum one year with \$500 or more in DCCED shared Fishery Resource Landing Tax revenues, 2010-2019, or appearing in the previous set of DOR data tables as receiving DOR shared Fishery Resource Landing Tax revenues (for taxable events that occurred within their municipal boundaries) during the same period but that did not meet the \$500 threshold applied to the DCCED in any one year (i.e., Homer, Juneau, Petersburg/Petersburg Borough, Seward, and Wrangell). Table 91 provides an overview of the DCCED fishery tax revenue sharing program as of 2019.¹³²

Table 92 provides a list of communities that met the criteria described in the paragraph above, the years the \$500 threshold was met (shown as blue highlighted cells), and the total number of years that \$500 threshold was met.

Table 93 provides the 2010-2019 annual average of DECC shared revenue amounts by municipality, borough, and city, by fishery tax type, for Alaska communities meeting the threshold criteria and all other Alaska communities combined. The series of tables from Table 94 through Table 103 break out this information by individual year 2010-2019.

Table 91. Alaska DCCED Shared Fisheries Taxes Overview, 2019

Program Description	The purpose of the Shared Fisheries Business Tax Program is to provide for an annual sharing of fish tax collected outside municipal boundaries to municipalities that can demonstrate they suffered significant effects from fisheries business activities. This program is administered separately from the state fish tax sharing program administered by the Department of Revenue which shares fish tax revenues collected inside municipal boundaries.
Program Eligibility	To be eligible for an allocation under this program, applicants must: 1. Be a municipality (city or borough); and 2. Demonstrate the municipality suffered significant effects as a result of fisheries business activity that occurred within its respective fisheries management area(s).
Program Funding	The funding available for the program this year is equal to half the amount of state fisheries business tax revenues collected outside of municipal boundaries during calendar year 2018. Program funding is allocated in two stages: 1st Stage: Nineteen Fisheries Management Areas (FMAs) were established using existing commercial fishing area boundaries. The available funding is allocated among these 19 FMAs based on the pounds of fish and shellfish processed in the whole state during the 2018 calendar year. For example, if an area processed 10% of all the fish and shellfish processed in the whole state during 2018, then that area would receive 10% of the funding available for the program this year. These allocations are calculated based on Fisheries Business Tax Return information for calendar year 2018. 2nd Stage: The funding available within each FMA will be allocated among the municipalities in that area based on the level of fishing industry significant effects suffered by each municipality compared to the level of effects experienced by the other municipalities in that FMA. Some boroughs, because of their extensive area, are included in more than one fisheries management area. In these cases, the borough must submit a separate program application for each area.

Source: DCCED supplied text, 10/14/2019.

¹³² As with the DOR program, there is a lag time between collection of the taxes and the distribution of revenue to the municipalities. For example, the funding for the taxes collected in the 2018 calendar year will be distributed in March 2020.

Table 92. Alaska Municipalities, Boroughs, and Cities Receiving DDECED Administered Shared Fisheries Resource Landing Tax Revenues in the Amount of \$500 or More in any Fiscal Year 2010-2019

Municipality, Borough, or City	Fiscal Years Receiving DCCED Administered Fishery Resource Landing Tax Revenues of at least \$500										Total Years 2010-2019
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Municipality of Anchorage											7
City and Borough of Juneau											0
City and Borough of Sitka											4
City and Borough of Wrangell											0
Aleutians East Borough											10
Bristol Bay Borough											6
Kenai Peninsula Borough											1
Kodiak Island Borough											6
Lake and Peninsula Borough											8
Petersburg Borough	<i>(Incorporated January 3, 2013)</i>										0
Yakutat Borough											8
City of Adak											10
City of Akhiok											2
City of Akutan											10
City of Aleknagik											2
City of Atka											9
City of Bethel											1
City of Cold Bay											6
City of Cordova											1
City of Dillingham											7
City of False Pass											6
City of Homer											0
City of King Cove											8
City of Kodiak											6
City of Larsen Bay											2
City of Manakotak											3
City of New Stuyahok											3
City of Newhalen											2
City of Old Harbor											2
City of Ouzinkie											2
City of Petersburg											0
City of Port Heiden											6
City of Port Lions											2
City of Saint George											8
City of Saint Paul											8
City of Sand Point											8
City of Seward											0
City of Togiak											4
City of Unalaska											10
City of Whittier											1
Total Number of Communities	20	16	17	18	21	9	4	28	16	23	na

Source: Adapted from DCCED Spreadsheet supplied by K. Phillips 10/9/2019

Table 93. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Annual Average 2010-2019

