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# **A Review of Community Support Measures Included in Alaskan Fisheries and a Roadmap for their Use in Sustaining and Rebuilding Small Fishing Communities**

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# **A Review of Community Support Measures Included in Alaskan Fisheries and a Roadmap for their Use in Sustaining and Rebuilding Small Fishing Communities**

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## Abstract

This chapter looks at how Alaskan commercial fisheries have evolved and how this has affected small coastal communities. Alaska's commercial fisheries policies and regulations have maintained the biological integrity of the ecosystem, but they have also, intentionally or inadvertently shaped the economies of fishery-dependent communities along the Alaskan coastline. Federal fisheries off Alaska are conducted under the Fisheries Conservation and Management Act of 1976 (Public Law 94-265), later renamed the Magnuson-Stevens Fisheries Conservation and Management Act (MSA). The MSA expanded U.S. fishing boundaries from 12 miles to 200 miles offshore of the United States coast and required the establishment of Fishery Management Plans (FMPs) for all fisheries in the U.S. Exclusive Economic Zone (EEZ). The MSA subdivided the U.S. EEZ into eight regions and articulated eight (now ten) national standards that each FMP must satisfy to ensure the conservation of fish stocks and to sustain marine ecosystems and fisheries dependent communities (NOAA 2018b). In the decades since enactment of the MSA, the attention of the Regional Fishery Management Councils (FMCs) that propose FMPs and the National Marine Fisheries Service (NMFS), which develops and enforces regulation to implement FMPs, has primarily focused on those national standards that address the conservation of fish stocks and marine ecosystems; national standards that address the social and economic sustainability of fishing and fisheries-dependent communities have been treated as less imperative. This chapter reviews FMP amendments that the North Pacific Fishery Management Council (NPFMC) has adopted to foster the sustained participation of fishing communities.

By expanding the U.S. fishing boundaries, the MSA encouraged the expansion of U.S. fishing fleets. This expansion was particularly dramatic in the U.S. EEZ off Alaska, where groundfish stocks had been exploited, almost exclusively, by foreign-flagged fishing fleets. MSA provisions that promoted the Americanization of fisheries in the U.S. EEZ led to a rapid evolution in the fisheries off Alaska. Between 1976 and 1990, the groundfish fisheries off Alaska went from largely foreign catching and processing to joint ventures between U.S.-flagged catcher boats and foreign-owned processors and then to a fully Americanized fishery. By the early 1990s, many of these American fisheries had fleets that could quickly harvest the total annual catch, and the competition among the vessels participating in these fisheries continued to increase (Strong and Criddle 2013).

The resulting race-for-fish reduced the value of the landed catch, increased the risk of overharvest, increased risk-taking by fishermen, and reduced the economic viability of fishing.

Consequently, the NPFMC began to adopt fishery policies to restrict access to the fisheries. Community Development Quotas (CDQs) for 7.5% of the pollock TAC were allocated to six non-profit entities representing 65 western Alaska communities in 1992. Individual Fishing Quotas (IFQs) were implemented in the halibut and sablefish fisheries in 1995. Coop allocations were implemented in the pollock fishery in 1999. The scallop fishery was closed to new entrants in 2000. IFQs and Individual Processor Quotas (IPQs) were implemented in the Bering Sea and Aleutian Island (BSAI) crab fisheries in 2005. And, coop allocations were introduced in the Gulf of Alaska (GOA) rockfish fishery in 2007, in the BSAI groundfish trawl fishery in 2008, and in the BSAI groundfish longline fishery in 2010. Faced with similar challenges, the State of Alaska began in 1973 to limit entry to salmon, herring, and other oversubscribed state-managed fisheries. While restricted access management helped to make the fisheries more manageable and addressed some economic and social concerns, it changed the economic and social dynamics among fishermen, crew, processors, and their Alaskan communities. This chapter explores the attributes, successes, and failures of management measures intended to avoid or mitigate unintended community impacts of restricted access management in state and federal fisheries off Alaska.

As noted above, many state and federal fisheries off Alaska transitioned to some form of a limited entry license program (LEP), and many federal fisheries subsequently transitioned to some form of an IFQ or coop catch share program (Brinson 2013). Implementing a catch share program is challenging and frequently controversial even though catch share programs are widely recognized as a practical approach to end overfishing (Costello et al. 2008; Grimm et al. 2012; Melnychuk et al. 2016). Transitions to LEP or catch shares in different fisheries have affected different communities differently. While fishing and fishing-dependent economic activity has increased in some communities, many small remote rural Alaska communities have experienced a decline in their engagement in halibut, sablefish, and salmon fisheries in the wake of the transition from open access to limited entry or catch shares (NOAA 2010; CFEC 2018). Since catch share and LEP programs were implemented, policymakers have recognized this trend and have tried to assist communities with special programs; some of which have been successful, others less so.

This paper focuses on the halibut and sablefish IFQ program (NRC 1999a), but also looks at some of the other major commercial fisheries in Alaska; these include the salmon, pollock, and crab fisheries. Alaskan fisheries are often looked at worldwide as successful from a biological perspective, but all of them have had rough periods in their histories, and some have experienced economic disasters, with widespread adverse social and economic consequences for vulnerable communities (Criddle 2012).

When a new policy is developed to rationalize a fishery, policymakers should take into account the effects the policy could have on the viability of small communities, and policymakers should consider options that will contribute to the social and economic sustainability of those communities. For example, the inclusion of an option to establish a community quota and measures to assist community acquisition of quota could improve the retention or reestablishment of a community-based fishing fleet.

The State of Alaska has designated programs for salmon commercial fishermen (as well as other fisheries) to apply for loans to purchase quota. The goal of this program is to provide loans to promote the development of Alaska resident fisheries participation in commercial fishing. The program provides loans for several commercial fisheries in Alaska, including loans for vessel purchase, the purchase of limited license permits or quota shares, purchases of fishing gear, and engine fuel efficiency upgrades, and loan refinancing (NPFMC 2016). Unfortunately, very few small communities can qualify for these loans and take advantage of these programs.

In addition, the Alaska Board of Fisheries (BOF) has implemented several programs for the salmon fishery, such as permit stacking and dual permit operations. Permit stacking allows a single individual who holds two permits to fish two full complements of gear. While permit stacking may increase the economic viability of fishing operations, it reduces the number of permit holders. In contrast, dual permit regulations allow two permit holders to fish on a single vessel using nets up to 33% longer than nets allowed for a single permit. In designing the dual permit program, the BOF sought to reduce barriers to entry, by obviating the need for would-be entrants to purchase a fishing vessel as well as a limited entry permit. While the number of new entrants increased

following implementation of the dual-permit regulation, most of those new entrants in the Bristol Bay salmon fishery have been non-residents (CFEC 2018).

In the early 1990s, when the BSAI pollock fishery descended into an internecine political battle between inshore and offshore sectors, Harold Sparck from Bethel proposed that a small percent of the pollock quota be set aside to support the economic development of western Alaska communities (Strong and Criddle 2013, King 2009, NRC 1999b). The proposal was adopted as an amendment to the BSAI Groundfish FMP as the Western Alaska CDQ program (NPFMC 1992). Initially, 7.5% percent of the total allocation of pollock was given to these communities, and they were given authority to lease their quota to commercial firms in exchange for royalty payments and other considerations (Strong and Criddle 2013). Those royalties helped the communities diversify their economic base and provide new opportunities for stable, long-term employment and allowed Western Alaska residents to participate in the BSAI fisheries. Seventy-two communities benefit from the CDQ program and have been receiving royalties through their CDQs for nearly 30 years. In 2018, altogether, the CDQs received 200,000 MT of groundfish quota, 1 million pounds of halibut and sablefish quota, and 37,260 pounds of crab quota (NOAA 2019c). Based on those royalties and earnings from investments financed by those royalties, together, the six CDQ entities have amassed more than one billion dollars in net assets to manage on behalf of their communities (Ruskin 2018).

A second community program, the community quota entity (CQE) program, was started in 2004 to help communities in Southeast Alaska and across the GOA region retain or regain engagement in the halibut and sablefish fisheries. Unlike the CDQ program, the CQE program did not begin with direct allocation of quota. Instead, it modified ownership restrictions of the halibut and sablefish IFQ programs so that qualifying CQEs could purchase and hold quota. The regulations selected 42 eligible communities to participate. As of 2019, however, only five communities have purchased quota (NOAA 2016).

The BSAI Crab IFQ program, implemented in 2006, included the Eligible Crab Community (ECC) program, which mirrored the CQE program (50 CFR 680.41(j)). As of 2019, none of the nine eligible communities has taken advantage of this opportunity. In the state-managed Norton Sound

red king crab fishery, the implementation of superexclusive registration requirements has helped protect local communities by increasing opportunity costs of participating in the Norton Sound fishery for large vessels that participate in the major Bering Sea crab fisheries. Superexclusive registration allows crab vessels to fish in this fishery only if they do not participate in any other commercial crab fishery.

After a review of restricted access management programs and rural community protection measures, this chapter turns to the development of a roadmap to help rural communities sustain or reestablish their fishing fleets. Several steps could be taken to help these communities regain quota. For example, a first step might be to provide communities with a readily accessible description of all the programs that are currently available and how the communities could take advantage of these opportunities. Some of the regulations are complex and have reporting requirements that an accessible description would elucidate for communities. A second step might be to help communities identify and qualify for funding to support the acquisition of quota shares. A third step might be to help communities identify options for allocating fishing opportunities to community members and recovering costs of quota share acquisition.

Another avenue explored in this paper is the development of fisheries trusts. Fisheries trusts are patterned after farm trusts, and other such land trusts structured to maintain traditional rural land uses and associated communities. There are several fisheries trusts in the United States, including a newly formed trust in Sitka, Alaska, these were all established to help small communities and fishermen gain entry into the limited entry fisheries.

The last section of this paper looks at the outcome of the programs and a discussion of the current marine policy issues related to sustaining and rebuilding small fishing communities.



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## **Introduction**

This chapter is concerned with the current character and performance of the halibut and sablefish fisheries in light of the Individual Fishing Quota (IFQ) program implemented in 1995 and provides an overview of limited entry and catch share programs implemented in other Alaskan commercial fisheries. The chapter considers how the different management programs in different Alaska fisheries have affected coastal communities. The chapter then examines the efficacy of various programs enacted to help communities maintain their foothold in the fishery.

Many factors can affect a fishery and its successful management. These factors include biological fluctuations, environmental and ecological changes, as well as changes in technology, social preferences, and changes in input and output prices. Fisheries development often follows a pattern of open access leading to over-capitalization, an ever-intensifying race-for-fish, and overharvest and depletion of the fished stock and bycatch species. Fishery managers typically respond with measures intended to scale back the amount of fishing pressure that is exerted on the stock. Managers often begin by shortening seasons or setting trip limits on landed catch. When such measures prove inadequate, managers often introduce caps on the number of vessels or limitations on the amount of gear fished. However, restrictions on numbers of vessels or amounts of gear are usually inefficacious as fishermen can reconfigure input factors to take advantage of unconstrained margins of production technology (Abbott et al. 2015).