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Anchorage	\$24,452	\$23,697	\$755	96.9%	3.1%
City and Borough of Juneau	\$10,781	\$10,743	\$38	99.6%	0.4%
City and Borough of Sitka	\$36,980	\$36,572	\$408	98.9%	1.1%
City and Borough of Wrangell	\$14,451	\$14,291	\$160	98.9%	1.1%
Aleutians East Borough	\$200,853	\$105,031	\$95,823	52.3%	47.7%
Bristol Bay Borough	\$15,464	\$14,889	\$575	96.3%	3.7%
Kenai Peninsula Borough	\$7,313	\$7,087	\$225	96.9%	3.1%
Kodiak Island Borough	\$61,585	\$59,732	\$1,853	97.0%	3.0%
Lake and Peninsula Borough	\$35,471	\$33,820	\$1,652	95.3%	4.7%
Petersburg Borough	\$8,928	\$8,830	\$99	98.9%	1.1%
Yakutat Borough	\$5,674	\$2,937	\$2,737	51.8%	48.2%
City of Adak	\$221,245	\$110,972	\$110,273	50.2%	49.8%
City of Akhiok	\$18,927	\$18,491	\$435	97.7%	2.3%
City of Akutan	\$301,489	\$151,517	\$149,972	50.3%	49.7%
City of Aleknagik	\$6,975	\$6,708	\$267	96.2%	3.8%
City of Atka	\$198,082	\$99,302	\$98,780	50.1%	49.9%
City of Bethel	\$684	\$577	\$107	84.4%	15.6%
City of Cold Bay	\$11,871	\$10,927	\$943	92.1%	7.9%
City of Cordova	\$35,188	\$35,077	\$112	99.7%	0.3%
City of Dillingham	\$31,604	\$30,412	\$1,191	96.2%	3.8%
City of False Pass	\$10,477	\$9,684	\$793	92.4%	7.6%
City of Homer	\$3,667	\$3,555	\$112	96.9%	3.1%
City of King Cove	\$43,391	\$40,062	\$3,329	92.3%	7.7%
City of Kodiak	\$58,480	\$56,749	\$1,732	97.0%	3.0%
City of Larsen Bay	\$19,192	\$18,754	\$439	97.7%	2.3%
City of Manakotak	\$10,073	\$9,721	\$353	96.5%	3.5%
City of New Stuyahok	\$10,181	\$9,797	\$384	96.2%	3.8%
City of Newhalen	\$6,525	\$6,275	\$250	96.2%	3.8%
City of Old Harbor	\$20,678	\$20,201	\$477	97.7%	2.3%
City of Ouzinkie	\$19,454	\$19,003	\$451	97.7%	2.3%
City of Petersburg	\$8,099	\$8,010	\$90	98.9%	1.1%
City of Port Heiden	\$11,248	\$10,300	\$948	91.6%	8.4%
City of Port Lions	\$19,771	\$19,313	\$458	97.7%	2.3%
City of Saint George	\$23,782	\$8,566	\$15,216	36.0%	64.0%
City of Saint Paul	\$23,782	\$8,566	\$15,216	36.0%	64.0%
City of Sand Point	\$46,682	\$43,003	\$3,680	92.1%	7.9%
City of Seward	\$3,486	\$3,379	\$107	96.9%	3.1%
City of Togiak	\$12,525	\$12,108	\$417	96.7%	3.3%
City of Unalaska	\$677,019	\$339,384	\$337,635	50.1%	49.9%
City of Whittier	\$35,188	\$35,077	\$112	99.7%	0.3%
Subtotal	\$2,311,720	\$1,463,118	\$848,602	63.3%	36.7%
All Other Alaska Communities	\$195,022	\$192,851	\$2,171	98.9%	1.1%
Grand Total	\$2,506,741	\$1,655,968	\$850,773	66.1%	33.9%

Source: DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 94. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2010

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$27,470	\$26,689	\$780	97.2%	2.8%
City and Borough of Juneau	\$13,822	\$13,822	\$0	100.0%	0.0%
City and Borough of Sitka	\$29,171	\$28,729	\$441	98.5%	1.5%
City and Borough of Wrangell	\$10,998	\$10,831	\$166	98.5%	1.5%
Aleutians East Borough	\$286,296	\$105,640	\$180,655	36.9%	63.1%
Bristol Bay Borough	\$17,217	\$16,124	\$1,093	93.7%	6.3%
Kenai Peninsula Borough	\$8,144	\$7,913	\$231	97.2%	2.8%
Kodiak Island Borough	\$15,209	\$15,209	\$0	100.0%	0.0%
Lake and Peninsula Borough	\$37,843	\$33,820	\$4,023	89.4%	10.6%
Petersburg Borough					
Yakutat Borough	\$6,973	\$3,843	\$3,130	55.1%	44.9%
City of Adak	\$308,178	\$107,123	\$201,055	34.8%	65.2%
City of Akhiok	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Akutan	\$430,468	\$149,631	\$280,836	34.8%	65.2%
City of Aleknagik	\$7,479	\$7,004	\$475	93.7%	6.3%
City of Atka	\$287,401	\$99,901	\$187,500	34.8%	65.2%
City of Bethel	\$1,206	\$568	\$638	47.1%	52.9%
City of Cold Bay	\$14,547	\$11,734	\$2,813	80.7%	19.3%
City of Cordova	\$37,699	\$37,699	\$0	100.0%	0.0%
City of Dillingham	\$33,524	\$31,396	\$2,128	93.7%	6.3%
City of False Pass	\$11,983	\$9,666	\$2,317	80.7%	19.3%
City of Homer	\$4,177	\$4,058	\$119	97.2%	2.8%
City of King Cove	\$47,731	\$38,500	\$9,231	80.7%	19.3%
City of Kodiak	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Larsen Bay	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Manakotak	\$9,805	\$9,183	\$622	93.7%	6.3%
City of New Stuyahok	\$10,560	\$9,890	\$670	93.7%	6.3%
City of Newhalen	\$6,489	\$6,077	\$412	93.7%	6.3%
City of Old Harbor	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Ouzinkie	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Petersburg	\$13,504	\$13,300	\$204	98.5%	1.5%
City of Port Heiden	\$14,547	\$11,734	\$2,813	80.7%	19.3%
City of Port Lions	\$15,209	\$15,209	\$0	100.0%	0.0%
City of Saint George	\$104,697	\$10,213	\$94,484	9.8%	90.2%
City of Saint Paul	\$104,697	\$10,213	\$94,484	9.8%	90.2%
City of Sand Point	\$58,189	\$46,936	\$11,253	80.7%	19.3%
City of Seward	\$3,946	\$3,834	\$112	97.2%	2.8%
City of Togiak	\$14,408	\$13,493	\$915	93.7%	6.3%
City of Unalaska	\$975,626	\$339,130	\$636,497	34.8%	65.2%
City of Whittier	\$37,699	\$37,699	\$0	100.0%	0.0%
Subtotal	\$3,082,956	\$1,362,858	\$1,720,098	44.2%	55.8%
All Other Alaska Communities	\$170,480	\$166,276	\$4,203	97.5%	2.5%
Grand Total	\$3,253,436	\$1,529,134	\$1,724,302	47.0%	53.0%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 95. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2011