Over time, most of the state and federal fisheries off Alaska have come to be managed under LEP or catch share programs. The process of development and adoption of these programs was often long and involved a great deal of input from all levels of the public. Even when such management measures succeed at conserving fish stocks and sustaining marine ecosystems, they often fail to ensure economic sustainability, let alone the sustainability of fishing communities. However, while catch share programs improve economic sustainability and may reinforce the conservation of fish stocks, they may contribute to the decline of remote fishing communities. Alaska fisheries have been held up as world-class examples of fisheries managed correctly and successfully from a biological perspective. However, many of the fisheries in Alaska have been at one time or another experienced or come close to experiencing economic disaster. Moreover, it is generally not recognized that management measures that were intended to improve the conservation of stocks,

protect marine ecosystems, and improve the economic condition of fishing vessel owners and processing companies have had adverse impacts on some remote coastal fishing communities.

A brief overview of Alaska's fisheries gives a glimpse of the historical trends that shaped the management of the fisheries. The largest fisheries in Alaska include the salmon fishery, the BSAI pollock fishery, the BSAI crab fishery, and the halibut and sablefish fishery, each of which has affected the coastal communities in the state of Alaska differently.

### **Salmon Fisheries**

Alaska's salmon fisheries have not always been sustainably managed. Under the influence of cannery owners and with limited federal oversight, many of Alaska's salmon fisheries were overfished (King 2009). Consequently, when Alaska became a state in 1959, the first law enacted for the Alaska salmon fisheries instituted a ban on the use of fish traps (Clark 2006). This ban reduced the oligopsony power canneries exercised over fishermen and favored the expansion of a fleet of small independently-operated boats (King 2009, Cooley 1963). Gaining control of the salmon resources was one of the main reasons for such strong support among Alaskans to make Alaska a state. After statehood and limits placed on canneries, the salmon fisheries experienced a rush of new entrants, in some fisheries, there were so many fishing vessels that the fisheries became unmanageable. In 1972, following a constitutional amendment, the state imposed a limited entry permit (LEP) program to try to control the further expansion of the fishery (Clark 2006). The LEP program capped the number of boats but failed to prevent continued escalation of fishing power because fishermen are often able to increase catches by using new technology or other methods (Wilen 1988; Karpoff 1987). For example, in the Bristol Bay salmon fishery, fishermen got around limits on the number of permits and the 32-foot length vessel length limit by purchasing vessels that were wider and had larger hold capacity. Some of these vessels are 32 feet long and up to 22 feet wide. Exvessel revenue and the market value of LEPs soared in the mid-1980s due to increased global demand for salmon and declines in salmon production in other regions (Ward et al. 2018). However, beginning in the 1990s, aquaculture production in Norway and Chile rapidly increased as technological innovations caused production costs to decline (Asche 1997; Asche et al. 1999; Olson and Criddle 2008; Steiner et al. 2011). By the early 1990s, the enormous global growth of salmon aquaculture depressed salmon exvessel prices in Alaska to such an extent that it caused closures of fishing plants in many Alaskan communities (Herrmann 1992; Herrmann 1994). The

declines in inflation-adjusted exvessel prices continued through the mid-2000s, leading to widespread hardship among LEP holders and in fishing communities (Herrmann et al. 2004; Williams et al. 2009; Criddle and Shimizu 2014).

### **Salmon Fisheries Management**

Alaska's salmon fisheries are managed by the Alaska Department of Fish and Game (ADFG). The ADFG operates under a constitutional mandate to conserve fish stocks to maximize sustained harvests (Clark et al. 2006). Article 8§4 of the Alaska constitution states, "Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle." To achieve this objective, ADFG follows a "fixed escapement" harvest strategy intended to ensure that sufficient numbers of mature salmon escape capture in the fishery and are allowed to spawn in the rivers. Escapement goals are set to maximize long-run sustained yields. Salmon managers open and close fisheries daily to ensure that adequate spawning escapements are achieved: when runs are weak, fisheries are closed; when runs are strong, fisheries are opened. Alaska's focused emphasis on in-season management by local biologists with delegated regulatory authority to ensure sustained yields is a crucial ingredient to successful salmon management (Clark 2006). The state salmon fishery is divided up into regions that are managed separately based on real-time information from daily information on catches and escapement.

Salmon are distributed from Southeast Alaska to the Arctic but are most abundant in Bristol Bay, Prince William Sound, and Southeast Alaska. Figure 1 presents a recent time series of salmon catches by ADFG management region.



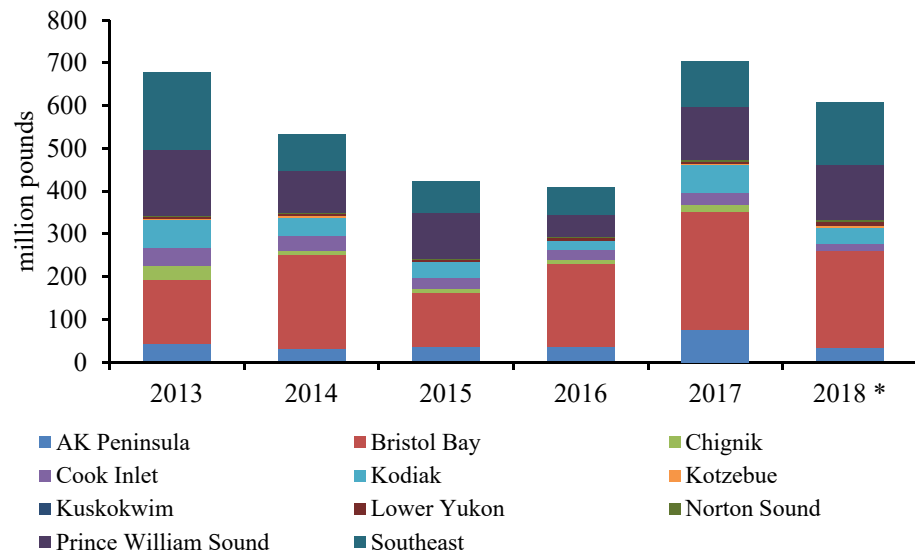


Figure 1. Salmon landings (million pounds) by state management region, 2013- 2018 (Brenner 2019) (\*2018 is tentative).

### Geographic Distribution of Alaska Salmon LEP Holders

While most salmon LEP holders are state residents, over 25% of salmon LEPs are held by nonresidents (Figure 2).

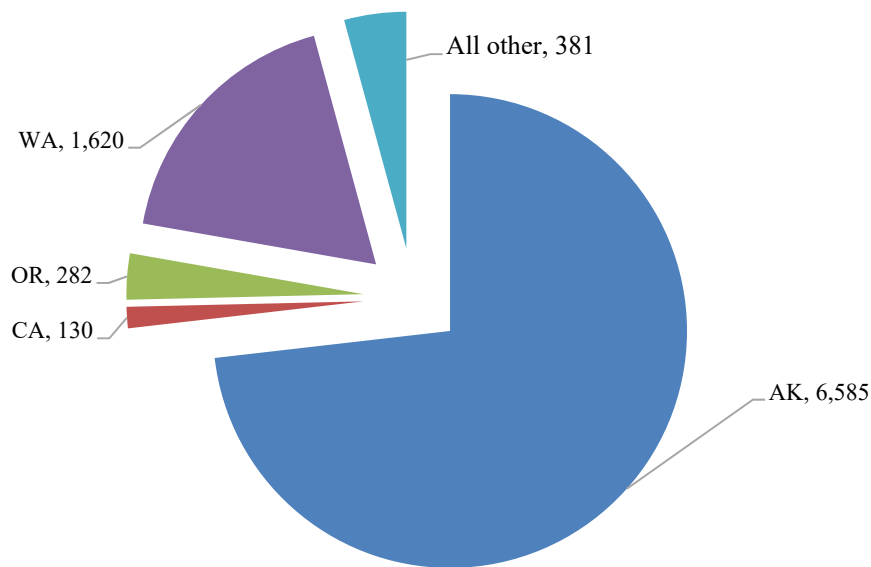


Figure 2. Geographic distribution of salmon limited entry permit (LEP) ownership (number of permits) by state of residence in 2018. (Source: CFEC)

As a fishery goes through a transformation from open-access to a limited access program, the number of active fishing vessels is often reduced and can lead to concentration of permit ownership. This outcome was not apparent in the Alaska salmon fisheries because individuals are prohibited from owning more than a single LEP in any given fishery.

### **Homeports of Alaska Salmon Fishing Vessels**

Many nonresident salmon LEP holders homeport their vessels in Alaska. Salmon fishing vessels homeported in Alaska represent 84% of the fleet (7,558 vessels in 2017); the remaining vessels are mostly homeported in Washington (11%), with a few vessels homeported in Oregon (1%) and the remainder in other states (Gho 2018).

### **Economics of the Alaska Salmon Fishery**

In the 2018 Alaska commercial salmon fishery, the harvest of all salmon species was approximately 605.5 million pounds, with an estimated exvessel value of \$595.5 million, a 13% decrease from the 2017 value of \$696.5 million (ADFG 2018). Alaska's sockeye salmon fishery represents nearly 7% of the total value of all the fisheries in the United States (NMFS 2018). During 2018, sockeye salmon represented 44% of the catch and 60% of the catch value, while pink salmon represented nearly 40% of the catch but only 12% of the catch value. Chum salmon catch was unexpectedly low in 2018 (ADFG 2018).

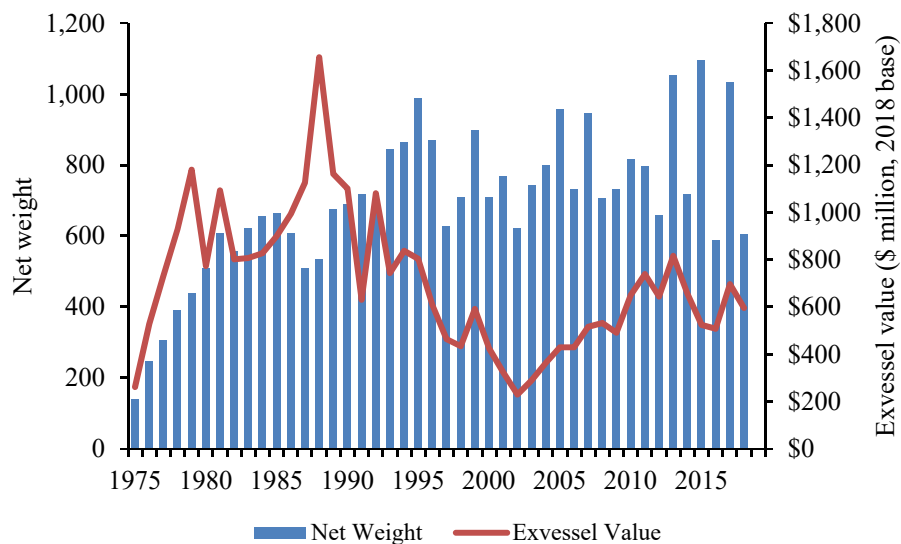


Figure 3. Commercial statewide landings (million pounds) and nominal exvessel value (\$ million) of salmon, 1975-2018 (ADFG 2018).

From a peak in 1988, exvessel revenues declined precipitously through 2002, even though catches remained high. In terms of inflation-adjusted revenues, the collapse represented a loss of 86% of the 1988 peak. This collapse created social and economic turmoil in salmon fishing communities, because, in addition to affecting annual revenues to fishermen, it reduced the asset value of their LEPs, often to levels below their outstanding loan value (Criddle 2012). Since this time, the salmon fishery has started to recover, but LEP ownership has increasingly shifted away from small rural communities towards larger communities in Alaska and to other states. The rural regions of Alaska have seen the most substantial drop in salmon LEP permit holdings (CFEC 2018). In the 1970s, residents of rural communities held 54% of the total salmon LEPs; by 2004, their share of LEPs had dropped to 44% (CFEC 2012).

### Pollock Fisheries

Pollock occur around the North Pacific Rim, from Japan to the U.S. Pacific Northwest, but are most abundant in the Bering Sea and the Sea of Okhotsk. Pollock fisheries occur in State waters off Alaska and in U.S. federal waters in the GOA and BSAI regions. State fisheries for pollock in Prince William Sound are open-access with catch limited by a Guideline Harvest Limit (GHL) that is deducted from the Total Allowable Catch (TAC) for federal waters in the Eastern GOA. State fisheries for pollock in the GOA are also open-access but are subject to state regulations that

parallel federal regulations on harvests. Pollock fisheries in GOA federal waters operate under a License Limitation Program (LLP). Evolution of the management of pollock fisheries in the BSAI is described below.

At the time that the MSA was enacted in 1976, the pollock fishery in Alaska was primarily foreign. Americanization provisions of the MSA and declines in the GOA and BSAI crab fisheries encouraged the rapid development of a fleet of U.S.-flagged pollock catcher boats. By the mid-1980s, nearly all GOA and BSAI pollock were harvested by U.S. flagged vessels, while most of the processing occurred aboard foreign-flagged vessels or in foreign-owned onshore processing plants. The joint venture era ended in 1990 as foreign-flagged processing vessels were squeezed out under Americanization provisions of the MSA and as ownership of catcher-processors and onshore processing plants was restructured to comply with Americanization requirements. Because there were no regulatory restrictions on new participation in the fishery, harvesting and processing capacity continued to expand throughout the 1990s. As typical of regulated open-access fisheries (Homans and Wilen 1997), the excess capacity for fishing vessels entering led to shortened fishing seasons, wasteful discards of fish, and the general overcapitalization of the fishery (Strong and Criddle 2013). The excess fishing and processing capacity fueled political battles over allocations between representatives of onshore processing plants and the vessels that delivered to them and representatives of catcher-processors, motherships, and vessels from whom they received deliveries (Herrick et al. 1994; NPFMC 1992a). Also, the excess capacity led to a cycle of bankruptcies and recapitalizations of fishing vessels and catcher-processor vessels (Strong and Criddle 2013). The open-access character of the BSAI pollock fishery ended in 1998 with the passage of the American Fisheries Act (AFA). The AFA established a permanent moratorium on new vessels entering the fishery and assigned each sector a permanent share of the BSAI pollock TAC. Also, the Act provided for the buyout of nine of the 29 catcher-processor vessels that were then active in the fishery and allowed each sector to subdivide catch shares among its vessels.

### **BSAI Pollock Fishery Management**

The American Fishery Act (AFA) established a moratorium on entry into the BSAI pollock fishery, authorized the formation of fishing cooperatives, and established a permanent allocation of the BSAI pollock TAC among sectors and to the Western Alaska Community Development Quota

(CDQ) program (AFA 1998). Ten-percent of the BSAI pollock TAC is allocated to the CDQ program. The remainder (90%) of the BSAI pollock TAC, minus a small reserve for management uncertainty, is allocated 50% to the inshore sector (catcher vessels delivering to onshore processors), 40% to the offshore (catcher processors), and 10% to catcher vessels that deliver to motherships (AFA 1998; Strong and Criddle 2013). Harvests of BSAI pollock in 2017 are reported in Figure 4 for each sector.

The AFA also contained other significant provisions, including minimum U.S. ownership requirements applicable in all U.S. fisheries, a permit/vessel buyout, a listing of qualified vessels, processor eligibility requirements, revised sector allocations, provisions for fishery cooperatives, and sideboard provisions. For the inshore sector, eligible processing plants and catcher vessels were defined based on catch or processing history, and a total of 111 catcher vessels and eight processing plants qualified. The AFA specifies that pollock taken in the inshore sector’s directed fishery can only be taken by qualified vessels and delivered to qualified processing plants. These vessels are collectively called the AFA catcher vessel fleet (Strong and Criddle 2013).

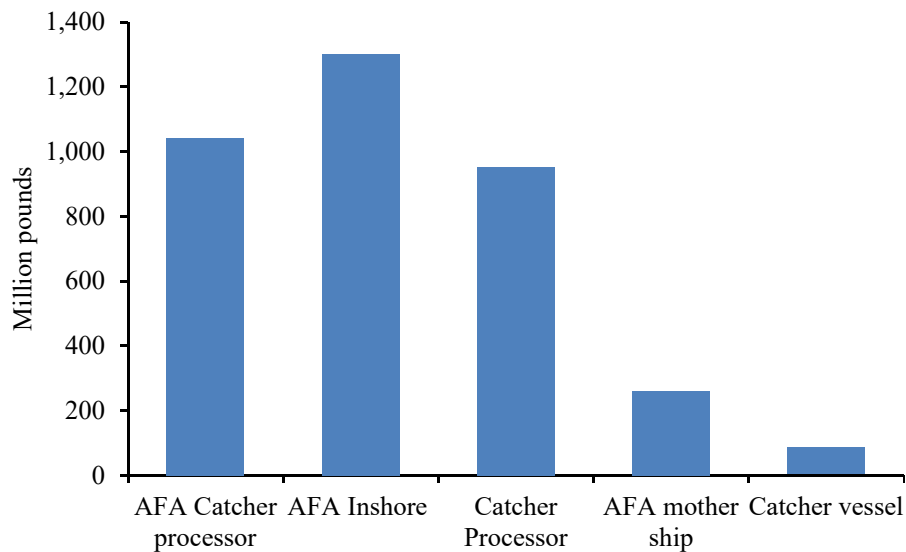


Figure 4. Amount of pollock (million pounds) caught in the BSAI pollock fishery, by sector in 2018.

The transformation of a fishery from open-access to a catch share management system often leads to reductions in the number of active fishing vessels and can lead to concentration of QS ownership. The contraction of fleet numbers in the pollock fishery occurred in two phases. In the first phase, the AFA engineered a buyout of nine catcher-processors and reallocated a portion of

their catch history to the inshore sector. The second phase occurred within sectors as firms mothballed some of their vessels to increase the fishing efficiency of their remaining vessels, and as profitable firms bought QS from less profitable firms.

**Geographic Distribution of Pollock fishery QS holders**

Ownership of the QS for catcher-processors is mostly held by companies based in the Puget Sound region.

- The AFA Catcher Processor fleet has 20 members: one based in Alaska and the rest in Washington State.
- All of the AFA inshore processors are based in Washington State.
- The three AFA motherships are based in Washington State.
- AFA catcher vessels that deliver to inshore processors or motherships are mostly based in Seattle (60%), with 24% in Alaska and 16% in Oregon.

The vessels that are qualified to fish for the AFA fishery are updated automatically and listed on the NOAA website (NOAA 2019).

**Homeports of BSAI Pollock Fishing Vessels**

A majority of the BSAI pollock fleet is homeported in Washington, with a small portion in Alaska and the remainder in Oregon (Figure 5).

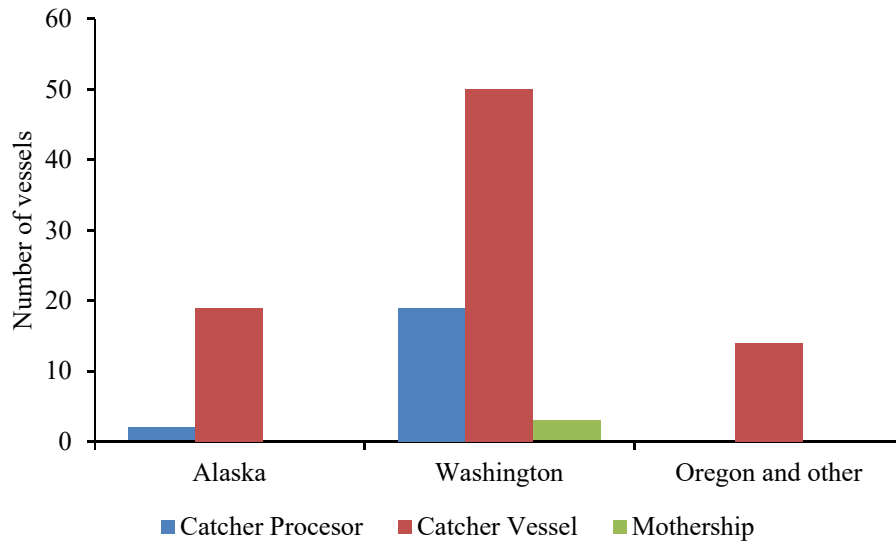


Figure 5. The geographic concentration of the AFA vessels by vessel category and homeport, 2018.

While many of these vessels purchase support services in the port communities where they deliver their catch, most rely on the more extensive capabilities of shipyards in Washington and Oregon for major services and annual maintenance.

### **Economics of the BSAI Pollock Fishery**

The BSAI pollock fishery is among the largest in the world, with an annual harvest of 3.38 million pounds caught on a sustainable basis. In 2017, the BSAI pollock fishery was worth \$413 million gross exvessel value (NMFS 2018). In 2017, landings from this fishery represented 28% of the total volume and 17% of the total value of fish caught by the U.S. (NMFS 2018). The AFA sectors formed cooperatives and subdivided the sector allocation among qualified vessels, thereby eliminating the race for fish, which allowed them to improve their targeting, increase their product recovery rate (Felthoven 2002), and transition to higher-valued products (Strong and Criddle 2013). Revenue per active pollock vessel increased by 114% from 1999 to 2004 (from \$1.8 million to \$3.5 million per vessel (Brinson 2013). The revenue per vessel decreased to \$2.2 million in 2010 (Brinson 2013). In 2018, the revenue per AFA vessel was estimated at \$3.5 million.