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$23,424	\$23,340	\$84	99.6%	0.4%
City and Borough of Juneau	\$13,212	\$13,212	\$0	100.0%	0.0%
City and Borough of Sitka	\$41,069	\$40,774	\$295	99.3%	0.7%
City and Borough of Wrangell	\$15,243	\$15,134	\$110	99.3%	0.7%
Aleutians East Borough	\$183,698	\$99,674	\$84,023	54.3%	45.7%
Bristol Bay Borough	\$20,384	\$20,374	\$10	100.0%	0.0%
Kenai Peninsula Borough	\$6,908	\$6,883	\$25	99.6%	0.4%
Kodiak Island Borough	\$17,393	\$17,393	\$0	100.0%	0.0%
Lake and Peninsula Borough	\$40,280	\$39,403	\$877	97.8%	2.2%
Petersburg Borough					
Yakutat Borough	\$8,315	\$4,019	\$4,296	48.3%	51.7%
City of Adak	\$191,893	\$98,973	\$92,919	51.6%	48.4%
City of Akhiok	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Akutan	\$274,174	\$141,412	\$132,762	51.6%	48.4%
City of Aleknagik	\$9,019	\$9,014	\$4	100.0%	0.0%
City of Atka	\$180,535	\$93,115	\$87,420	51.6%	48.4%
City of Bethel	\$1,079	\$1,079	\$0	100.0%	0.0%
City of Cold Bay	\$12,721	\$11,901	\$821	93.5%	6.5%
City of Cordova	\$24,852	\$24,284	\$568	97.7%	2.3%
City of Dillingham	\$40,358	\$40,339	\$19	100.0%	0.0%
City of False Pass	\$10,805	\$10,108	\$697	93.5%	6.5%
City of Homer	\$3,559	\$3,547	\$13	99.6%	0.4%
City of King Cove	\$42,137	\$39,418	\$2,719	93.5%	6.5%
City of Kodiak	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Larsen Bay	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Manakotak	\$12,237	\$12,231	\$6	100.0%	0.0%
City of New Stuyahok	\$13,485	\$13,478	\$6	100.0%	0.0%
City of Newhalen	\$7,987	\$7,983	\$4	100.0%	0.0%
City of Old Harbor	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Ouzinkie	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Petersburg	\$18,841	\$18,705	\$135	99.3%	0.7%
City of Port Heiden	\$12,677	\$11,859	\$818	93.5%	6.5%
City of Port Lions	\$17,393	\$17,393	\$0	100.0%	0.0%
City of Saint George	\$29,303	\$10,404	\$18,899	35.5%	64.5%
City of Saint Paul	\$29,303	\$10,404	\$18,899	35.5%	64.5%
City of Sand Point	\$53,591	\$50,134	\$3,458	93.5%	6.5%
City of Seward	\$3,354	\$3,342	\$12	99.6%	0.4%
City of Togiak	\$18,120	\$18,111	\$9	100.0%	0.0%
City of Unalaska	\$614,414	\$316,899	\$297,515	51.6%	48.4%
City of Whittier	\$24,852	\$24,284	\$568	97.7%	2.3%
Subtotal	\$2,103,577	\$1,355,586	\$747,990	64.4%	35.6%
All Other Alaska Communities	\$210,489	\$209,574	\$915	99.6%	0.4%
Grand Total	\$2,314,066	\$1,565,160	\$748,906	67.6%	32.4%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 96. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2012

Municipality, Borough, or City	Total DCCED Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$39,894	\$38,442	\$1,452	96.4%	3.6%
City and Borough of Juneau	\$13,098	\$13,098	\$0	100.0%	0.0%
City and Borough of Sitka	\$49,670	\$49,089	\$582	98.8%	1.2%
City and Borough of Wrangell	\$19,633	\$19,403	\$230	98.8%	1.2%
Aleutians East Borough	\$256,429	\$114,785	\$141,644	44.8%	55.2%
Bristol Bay Borough	\$24,399	\$23,838	\$561	97.7%	2.3%
Kenai Peninsula Borough	\$11,963	\$11,528	\$435	96.4%	3.6%
Kodiak Island Borough	\$24,817	\$24,817	\$0	100.0%	0.0%
Lake and Peninsula Borough	\$47,249	\$44,363	\$2,886	93.9%	6.1%
Petersburg Borough					
Yakutat Borough	\$13,031	\$6,973	\$6,057	53.5%	46.5%
City of Adak	\$288,707	\$122,742	\$165,964	42.5%	57.5%
City of Akhiok	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Akutan	\$386,808	\$164,450	\$222,358	42.5%	57.5%
City of Aleknagik	\$10,464	\$10,224	\$241	97.7%	2.3%
City of Atka	\$251,621	\$106,976	\$144,645	42.5%	57.5%
City of Bethel	\$752	\$752	\$0	100.0%	0.0%
City of Cold Bay	\$15,796	\$13,540	\$2,257	85.7%	14.3%
City of Cordova	\$65,315	\$65,137	\$177	99.7%	0.3%
City of Dillingham	\$48,256	\$47,147	\$1,110	97.7%	2.3%
City of False Pass	\$12,287	\$10,532	\$1,755	85.7%	14.3%
City of Homer	\$6,009	\$5,791	\$219	96.4%	3.6%
City of King Cove	\$55,700	\$47,743	\$7,957	85.7%	14.3%
City of Kodiak	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Larsen Bay	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Manakotak	\$14,458	\$14,126	\$332	97.7%	2.3%
City of New Stuyahok	\$15,676	\$15,316	\$360	97.7%	2.3%
City of Newhalen	\$9,945	\$9,716	\$229	97.7%	2.3%
City of Old Harbor	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Ouzinkie	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Petersburg	\$22,303	\$22,042	\$261	98.8%	1.2%
City of Port Heiden	\$15,508	\$13,293	\$2,215	85.7%	14.3%
City of Port Lions	\$24,817	\$24,817	\$0	100.0%	0.0%
City of Saint George	\$33,597	\$11,337	\$22,261	33.7%	66.3%
City of Saint Paul	\$33,597	\$11,337	\$22,261	33.7%	66.3%
City of Sand Point	\$57,526	\$49,308	\$8,218	85.7%	14.3%
City of Seward	\$5,736	\$5,528	\$209	96.4%	3.6%
City of Togiak	\$21,175	\$20,688	\$487	97.7%	2.3%
City of Unalaska	\$855,484	\$363,706	\$491,778	42.5%	57.5%
City of Whittier	\$65,315	\$65,137	\$177	99.7%	0.3%
Subtotal	\$2,941,118	\$1,691,798	\$1,249,320	57.5%	42.5%
All Other Alaska Communities	\$290,031	\$287,442	\$2,588	99.1%	0.9%
Grand Total	\$3,231,149	\$1,979,241	\$1,251,909	61.3%	38.7%