The main products of the pollock fishery are roe and surimi for the Japanese market and fillets for the U.S. market, but the global market has expanded to allow the product flow to expand into new domestic and international markets in Europe and other areas (Strong and Criddle 2013). AFA pollock catcher vessels deliver whole fish to the processing plants, who then convert the raw fish into fillets, surimi, roe, fish oil, minced fish, and fishmeal. The catcher vessel fleet delivered 90% of its pollock catch to Dutch Harbor and Akutan.

The AFA significantly altered the BSAI pollock fishery by allowing the formation of harvesting and processing cooperatives and defining exclusive fishing rights. Results from multi-input, multi-output models indicate that fishing capacity fell by more than 30% and that technical harvesting efficiency and the capacity utilization measures increased relative to past years (Felthoven 2002). The management changes in the AFA caused significant structural change to the price response (Fell 2008). The fishery had significant growth in economic productivity and the higher revenue, which suggests that the move to rights-based management has significantly increased the economic performance in the pollock fishery (Morrison-Paul et al. 2009).

The increased value came about because freedom from the race for fish allowed fishers and processors to increase product quality, improve product recovery rates, diversify their mix of product forms, and develop new markets in the USA and Europe (Strong and Criddle 2013). In contrast to the salmon or halibut fisheries with ties to coastal communities throughout Alaska, the pollock fleet is primarily based out of the Pacific Northwest, and shore-based processing of the pollock takes place primarily in Dutch Harbor/Unalaska and Akutan, with small amounts of BSAI pollock landed and processed in Sand Point, Adak, and Kodiak. However, the pollock fishery also has a significant financial footprint throughout Western Alaska through the CDQ program.

### **Crab Fisheries**

Crab fisheries occur in state and federal waters off Alaska from Southeast Alaska to Northwest Alaska. Dungeness crab fisheries are mostly confined to state waters and are managed under state LEP programs. Fisheries for hair crab, king crab, snow crab, and Tanner crab occur in state and federal waters. Figure 6 represents the boom-and-bust pattern of catches in the major crab fisheries off Alaska. In Southeast Alaska and across the Eastern and Central GOA, management of crab fisheries is delegated to the state, which issues LEPs. The state and federal governments jointly manage crab fisheries in the BSAI. In the BSAI, the state issues LEPs for nearshore crab fisheries and minor species, while the federal government oversees six crab stocks (Bristol Bay red king crab, Bering Sea Tanner crab, Bering Sea snow crab, St. Matthew Island blue king crab, and Pribilof Islands red and blue king crabs). Those six fisheries are the primary focus of this section.



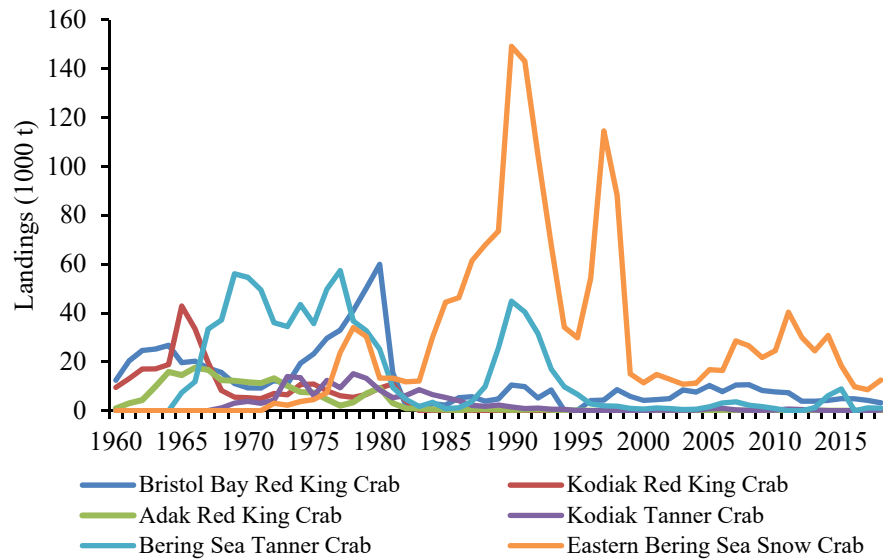


Figure 6. Landings in major crab fisheries off Alaska, 1960-2018 (Foster 2019).

In the immediate aftermath of MSA implementation, the NPFMC deferred the management of BSAI crab fisheries to the State of Alaska. The state relied on annual GHs and size-season-sex regulations to guard against overharvesting. In response to unmanageable increases in the number of crab fishing vessels, the state implemented an LEP program. However, limiting the number of vessels failed to stop the race-for-catch from intensifying as fishermen replaced small vessels with larger vessels and carried ever-increasing numbers of crab pots. Limits on the number of crab pots per LEP also failed to slow the race-for-catch and the ensuing dangerous fishing practices (Greenberg and Herrmann 1994; Herrmann et al. 1998). Vessels that waited out winter storms in safe harbor lost fishing days while some of those that went to sea despite dangerous weather conditions lost their lives; BSAI crab fishery saw 80 fatalities between 1991 and 2005 (Pfeiffer and Gratz 2016).

Moreover, each of these state management efforts needed to be paired with complementary action by the NPFMC, something that became increasingly difficult to achieve. In the mid-1990s, the state yielded responsibility for BSAI crab fisheries management to the NPFMC but retained a role in stock assessment and in-season management. In 2005, the NPFMC adopted a catch share program for BSAI crab fisheries that included IFQ issued to vessel owners and skippers, and

Individual Processor Quota (IPQ) issued to processors.<sup>1</sup> Ninety-percent of the QS (class A shares) associated with IFQ must be delivered to a processor who holds processor quota shares (PQS), the annual realization of their IPQ. The remaining QS (class B shares) can be delivered to any processor. The amount and type of QS initially issued depended on the vessel catch history during specific qualifying years.

### **BSAI Crab Fisheries under IFQ and IPQ Management**

The BSAI crab fisheries are managed under an FMP that outlines a harvest control rule that adjusts Acceptable Biological Catch (ABC) according to estimates of current and future stock abundance. The NPFMC sets an annual TAC for each fishery at or below the ABC. The NMFS is responsible for monitoring catch to ensure that the TAC and individual QS are not exceeded. The total tonnage of commercial landings of BSAI crab was 64.03 million pounds in 2016.

The BSAI crab FMP covers nine stocks: Bristol Bay red king crab, Bering Sea snow crab, Eastern Bering Sea Tanner crab, Western Bering Sea Tanner crab, Eastern Aleutian Islands golden king crab, Pribilof Islands red and Pribilof Islands blue king crab, St. Mathews Island blue king crab, Western Aleutian Islands golden king crab, and Western Aleutian Islands red king crab. Four of these fisheries have remained closed for more than a decade. The five crab fisheries open during 2018 were the Bristol Bay red king crab, Bering Sea snow crab, Eastern Bering Sea Tanner crab, Western Aleutian Islands red king crab, and Western Bering Sea Tanner crab fisheries. Figure 7 shows the crab catch history by fishery over the past 27 years (NOAA 2019b).

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<sup>1</sup> In this chapter, the acronyms IFQ and QS (quota shares) will be used interchangeably to denote the long-term privilege to harvest a share (percentage) of the TAC or the annual realization (pounds) of that privilege. Similarly, IPQ and PQS (processor quota shares) will be used interchangeably. The specific meaning of these terms in U.S. regulation, where QS and PQS denote the long-term use right and IFQ and IPQ denote the annual realization of the use right, is contrary to the usage of these terms in scholarly publications and other world fisheries.

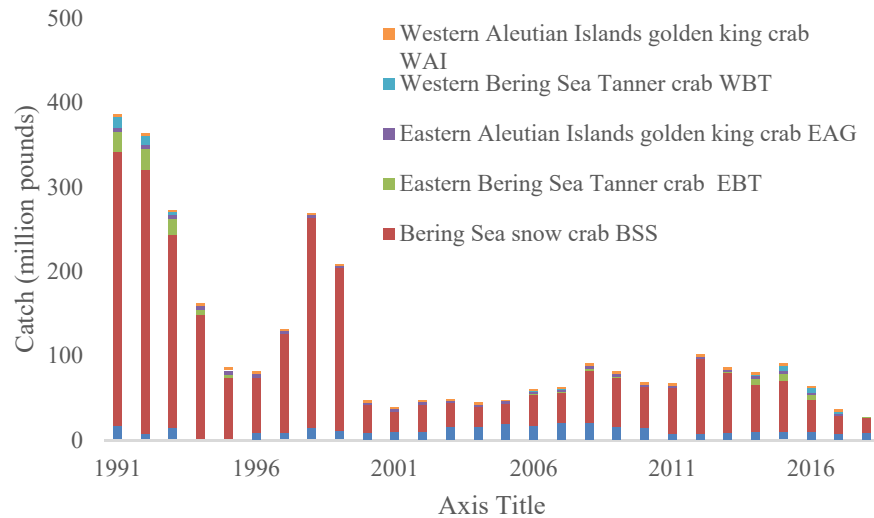


Figure 7. Total landings, by fishery, in BSAI crab fisheries, 1991-2018.

### Geographic Distribution of BSAI Crab QS Ownership

Ownership of BSAI crab QS reflects the high historical participation of Pacific Northwest fishermen. Residents of Washington currently hold 56% of the crab QS, and Oregon residents currently hold 12% of the crab QS, while Alaska residents currently hold 28% of the crab QS. Within Alaska, BSAI crab QS ownership is broadly distributed, reflecting, in part, allocations among the CDQ entities and the historical participation of fishermen from Kodiak, Homer, and Southeast Alaska.

### Homeports of BSAI Crab Fishing Vessels

Although a majority of the BSAI crab fishing fleet is homeported in the Pacific Northwest, nearly 48% of the fleet is homeported in Alaska (Figure 8). Although BSAI crab fishing vessels are large, they are not as large as vessels engaged in the BSAI pollock fishery, and many can secure needed port services in Alaska (NPMC 2017).

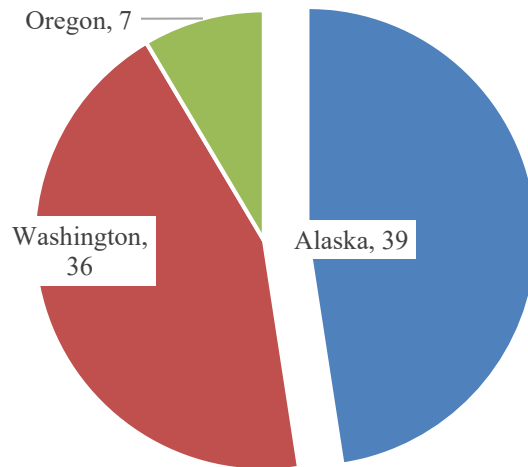


Figure 8. The geographic concentration of the BSAI crab fishing vessels (numbers) by vessel homeport, 2019.

The port of Kodiak has added infrastructure to allow the crab vessels to conduct most of their maintenance and repairs in Kodiak. Consequently, many crab vessels stay in Kodiak unless they need significant work done; then, the owners run the boats to Seattle. Many of the crew and skippers fly into Kodiak and take the boats to the grounds for the season (Freed 2019).

Consolidation of the BSAI crab fleet in the wake of catch share program implementation was more rapid and more extreme than consolidation in the pollock fishery following the AFA. It was also more rapid and more extreme than the consolidation that occurred in the halibut and sablefish fisheries following the adoption of IFQs. Figure 9 depicts time series observations of vessel participation numbers in eight BSAI crab fisheries.

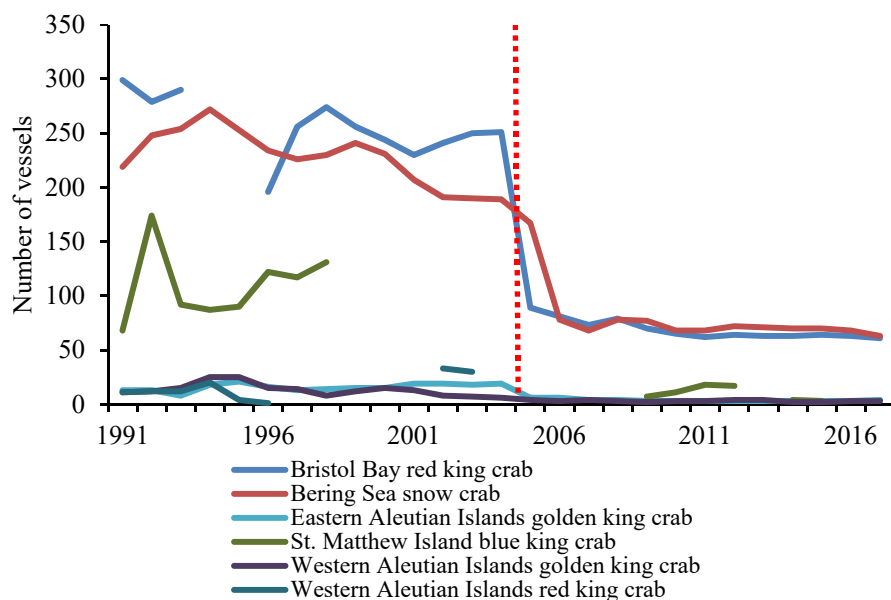


Figure 9. The number of vessels fishing for crab, by fishery, 1991-2018. The dashed vertical line denotes the implementation of the BSAI crab IFQ program.

Between the 2004/2005 and the 2005/2006 seasons, the initiation of the IFQ program, the BSAI crab fishing fleet shrank from 280 vessels to 89 vessels (NPFMC 2008). Consolidation of the fleet had been anticipated in the regulatory review documents, but the pace and the extent of consolidation had not been anticipated (NMFS 2004). In retrospect, the severe contraction of the fleet has been attributed to a combination of factors including the anticipated continued decline in crab stocks, the expansion of Russian exports of red king crab, and expansions in Canadian and Norwegian harvests of snow crab (NPFMC 2008; Criddle 2012). Consolidation can reduce the number of crew positions as vessel owners who received little QS sell to those who qualified for larger amounts of QS. Initial, naïve, reviews of the outcomes of program implementation imagined dire consequences for crew compensation and communities (NPFMC 2008). Subsequent rigorous analyses determined that crew compensation rose for full-time crew as part-time positions were eliminated (Abbott et al. 2010; Lazarus et al. 2011). The crab program included a unique provision that specified an arbitration process for settling exvessel prices between IFQ and IPQ interests. It is unclear how that process has affected the distribution of profits between IFQ and IPQ holders, but some analysts have found evidence that the program resulted in a shift of profits from processors to fishermen (Matulich 2008; Matulich 2009). In addition, there is evidence that despite community protection measures, program implementation reduced economic activity in some communities (Kasperski et al. 2016; Knapp and Lowe 2007; Knapp 2006).

## Economics of the BSAI Crab Fisheries

BSAI crab fisheries compete for a share of the global market for crab (Herrmann and Greenberg 2007; Greenberg et al. 1995). The gross exvessel value of the BSAI crab fisheries has averaged \$205 million since the initiation of the BSAI crab IFQ program in 2005 (Figure 10).

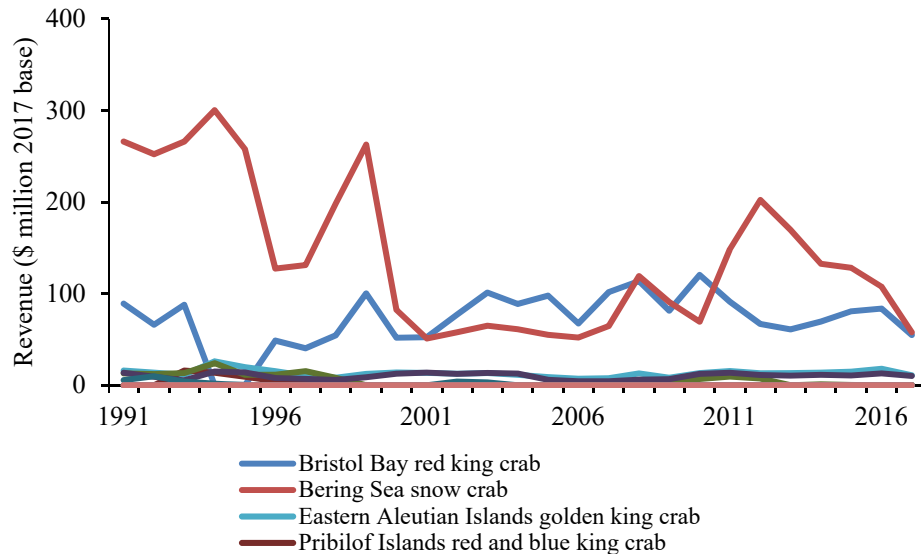


Figure 10. Exvessel revenues nominal value (\$ million) in the BSAI crab fishery from the 1991 season through the 2016/2017 season (Garber–Yonts and Lee 2017).

Revenue per crab vessel grew by 100% between 1995 and 2005/06 to \$1.4 million per vessel (Brinson 2013). The average revenue per crab vessel between 2007/08 and 2013/14 was \$2.4 million per boat (Garber –Yonts and Lee 2017). The highest year per crab vessel was the season of 2010/11 of \$3.1 million per vessel (Brinson 2013).

In 2018, BSAI crab were caught by an active fleet of approximately 118 vessels and landed and processed at 12 processing facilities, the fewest active processing plants since IFQ implementation. Total finished pounds reported by processors in 2016 across all FMP crab species and product forms were 42.3 million pounds, with an estimated first wholesale value of \$349 million (Garber–Yonts and Lee 2017). In 2016, the fishery supported 1,218 fishing crew positions on 89 active vessels, with labor share earnings totaling \$36.3 million paid to deck crew and \$16 million to captains (Garber-Yonts and Lee 2017). Processing for the first wholesale market is estimated to have accounted for some 788 thousand hours of line labor in 2016, generating \$9.84 million in

wages (Garber-Yonts and Lee 2017)). BSAI crab harvests in 2016 represented 0.56 percent of the total volume of U.S. commercial seafood landings, but accounted for 3.5 percent of total ex-vessel value; with respect to Alaska alone, these fisheries account for 0.97 percent of total catch volume and 11.9 percent of total ex-vessel value produced in commercial fisheries of Alaska (NMFS 2017).

Communities with crab fleets changed following the implementation of IFQ and IPQ. The amount of crab harvested by fishermen and fishing vessels based in smaller communities in Alaska has declined while the amount delivered to larger communities and outside Alaska has increased (Kasperski et al. 2016). There are some requirements that processors give the communities first refusal rights if the communities are interested in purchasing quota. However, this has occurred only twice, first with Kodiak (represented by Kodiak Fisheries Development Association) and then with King Cove/Sand Point (represented by Aleutia, Inc.). In most cases, the communities find it uneconomic to secure funds needed to buy the processing quotas.

### **Halibut and Sablefish Commercial Fisheries**

The commercial fisheries for Pacific halibut (*Hippoglossus stenolepis*) and sablefish (*Anoplopoma fimbria*) off British Columbia and Alaska began in the late 19<sup>th</sup> and early 20<sup>th</sup> century. During the 1960s and early 1970s, foreign, distant water fleets exerted unsustainable pressure on both stocks outside of U.S. and Canadian territorial waters. Soon after the U.S. and Canada declared extended jurisdiction in the mid-1970s, foreign fleets were excluded from both fisheries, the stocks recovered, and the domestic fleets expanded. The race-for-fish intensified in both fisheries in the 1980s with season openers in some areas collapsing to as few as 48 hours in the halibut fishery. After many public meetings and extensive analysis of alternatives, the NPFMC approved the Alaska halibut and sablefish IFQ program in late 1991 for initial implementation at the start of 1995 (Pautzke and Oliver 1997). IFQ-based management in the sablefish and halibut fisheries had proponents and opponents who argued their viewpoints before the NPFMC and in the courts. Ultimately, the program was approved (NPFMC 1992b) and weathered legal challenges (ADOL 1995; *Alliance Against IFQs v. Brown* 1996). The IFQ program was intended to increase the manageability of these fisheries and reduce overharvests while minimizing disruptive changes to the composition of the fishing fleet, allowing for an orderly consolidation of fishing capacity, and

preserving the owner-operator character of the fishery (Pautzke and Oliver 1997). The Alaska halibut and sablefish program IFQ was implemented in 1995, at a time when fishing communities were beginning to struggle with the collapse of salmon exvessel prices (Herrmann 1994; Herrmann 1992). In structuring the program, the NPFMC included rules intended to limit the extent of consolidation of QS ownership, to maintain diversity in the size of vessels used to fish halibut or sablefish IFQ, and to keep QS in the hands of individuals onboard fishing vessels (NPFMC 1992b; Terry 1993; NOAA 2012). The halibut and sablefish IFQ program was successful in keeping the general structure of the fleet through owner-onboard requirements for QS holders and limits on the transfer of QS between vessel size classes (NPFMC 2016; Kotlarov 2018). However, concern has been raised over the overall shift of halibut and sablefish QS from some coastal communities (Carothers et al. 2010).