Source: Adapted from DCCED Spreadsheet supplied by K. Phillips 10/9/2019.

Table 97. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2013

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$28,988	\$27,934	\$1,055	96.4%	3.6%
City and Borough of Juneau	\$21,459	\$21,080	\$379	98.2%	1.8%
City and Borough of Sitka	\$58,046	\$57,397	\$649	98.9%	1.1%
City and Borough of Wrangell	\$23,048	\$22,791	\$258	98.9%	1.1%
Aleutians East Borough	\$230,237	\$132,426	\$97,812	57.5%	42.5%
Bristol Bay Borough	\$16,508	\$16,237	\$271	98.4%	1.6%
Kenai Peninsula Borough	\$8,705	\$8,388	\$317	96.4%	3.6%
Kodiak Island Borough	\$93,720	\$92,263	\$1,457	98.4%	1.6%
Lake and Peninsula Borough	\$41,384	\$39,889	\$1,495	96.4%	3.6%
Petersburg Borough					
Yakutat Borough	\$5,604	\$3,991	\$1,613	71.2%	28.8%
City of Adak	\$261,176	\$145,816	\$115,360	55.8%	44.2%
City of Akhiok	\$20,523	\$20,204	\$319	98.4%	1.6%
City of Akutan	\$350,680	\$195,787	\$154,893	55.8%	44.2%
City of Aleknagik	\$7,049	\$6,934	\$116	98.4%	1.6%
City of Atka	\$226,713	\$126,575	\$100,138	55.8%	44.2%
City of Bethel	\$1,267	\$835	\$433	65.9%	34.1%
City of Cold Bay	\$12,870	\$11,792	\$1,077	91.6%	8.4%
City of Cordova	\$31,222	\$31,222	\$0	100.0%	0.0%
City of Dillingham	\$32,207	\$31,678	\$529	98.4%	1.6%
City of False Pass	\$10,523	\$9,642	\$881	91.6%	8.4%
City of Homer	\$4,365	\$4,206	\$159	96.4%	3.6%
City of King Cove	\$47,386	\$43,419	\$3,967	91.6%	8.4%
City of Kodiak	\$74,883	\$73,719	\$1,164	98.4%	1.6%
City of Larsen Bay	\$22,084	\$21,741	\$343	98.4%	1.6%
City of Manakotak	\$22,084	\$21,741	\$343	98.4%	1.6%
City of New Stuyahok	\$10,257	\$10,089	\$168	98.4%	1.6%
City of Newhalen	\$6,605	\$6,496	\$108	98.4%	1.6%
City of Old Harbor	\$28,095	\$27,658	\$437	98.4%	1.6%
City of Ouzinkie	\$21,473	\$21,139	\$334	98.4%	1.6%
City of Petersburg	\$26,344	\$26,049	\$294	98.9%	1.1%
City of Port Heiden	\$13,112	\$12,015	\$1,098	91.6%	8.4%
City of Port Lions	\$21,056	\$20,729	\$327	98.4%	1.6%
City of Saint George	\$22,914	\$10,217	\$12,697	44.6%	55.4%
City of Saint Paul	\$22,914	\$10,217	\$12,697	44.6%	55.4%
City of Sand Point	\$50,137	\$45,940	\$4,197	91.6%	8.4%
City of Seward	\$4,169	\$4,017	\$152	96.4%	3.6%
City of Togiak	\$14,249	\$14,015	\$234	98.4%	1.6%
City of Unalaska	\$770,298	\$430,062	\$340,236	55.8%	44.2%
City of Whittier	\$31,222	\$31,222	\$0	100.0%	0.0%
Subtotal	\$2,695,575	\$1,837,571	\$858,004	68.2%	31.8%
All Other Alaska Communities	\$240,572	\$237,635	\$2,937	98.8%	1.2%
Grand Total	\$2,936,147	\$2,075,205	\$860,942	70.7%	29.3%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 98. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2014