### **An Overview of the Halibut Fishery**

The halibut fishery had high catches over 100 years ago (between 1911 and 1915), with average landings of 64.3 million pounds (Bell 1981). By the 1960s, halibut stocks were thought to be in decline, leading the IPHC to reduce catch limits (Bell 1970). However, because halibut prices continued to increase, more small vessels were attracted to this fishery from the salmon fishery, which had transitioned to limited entry in the early 1970s (Hartley and Fina 2001). Commercial halibut landings dropped substantially between 1961 and 1976, from about 70 million pounds to 27 million pounds (Figure 11). Once the fishery was Americanized in 1976, the halibut stock started to rebuild, and more U.S. flagged vessels entered the fishery. Under the Northern Pacific Halibut Act of 1982 (Public Law 97- 176), the NPFMC is authorized to develop regulations that are in addition to, but not in conflict with, the regulations adopted by the IPHC. The NPFMC develops limited entry regulations and allocations for Alaska portions of the commercial and charter halibut fishery as well as the regulations for subsistence use. The NMFS is responsible for developing, implementing, and enforcing regulations for the management of halibut fisheries within the United States territorial seas and Exclusive Economic Zone. The halibut fishery again increased until 2004 when it started to decline to current levels (Figure 11). Halibut removals have declined substantially because of management measures intended to address concerns about declines in exploitable halibut.



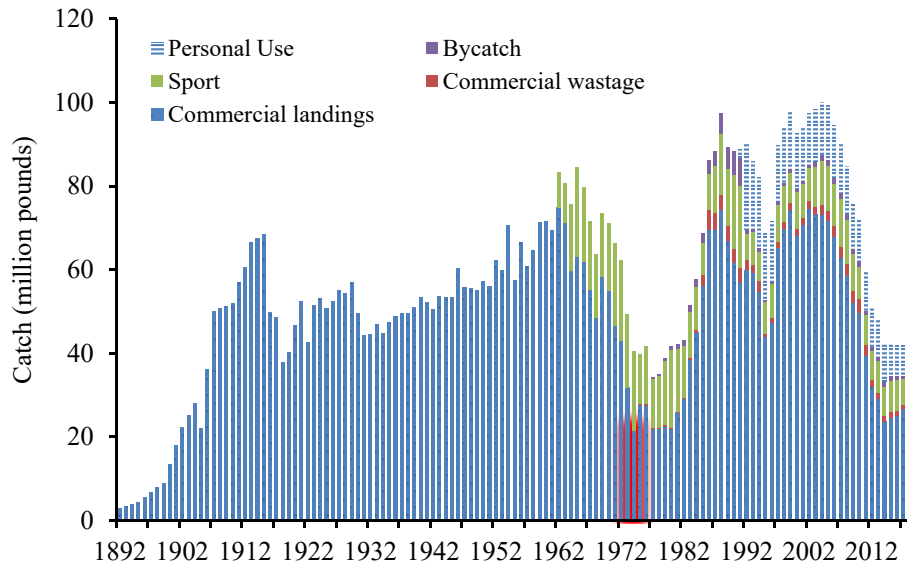


Figure 11. Total commercial catch (million pounds) of halibut by different sectors, 1892-2018. (The mid-1970s are highlighted in red to denote the years leading up to and following the declaration of the 200-mile Exclusive Economic Zone.)

In recent years, halibut exploitable biomass and sustainable catch limits have declined. These declines have been attributed to several factors. First, over the past 40 years, the average size-at-age halibut has decreased (IPHC 2016). For example, in 1997, a typical 14-year-old halibut weighed 55 pounds, while the same age halibut in 2014 averaged 25 pounds (Holsman et al. 2018). Second, the halibut fishery has five competing sectors: commercial fishing for halibut; non-guided and guided (charter) sport fishing; subsistence (personal use) fishing; incidental catch of halibut in other commercial fisheries; and wastage, the mortality (dead loss) of undersized halibut discarded by the commercial halibut and sablefish fisheries. Also, there have been changes in how the IPHC calculates biomass that lowered the quota in some regions.

### **An Overview of the Sablefish Fishery**

The sablefish fishery developed as a secondary activity for fishermen participating in the United States and Canadian halibut fisheries. The sablefish fishery started in waters off Washington and British Columbia and, by the 1920s, extended along the Pacific coast from Northern California to Kodiak (Hanselman et al. 2017). In contrast to the halibut fishery, until 1978, sablefish were caught primarily by foreign fishing vessels (Berger et al. 1986). The first domestic, commercial landings in Alaska from this fishery were in 1958. In the mid-1960s, the fishery expanded along the Aleutian

Island chain and into the Eastern Bering Sea (EBS), where Japanese longline catches peaked at almost 52 million pounds in 1966. In addition, sablefish bycatch in other foreign fisheries off Alaska reportedly averaged 9.4 million pounds. In the late 1960s, as EBS catches declined, Japanese fishermen switched their focus to the GOA, where sablefish catches in the Japanese longline fishery peaked at 145 million pounds in 1972 (Figure 12).

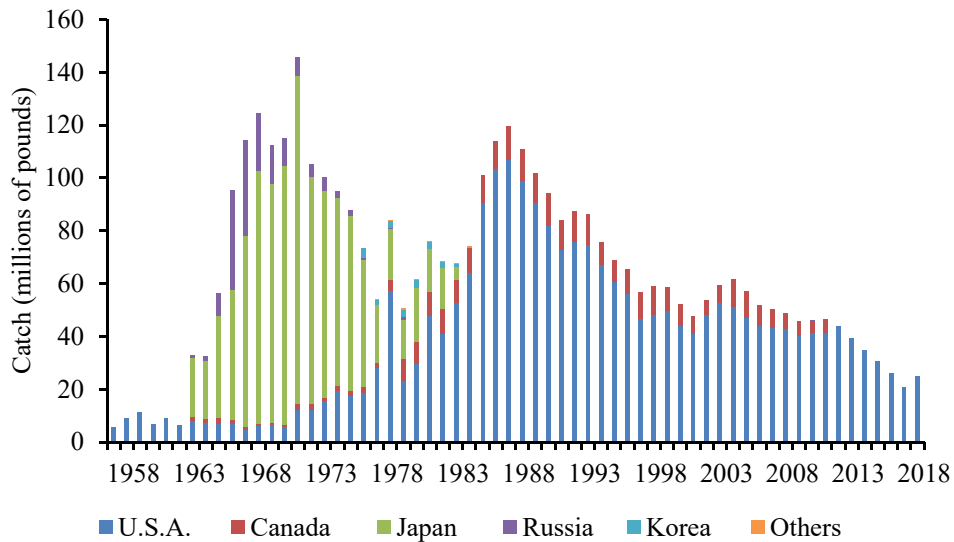


Figure 12. Sablefish landings (million pounds) by nation, 1958-2018. The beginning of extended jurisdiction was in 1976.

Heavy fishing by foreign vessels during the 1970s led to a substantial decline in sablefish biomass (Hanselman et al. 2017). Limits were put on the expanding Japanese trawl fisheries inside the 12-mile United States territorial seas to stem excessive catches, but those limits did not apply outside United States waters (Sonu 2014). With the implementation of the FCMA in 1976, the NPFMC gained authority over 200-mile FCZ off Alaska and quickly curtailed excessive foreign catches (Hanselman et al. 2017). The substantial drop in sablefish catch since the late 1980s has been attributed to declines in growth (Echave et al. 2012), declines in recruitment success (Shotwell et al. 2014; Schirripa and Colbert 2006), and the impact of whale depredation on hooked sablefish (Petersen et al. 2014; Sigler et al. 2008; Hanselman et al. 2014).

Because the sablefish fishery was mostly a foreign fishery until the mid-1980s and because the fishery occurs in deeper offshore waters fished by larger vessels, the roots of the sablefish fishery

are not as deeply embedded in small Alaskan communities. Nevertheless, the fishery quickly became a valuable fishery that could be pursued by small or large vessels, and, as in the halibut fishery, effort surged in the 1980s, and the ensuing race-for-fish led to ever-shorter fishing seasons.

There are four vessel classes in the IFQ halibut for QS (A-D) and the three classes of sablefish QS (A-C). Class A shares in both fisheries are designated for freezer processor vessels and are not associated with a vessel restriction. In both fisheries, Class B shares were designed to be fished on a vessel  $\geq 60$  feet, but later amendments allowed the Class B shares to be fished on all size vessels. Class C shares were designed to be fished on vessels from 35 feet to 60 feet but have been amended to allow fishing on any vessel  $< 60$  feet. Class D shares in the halibut fishery were designed to be fished on vessels less than 35 feet in length and were introduced to protect small vessel operators. Class D quota shares were not introduced in the sablefish fishery because very few small vessels had participated in the sablefish fishery, which takes place in deep offshore waters more exposed to inclement weather.

Management of the sablefish IFQ fishery is shared by the state of Alaska and the federal government. Sablefish are assessed as a single stock with harvest limits apportioned between regions and between state and federal waters based on the distribution of relative abundance. The ABC and Overfishing Level (OFL) are set by the NPFMC Scientific and Statistical Committee (SSC) based on recommendations from stock assessment scientists and Plan Teams. The NPFMC recommends, and the U.S. Secretary of Commerce approves, an annual TAC below the ABC (Hanselman et al. 2017). The TAC is also apportioned among gear groups, longline, pot, and trawl in federal waters, and longline, pot, trawl, jig, and troll gear in state waters. Sablefish are also taken as bycatch, particularly in trawl fisheries and in the halibut fishery. There is some recreational and subsistence fishing for sablefish but nowhere near the level of halibut. Sablefish are typically landed and processed in Alaskan ports, but a small portion of the TAC is allocated to catcher-processor vessels (NPFMC 1989). State LEP fisheries for sablefish occur in Southeast Alaska, Prince William Sound, and in other State waters.

### Geographic Distribution of the Halibut Fleet:

Ownership of halibut QS reflects the high historical participation of Alaska residents. In 2018, 75% of the halibut QS holders were Alaskan residents, 16% were residents of Washington, 4% were Oregon residents, and 5% were residents of other states (NOAA 2014). Alaska, by volume of the QS units, has 62 percent of the total QS units, with 25% of the volume of QS units belonging to residents of Washington, and the rest is distributed through the other states (NOAA 2014).

In Areas 2C, 3A, 3B, 4A, and 4C, most IFQ permit holders with landings use QS owned by Alaska residents. Quota share owners from Alaska were also credited with the most pounds landed in Areas 2C, 3A, and 4C in the 1995 through 2014 fishing seasons. In Areas 4B and 4D, the most permit holders with landings used QS owned by persons from Washington. Quota share owners from states other than Alaska or Washington were credited with relatively small amounts of the landings (NOAA 2015a). The change in percentage of Alaskan ownership of halibut QS from 1995 to 2019 is displayed in Figure 13.

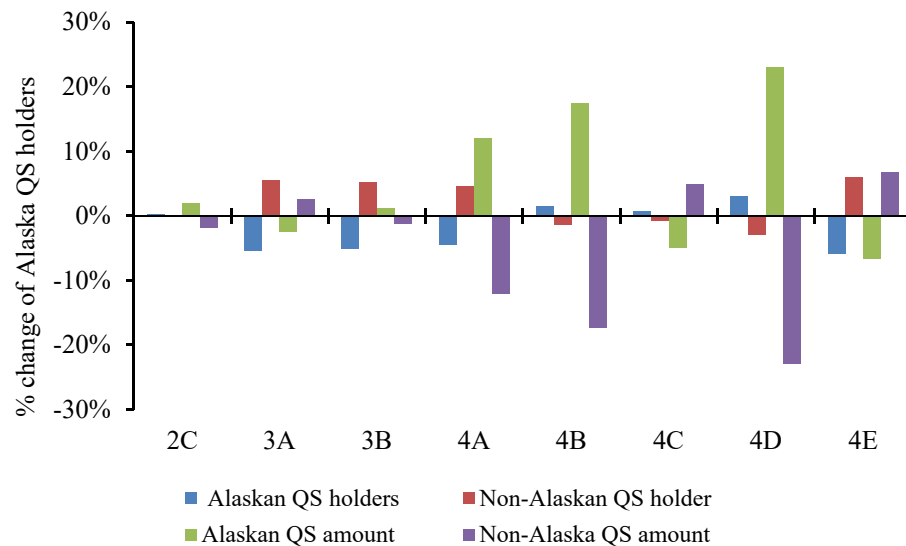


Figure 13. Changes in halibut QS ownership by Alaska residents and non-residents, 1995-2019 (NOAA 2019d).

The ratio of Alaskan to non-Alaskan holders of quota share has stayed the same in Area 2C, while it has declined in Areas 3A, 3B, 4A, and 4E. The amount of QS owned by Alaskans increased the most in Areas 4A, 4D, and 4B and increased slightly in Areas 2C and 3B. The amount QS held by

non-residents increased in Areas 3A, 4C, and 4E. Within Alaska, halibut QS ownership is broadly distributed, reflecting, in part, allocations among the CDQ entities and the historical participation of fishermen from Kodiak, Southcentral Alaska, and Southeast Alaska. Looking at the ownership of QS by rural and urban areas (Figure 14), there is an apparent change within Alaska ownership (rural, urban) of halibut QS over time shown in Area 2C (NOAA 2015a).

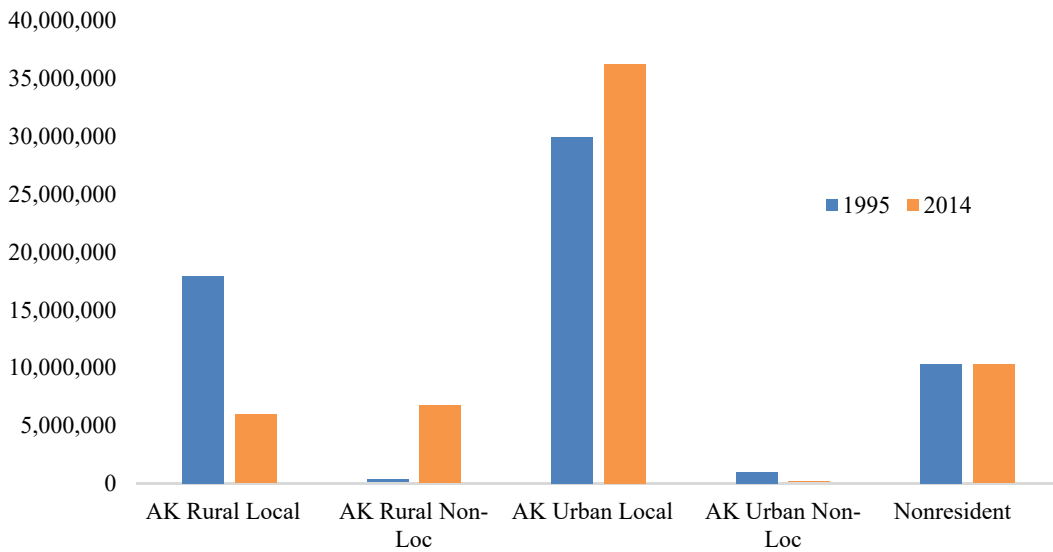


Figure 14. Halibut quota share ownership by rural and non-rural residents, Area 2C, 1995-2014 (NOAA 2015).

**Numbers of Vessels Active in the Halibut Fishery:**

The number of vessels engaged in the halibut fishery has declined in all IPHC major regulatory areas off Alaska, with the most significant declines occurring between 1994, the last year of open-access fishing, and 1995, the first year of the IFQ fishery (Figure 15) (NOAA 2012 updated).

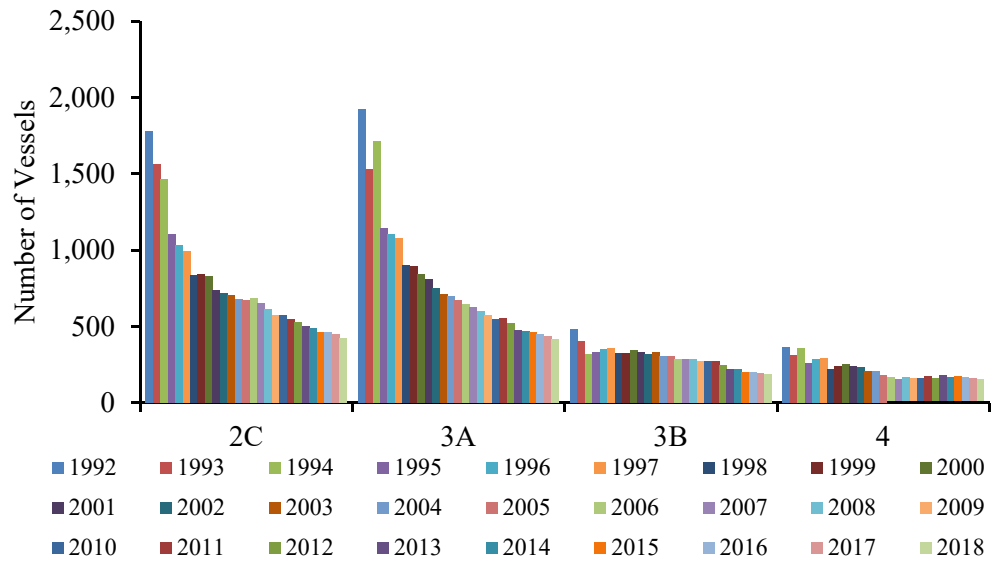


Figure 15. Number of vessels fishing for halibut by IPHC major regulatory area, 1992-2018.

The highest number of vessels that fish for halibut is located in Southeast Alaska (2C), followed by the Central Gulf of Alaska (3A), with fewer vessels in the Western Gulf of Alaska, the Bering Sea, and the Aleutian Islands.

### Homeports of Halibut Fishing Vessels

Where fishermen keep their vessels often differs from where they reside. In 2018, most active halibut fishing vessels were homeported in Alaska (769); 37 were homeported in Washington, and ten were homeported in Oregon (Figure 16).

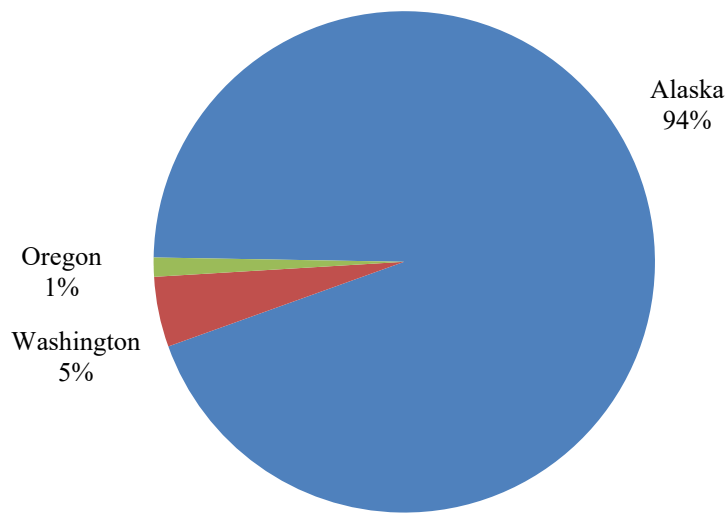


Figure 16. Number of halibut vessels by homeport state.

The top three ports for halibut landings account for 40% of total landings (Figure 17). All of the top 10 halibut landing ports are located in Alaska and, together, account for 79% of all halibut landings (Figure 17).

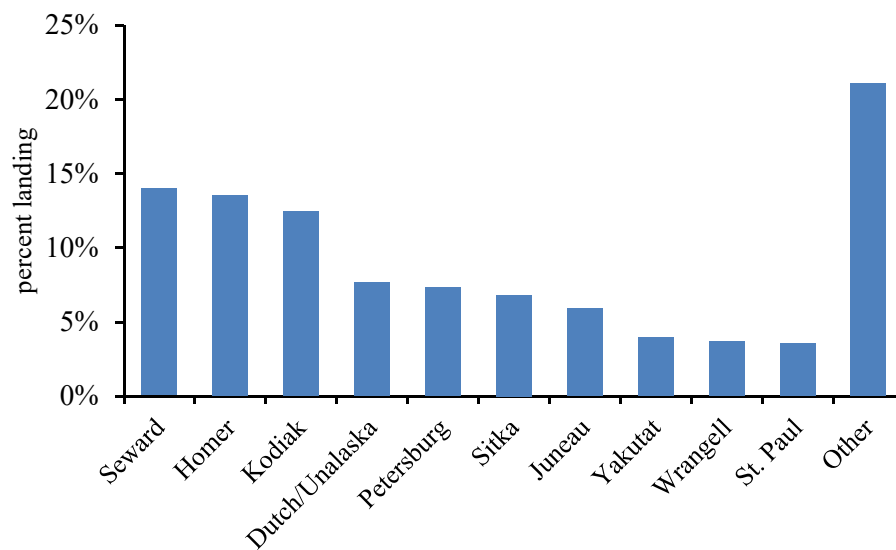


Figure 17. Percent of total halibut landings by port in 2018.