Municipality, Borough, or City	Total DCCED Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$28,788	\$26,651	\$2,137	92.6%	7.4%
City and Borough of Juneau	\$11,397	\$11,397	\$0	100.0%	0.0%
City and Borough of Sitka	\$30,548	\$29,742	\$806	97.4%	2.6%
City and Borough of Wrangell	\$12,210	\$11,888	\$322	97.4%	2.6%
Aleutians East Borough	\$224,144	\$127,699	\$96,445	57.0%	43.0%
Bristol Bay Borough	\$14,112	\$13,535	\$577	95.9%	4.1%
Kenai Peninsula Borough	\$8,634	\$7,993	\$641	92.6%	7.4%
Kodiak Island Borough	\$80,350	\$79,228	\$1,122	98.6%	1.4%
Lake and Peninsula Borough	\$36,039	\$34,453	\$1,586	95.6%	4.4%
Petersburg Borough	\$14,479	\$14,097	\$382	97.4%	2.6%
Yakutat Borough	\$3,804	\$3,002	\$803	78.9%	21.1%
City of Adak	\$251,134	\$139,135	\$111,999	55.4%	44.6%
City of Akhiok	\$20,921	\$20,629	\$292	98.6%	1.4%
City of Akutan	\$340,796	\$188,810	\$151,986	55.4%	44.6%
City of Aleknagik	\$6,024	\$5,778	\$246	95.9%	4.1%
City of Atka	\$221,779	\$122,872	\$98,908	55.4%	44.6%
City of Bethel	\$684	\$684	\$0	100.0%	0.0%
City of Cold Bay	\$11,325	\$10,392	\$933	91.8%	8.2%
City of Cordova	\$32,608	\$32,608	\$0	100.0%	0.0%
City of Dillingham	\$28,769	\$27,593	\$1,176	95.9%	4.1%
City of False Pass	\$9,253	\$8,490	\$763	91.8%	8.2%
City of Homer	\$4,338	\$4,016	\$322	92.6%	7.4%
City of King Cove	\$41,703	\$38,266	\$3,437	91.8%	8.2%
City of Kodiak	\$91,105	\$89,832	\$1,273	98.6%	1.4%
City of Larsen Bay	\$22,344	\$22,032	\$312	98.6%	1.4%
City of Manakotak	\$0	\$0	\$0	--	--
City of New Stuyahok	\$9,154	\$8,779	\$374	95.9%	4.1%
City of Newhalen	\$5,755	\$5,520	\$235	95.9%	4.1%
City of Old Harbor	\$24,937	\$24,589	\$348	98.6%	1.4%
City of Ouzinkie	\$21,830	\$21,525	\$305	98.6%	1.4%
City of Petersburg					
City of Port Heiden	\$12,203	\$11,197	\$1,006	91.8%	8.2%
City of Port Lions	\$24,876	\$24,529	\$347	98.6%	1.4%
City of Saint George	\$14,658	\$13,975	\$683	95.3%	4.7%
City of Saint Paul	\$14,658	\$13,975	\$683	95.3%	4.7%
City of Sand Point	\$42,405	\$38,910	\$3,495	91.8%	8.2%
City of Seward	\$4,138	\$3,831	\$307	92.6%	7.4%
City of Togiak	\$12,914	\$12,386	\$528	95.9%	4.1%
City of Unalaska	\$759,066	\$420,543	\$338,523	55.4%	44.6%
City of Whittier	\$32,608	\$32,608	\$0	100.0%	0.0%
Subtotal	\$2,526,488	\$1,703,185	\$823,303	67.4%	32.6%
All Other Alaska Communities	\$197,686	\$194,641	\$3,045	98.5%	1.5%
Grand Total	\$2,724,174	\$1,897,826	\$826,348	69.7%	30.3%

Source: Adapted from DCCED Spreadsheet supplied by K. Phillips 10/9/2019.

Table 99. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2015

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$21,150	\$20,531	\$620	97.1%	2.9%
City and Borough of Juneau	\$4,400	\$4,400	\$0	100.0%	0.0%
City and Borough of Sitka	\$43,235	\$42,941	\$294	99.3%	0.7%
City and Borough of Wrangell	\$17,347	\$17,229	\$118	99.3%	0.7%
Aleutians East Borough	\$136,516	\$101,299	\$35,217	74.2%	25.8%
Bristol Bay Borough	\$8,660	\$8,618	\$42	99.5%	0.5%
Kenai Peninsula Borough	\$6,320	\$6,135	\$185	97.1%	2.9%
Kodiak Island Borough	\$60,772	\$59,514	\$1,257	97.9%	2.1%
Lake and Peninsula Borough	\$26,182	\$26,033	\$148	99.4%	0.6%
Petersburg Borough	\$20,336	\$20,198	\$139	99.3%	0.7%
Yakutat Borough	\$880	\$880	\$0	100.0%	0.0%
City of Adak	\$148,848	\$108,405	\$40,443	72.8%	27.2%
City of Akhiok	\$14,405	\$14,107	\$298	97.9%	2.1%
City of Akutan	\$209,000	\$152,213	\$56,787	72.8%	27.2%
City of Aleknagik	\$3,871	\$3,852	\$19	99.5%	0.5%
City of Atka	\$133,931	\$97,541	\$36,390	72.8%	27.2%
City of Bethel	\$1,347	\$1,347	\$0	100.0%	0.0%
City of Cold Bay	\$8,136	\$8,041	\$95	98.8%	1.2%
City of Cordova	\$38,684	\$38,684	\$0	100.0%	0.0%
City of Dillingham	\$18,357	\$18,267	\$90	99.5%	0.5%
City of False Pass	\$6,949	\$6,867	\$81	98.8%	1.2%
City of Homer	\$3,179	\$3,086	\$93	97.1%	2.9%
City of King Cove	\$30,539	\$30,181	\$358	98.8%	1.2%
City of Kodiak	\$58,135	\$56,932	\$1,203	97.9%	2.1%
City of Larsen Bay	\$14,426	\$14,128	\$298	97.9%	2.1%
City of Manakotak	\$5,735	\$5,707	\$28	99.5%	0.5%
City of New Stuyahok	\$5,788	\$5,760	\$28	99.5%	0.5%
City of Newhalen	\$3,891	\$3,872	\$19	99.5%	0.5%
City of Old Harbor	\$15,384	\$15,066	\$318	97.9%	2.1%
City of Ouzinkie	\$15,105	\$14,792	\$312	97.9%	2.1%
City of Petersburg					
City of Port Heiden	\$9,007	\$8,901	\$105	98.8%	1.2%
City of Port Lions	\$15,126	\$14,813	\$313	97.9%	2.1%
City of Saint George	\$8,282	\$7,441	\$842	89.8%	10.2%
City of Saint Paul	\$8,282	\$7,441	\$842	89.8%	10.2%
City of Sand Point	\$32,755	\$32,372	\$383	98.8%	1.2%
City of Seward	\$3,019	\$2,930	\$88	97.1%	2.9%
City of Togiak	\$8,295	\$8,255	\$40	99.5%	0.5%
City of Unalaska	\$456,447	\$332,427	\$124,020	72.8%	27.2%
City of Whittier	\$38,684	\$38,684	\$0	100.0%	0.0%
Subtotal	\$1,661,405	\$1,359,889	\$301,516	81.9%	18.1%
All Other Alaska Communities	\$221,889	\$221,167	\$722	99.7%	0.3%
Grand Total	\$1,883,294	\$1,581,056	\$302,237	84.0%	16.0%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 100. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2016

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$18,833	\$18,607	\$226	98.8%	1.2%
City and Borough of Juneau	\$9,937	\$9,937	\$0	100.0%	0.0%
City and Borough of Sitka	\$31,363	\$31,286	\$77	99.8%	0.2%
City and Borough of Wrangell	\$12,046	\$12,016	\$30	99.8%	0.2%
Aleutians East Borough	\$117,402	\$104,699	\$12,703	89.2%	10.8%
Bristol Bay Borough	\$12,738	\$12,695	\$43	99.7%	0.3%
Kenai Peninsula Borough	\$5,656	\$5,588	\$68	98.8%	1.2%
Kodiak Island Borough	\$81,256	\$80,783	\$473	99.4%	0.6%
Lake and Peninsula Borough	\$29,643	\$29,511	\$132	99.6%	0.4%
Petersburg Borough	\$14,377	\$14,341	\$35	99.8%	0.2%
Yakutat Borough	\$2,615	\$2,615	\$0	100.0%	0.0%
City of Adak	\$124,501	\$110,149	\$14,351	88.5%	11.5%
City of Akhiok	\$19,106	\$18,995	\$111	99.4%	0.6%
City of Akutan	\$173,049	\$153,101	\$19,947	88.5%	11.5%
City of Aleknagik	\$5,872	\$5,853	\$20	99.7%	0.3%
City of Atka	\$113,826	\$100,705	\$13,121	88.5%	11.5%
City of Bethel	\$507	\$507	\$0	100.0%	0.0%
City of Cold Bay	\$9,152	\$9,071	\$80	99.1%	0.9%
City of Cordova	\$28,504	\$28,440	\$64	99.8%	0.2%
City of Dillingham	\$27,135	\$27,044	\$91	99.7%	0.3%
City of False Pass	\$8,279	\$8,206	\$73	99.1%	0.9%
City of Homer	\$2,834	\$2,800	\$34	98.8%	1.2%
City of King Cove	\$33,713	\$33,417	\$296	99.1%	0.9%
City of Kodiak	\$77,280	\$76,831	\$449	99.4%	0.6%
City of Larsen Bay	\$19,013	\$18,902	\$111	99.4%	0.6%
City of Manakotak	\$8,464	\$8,435	\$28	99.7%	0.3%
City of New Stuyahok	\$8,454	\$8,426	\$28	99.7%	0.3%
City of Newhalen	\$5,631	\$5,612	\$19	99.7%	0.3%
City of Old Harbor	\$20,335	\$20,217	\$118	99.4%	0.6%
City of Ouzinkie	\$19,944	\$19,828	\$116	99.4%	0.6%
City of Petersburg					
City of Port Heiden	\$9,904	\$9,817	\$87	99.1%	0.9%
City of Port Lions	\$19,990	\$19,874	\$116	99.4%	0.6%
City of Saint George	\$7,643	\$7,613	\$30	99.6%	0.4%
City of Saint Paul	\$7,643	\$7,613	\$30	99.6%	0.4%
City of Sand Point	\$34,947	\$34,641	\$307	99.1%	0.9%
City of Seward	\$2,707	\$2,675	\$33	98.8%	1.2%
City of Togiak	\$12,100	\$12,059	\$41	99.7%	0.3%
City of Unalaska	\$392,390	\$347,159	\$45,231	88.5%	11.5%
City of Whittier	\$28,504	\$28,440	\$64	99.8%	0.2%
Subtotal	\$1,557,291	\$1,448,508	\$108,783	93.0%	7.0%
All Other Alaska Communities	\$163,202	\$162,847	\$354	99.8%	0.2%
Grand Total	\$1,720,493	\$1,611,355	\$109,137	93.7%	6.3%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.

Table 101. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2017

Municipality, Borough, or City	Total DCCED Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$20,644	\$20,644	\$0	100.0%	0.0%
City and Borough of Juneau	\$10,604	\$10,604	\$0	100.0%	0.0%
City and Borough of Sitka	\$31,790	\$31,105	\$685	97.8%	2.2%
City and Borough of Wrangell	\$12,453	\$12,184	\$268	97.8%	2.2%
Aleutians East Borough	\$217,008	\$78,900	\$138,108	36.4%	63.6%
Bristol Bay Borough	\$16,566	\$15,339	\$1,227	92.6%	7.4%
Kenai Peninsula Borough	\$6,530	\$6,530	\$0	100.0%	0.0%
Kodiak Island Borough	\$78,304	\$73,370	\$4,934	93.7%	6.3%
Lake and Peninsula Borough	\$33,186	\$30,857	\$2,329	93.0%	7.0%
Petersburg Borough	\$14,709	\$14,392	\$317	97.8%	2.2%
Yakutat Borough	\$3,445	\$1,211	\$2,234	35.2%	64.8%
City of Adak	\$241,271	\$82,413	\$158,858	34.2%	65.8%
City of Akhiok	\$18,459	\$17,296	\$1,163	93.7%	6.3%
City of Akutan	\$319,119	\$109,005	\$210,114	34.2%	65.8%
City of Aleknagik	\$7,995	\$7,403	\$592	92.6%	7.4%
City of Atka	\$216,780	\$74,048	\$142,733	34.2%	65.8%
City of Bethel	\$0	\$0	\$0	--	--
City of Cold Bay	\$9,739	\$8,947	\$792	91.9%	8.1%
City of Cordova	\$39,559	\$39,357	\$203	99.5%	0.5%
City of Dillingham	\$36,610	\$33,898	\$2,711	92.6%	7.4%
City of False Pass	\$9,572	\$8,794	\$778	91.9%	8.1%
City of Homer	\$3,450	\$3,450	\$0	100.0%	0.0%
City of King Cove	\$37,127	\$34,108	\$3,019	91.9%	8.1%
City of Kodiak	\$73,886	\$69,231	\$4,656	93.7%	6.3%
City of Larsen Bay	\$18,414	\$17,254	\$1,160	93.7%	6.3%
City of Manakotak	\$11,150	\$10,325	\$826	92.6%	7.4%
City of New Stuyahok	\$11,431	\$10,585	\$847	92.6%	7.4%
City of Newhalen	\$7,326	\$6,784	\$543	92.6%	7.4%
City of Old Harbor	\$19,693	\$18,452	\$1,241	93.7%	6.3%
City of Ouzinkie	\$19,192	\$17,983	\$1,209	93.7%	6.3%
City of Petersburg					
City of Port Heiden	\$10,938	\$10,049	\$889	91.9%	8.1%
City of Port Lions	\$19,210	\$18,000	\$1,210	93.7%	6.3%
City of Saint George	\$7,956	\$6,790	\$1,166	85.3%	14.7%
City of Saint Paul	\$7,956	\$6,790	\$1,166	85.3%	14.7%
City of Sand Point	\$38,827	\$35,670	\$3,157	91.9%	8.1%
City of Seward	\$3,309	\$3,309	\$0	100.0%	0.0%
City of Togiak	\$0	\$0	\$0	--	--
City of Unalaska	\$753,555	\$257,399	\$496,156	34.2%	65.8%
City of Whittier	\$39,559	\$39,357	\$203	99.5%	0.5%
Subtotal	\$2,427,326	\$1,241,831	\$1,185,495	51.2%	48.8%
All Other Alaska Communities	\$175,975	\$172,805	\$3,171	98.2%	1.8%
Grand Total	\$2,603,302	\$1,414,636	\$1,188,666	54.3%	45.7%

Source: Adapted from DCCED Spreadsheet supplied by K. Phillips 10/9/2019.

Table 102. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2018

Municipality, Borough, or City	Total DCCED Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$18,861	\$17,663	\$1,197	93.7%	6.3%
City and Borough of Juneau	\$0	\$0	\$0	--	--
City and Borough of Sitka	\$28,371	\$28,272	\$99	99.7%	0.3%
City and Borough of Wrangell	\$11,156	\$11,117	\$39	99.7%	0.3%
Aleutians East Borough	\$180,820	\$112,679	\$68,141	62.3%	37.7%
Bristol Bay Borough	\$8,715	\$8,034	\$681	92.2%	7.8%
Kenai Peninsula Borough	\$5,540	\$5,188	\$352	93.7%	6.3%
Kodiak Island Borough	\$82,398	\$80,516	\$1,882	97.7%	2.3%
Lake and Peninsula Borough	\$27,087	\$25,836	\$1,251	95.4%	4.6%
Petersburg Borough	\$13,076	\$13,031	\$46	99.7%	0.3%
Yakutat Borough	\$4,293	\$1,398	\$2,895	32.6%	67.4%
City of Adak	\$200,953	\$121,121	\$79,832	60.3%	39.7%
City of Akhiok	\$19,413	\$18,970	\$443	97.7%	2.3%
City of Akutan	\$268,504	\$161,836	\$106,668	60.3%	39.7%
City of Aleknagik	\$4,188	\$3,861	\$327	92.2%	7.8%
City of Atka	\$177,100	\$106,744	\$70,356	60.3%	39.7%
City of Bethel	\$0	\$0	\$0	--	--
City of Cold Bay	\$12,730	\$12,339	\$391	96.9%	3.1%
City of Cordova	\$23,144	\$23,144	\$0	100.0%	0.0%
City of Dillingham	\$18,650	\$17,193	\$1,457	92.2%	7.8%
City of False Pass	\$13,394	\$12,983	\$411	96.9%	3.1%
City of Homer	\$2,620	\$2,454	\$166	93.7%	6.3%
City of King Cove	\$53,704	\$52,055	\$1,650	96.9%	3.1%
City of Kodiak	\$76,921	\$75,164	\$1,757	97.7%	2.3%
City of Larsen Bay	\$19,222	\$18,783	\$439	97.7%	2.3%
City of Manakotak	\$6,110	\$5,633	\$477	92.2%	7.8%
City of New Stuyahok	\$6,117	\$5,639	\$478	92.2%	7.8%
City of Newhalen	\$3,919	\$3,613	\$306	92.2%	7.8%
City of Old Harbor	\$20,692	\$20,219	\$473	97.7%	2.3%
City of Ouzinkie	\$20,005	\$19,548	\$457	97.7%	2.3%
City of Petersburg					
City of Port Heiden	\$14,580	\$14,132	\$448	96.9%	3.1%
City of Port Lions	\$20,177	\$19,716	\$461	97.7%	2.3%
City of Saint George	\$6,958	\$5,861	\$1,097	84.2%	15.8%
City of Saint Paul	\$6,958	\$5,861	\$1,097	84.2%	15.8%
City of Sand Point	\$54,653	\$52,974	\$1,679	96.9%	3.1%
City of Seward	\$2,477	\$2,320	\$157	93.7%	6.3%
City of Togiak	\$8,846	\$8,154	\$691	92.2%	7.8%
City of Unalaska	\$605,576	\$365,001	\$240,575	60.3%	39.7%
City of Whittier	\$23,144	\$23,144	\$0	100.0%	0.0%
Subtotal	\$2,071,072	\$1,482,195	\$588,877	71.6%	28.4%
All Other Alaska Communities	\$141,074	\$139,085	\$1,989	98.6%	1.4%
Grand Total	\$2,212,146	\$1,621,280	\$590,867	73.3%	26.7%

Source: Adapted from DCCED Spreadsheet supplied by K. Phillips 10/9/2019.

Table 103. Alaska DCECD Shared Revenue Amounts by Municipality, Borough, and City by Fishery Tax Type, Communities with Resource Landing Tax Revenues and All Other Alaska Communities, Fiscal Year 2019

Municipality, Borough, or City	Total DCECD Shared Fisheries Revenue	Amount of Shared Fisheries Revenue by Source		Percent of Shared Fisheries Revenue by Source	
		Fisheries Business Tax	Fisheries Resource Landing Tax	Fisheries Business Tax	Fisheries Resource Landing Tax
Municipality of Anchorage	\$16,473	\$16,473	\$0	100.0%	0.0%
City and Borough of Juneau	\$9,883	\$9,883	\$0	--	--
City and Borough of Sitka	\$26,537	\$26,390	\$147	99.4%	0.6%
City and Borough of Wrangell	\$10,376	\$10,318	\$57	99.4%	0.6%
Aleutians East Borough	\$175,985	\$72,508	\$103,477	41.2%	58.8%
Bristol Bay Borough	\$15,340	\$14,098	\$1,241	91.9%	8.1%
Kenai Peninsula Borough	\$4,728	\$4,728	\$0	100.0%	0.0%
Kodiak Island Borough	\$81,629	\$74,228	\$7,401	90.9%	9.1%
Lake and Peninsula Borough	\$35,823	\$34,032	\$1,792	95.0%	5.0%
Petersburg Borough	\$12,307	\$12,239	\$68	99.4%	0.6%
Yakutat Borough	\$7,783	\$1,438	\$6,345	18.5%	81.5%
City of Adak	\$195,796	\$73,844	\$121,952	37.7%	62.3%
City of Akhiok	\$19,020	\$17,295	\$1,724	90.9%	9.1%
City of Akutan	\$262,297	\$98,925	\$163,372	37.7%	62.3%
City of Aleknagik	\$7,784	\$7,154	\$630	91.9%	8.1%
City of Atka	\$171,137	\$64,544	\$106,593	37.7%	62.3%
City of Bethel	\$0	\$0	\$0	--	--
City of Cold Bay	\$11,690	\$11,517	\$173	98.5%	1.5%
City of Cordova	\$30,297	\$30,190	\$107	99.6%	0.4%
City of Dillingham	\$32,171	\$29,567	\$2,604	91.9%	8.1%
City of False Pass	\$11,728	\$11,554	\$174	98.5%	1.5%
City of Homer	\$2,143	\$2,143	\$0	100.0%	0.0%
City of King Cove	\$44,170	\$43,516	\$655	98.5%	1.5%
City of Kodiak	\$75,175	\$68,359	\$6,816	90.9%	9.1%
City of Larsen Bay	\$19,001	\$17,278	\$1,723	90.9%	9.1%
City of Manakotak	\$10,690	\$9,825	\$865	91.9%	8.1%
City of New Stuyahok	\$10,888	\$10,006	\$881	91.9%	8.1%
City of Newhalen	\$7,703	\$7,079	\$623	91.9%	8.1%
City of Old Harbor	\$20,226	\$18,393	\$1,834	90.9%	9.1%
City of Ouzinkie	\$19,575	\$17,800	\$1,775	90.9%	9.1%
City of Petersburg					
City of Port Heiden	\$0	\$0	\$0	--	--
City of Port Lions	\$19,853	\$18,053	\$1,800	90.9%	9.1%
City of Saint George	\$1,809	\$1,809	\$0	100.0%	0.0%
City of Saint Paul	\$1,809	\$1,809	\$0	100.0%	0.0%
City of Sand Point	\$43,790	\$43,141	\$649	98.5%	1.5%
City of Seward	\$2,006	\$2,006	\$0	100.0%	0.0%
City of Togiak	\$15,142	\$13,916	\$1,225	91.9%	8.1%
City of Unalaska	\$587,329	\$221,510	\$365,819	37.7%	62.3%
City of Whittier	\$30,297	\$30,190	\$107	99.6%	0.4%
Subtotal	\$2,050,388	\$1,147,756	\$902,631	56.0%	44.0%
All Other Alaska Communities	\$138,817	\$137,033	\$1,784	98.7%	1.3%
Grand Total	\$2,189,205	\$1,284,789	\$904,416	58.7%	41.3%

Source: Adapted from DCECD Spreadsheet supplied by K. Phillips 10/9/2019.