### Geographic Distribution of the Sablefish Fleet:

Ownership of sablefish QS reflects the high historical participation of Pacific Northwest fishermen. Residents of Alaska currently hold 59% of the sablefish QS, Washington residents hold 31%, Oregon residents hold 4%, while about 6% is held by residents of other states (NOAA 2014). Sablefish QS ownership was highest for Alaska residents in Southeast Alaska, Yakutat, and the Central Gulf of Alaska management areas. Alaska residents who own sablefish quota shares were also credited with the most pounds landed in those areas. Washington residents had the highest share of sablefish quota share ownership in the Western Gulf of Alaska, Bering Sea, and Aleutian Islands management areas. Residents of other states account for a small amount of sablefish quota share ownership and landings (NOAA 2015b). The change in percentage Alaskan ownership of sablefish QS from 1995 to 2019 is displayed in Figure 18.

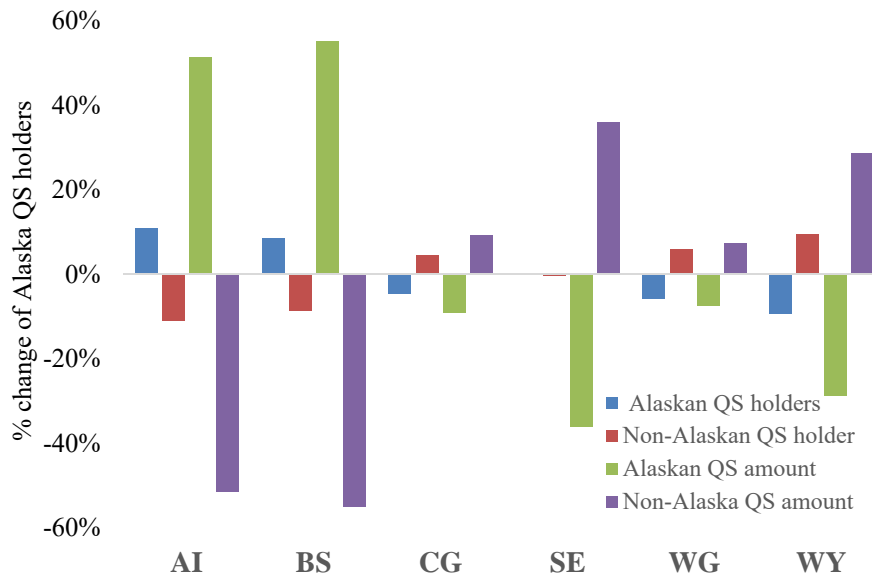


Figure 18. Changes in sablefish QS ownership by Alaska residents and non-residents, 1995-2019 (NOAA 2019d).

Alaskan ownership of sablefish QS in the Bering Sea and AI regions increased substantially from program implementation in 1995 through 2019. The number of Alaskans QS holders also increased the most in AI and BS and decreased the most in WY and WG. The amount of QS held increased decreased for Alaskans the most in SE and WY, which saw an increase to Nonresidents in these areas. Within Alaska, sablefish QS ownership is broadly distributed, reflecting, in part, allocations among the CDQ entities and the historical participation of fishermen from Kodiak, Southcentral Alaska, and Southeast Alaska. The highest percentage of QS held by Alaskans is held by residents



in Southeast Alaska and the Central Gulf of Alaska. The change in rural versus urban ownership of sablefish QS from 1995 through 2014, is shown in Figure 19 (NOAA 2015a).

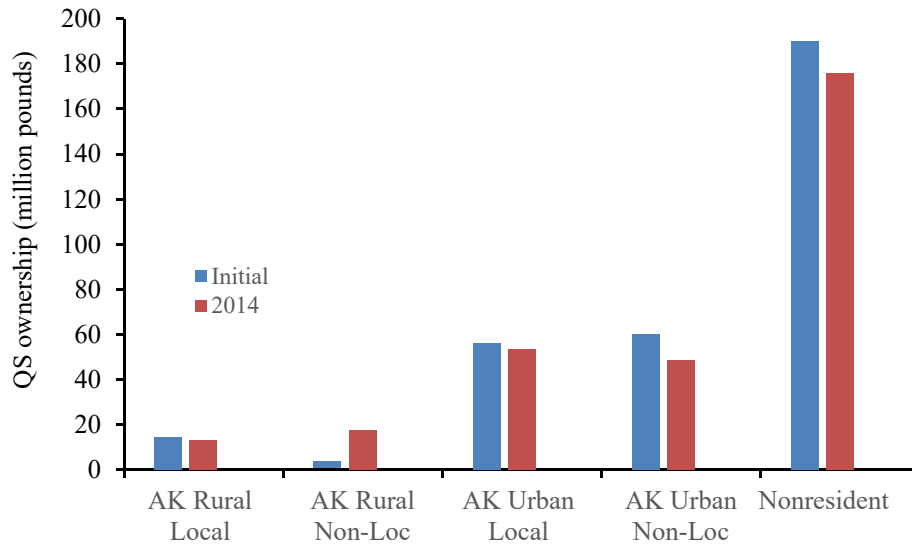


Figure 19. Changes in the geographic concentration of sablefish QS ownership between rural and urban areas, 1995-2014 (NOAA 2014).

Most of the sablefish QS is owned by nonresidents, with 58% of the total amount being initially allocated. In 2019, the total amount of sablefish QS held by Alaskan residents is 42%, and the total amount of QS held by nonresidents is 57%, a one percent decrease since 2018 (NOAA 2015a).

**Numbers Vessels Active in the Sablefish Fishery:**

The number of vessels engaged in the sablefish fishery has declined in all major regulatory areas off Alaska (Figure 20). The most significant declines occurred between 1994, the last year of open-access fishing, and 1995, the first year of the IFQ fishery (RTF 2012 RAM request).

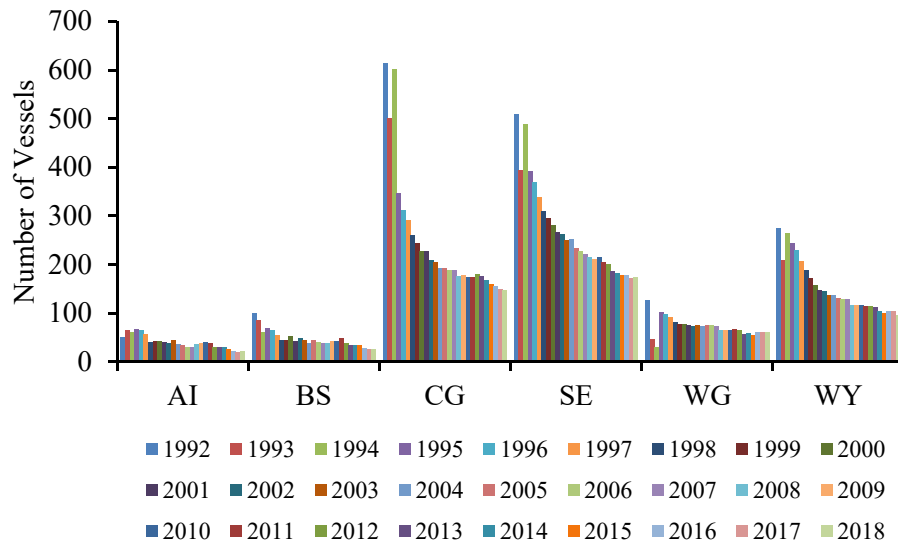


Figure 20. Number of vessels fishing for sablefish in Alaska by management region, 1992-2018.

Most of the vessels that fish sablefish are located in Southeast Alaska, followed by the Central Gulf of Alaska, and West Yakutat. Smaller fleet sizes are found in the Western Gulf, the Bering Sea, and the Aleutian Islands.

**Homeports of Sablefish Fishing Vessels**

In 2018, most active sablefish fishing vessels were homeported in Alaska (260); 54 mostly larger vessels were homeported in Washington, and five vessels in Oregon. The top three ports for sablefish landings (Seward, Sitka, and Kodiak) account for 54% of total landings (Figure 21). Together, the top 10 sablefish landing ports, all located in Alaska, account for 88% of all sablefish landings (NOAA 2012).

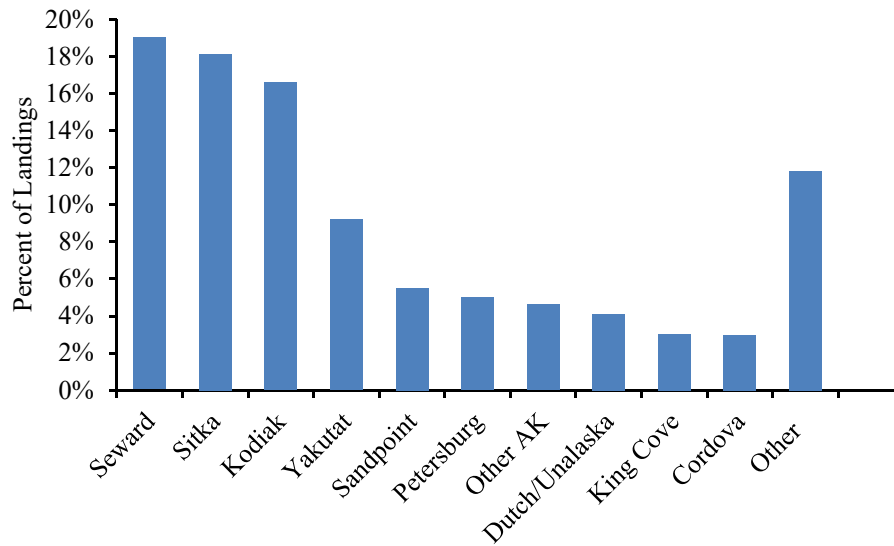


Figure 21. Percent of total sablefish landings by ports.

### **Economics of the Halibut and Sablefish Fisheries**

The commercial fishery for Pacific halibut had a gross exvessel value of \$111.5M in 2017, a decrease of \$760 thousand from the prior year (NOAA 2019). The average exvessel price per pound for halibut was \$5.68 in 2017. Before IFQs, halibut were sold into wholesale markets as a headed-and-gutted frozen product; following IFQ implementation halibut have been almost entirely marketed as a high-quality fresh product supplied throughout most of the year (Matulich and Clark 2003, Hackett et al. 2005, Herrmann and Criddle 2006). The shift to a fresh product market, along with the change in bargaining power between processors and fishermen, increased opportunity for direct marketing and contracting with wholesalers and increased the exvessel price for halibut. On the negative side, the change shifted the advantage from small ports near grounds to larger ports with more processors and superior freight services.

The revenue per halibut vessel increased by 73% in the first year of the halibut IFQ program from \$26,000 during the baseline period to \$60,400 in 1995. The revenue per halibut vessel grew by 133% between 1995 and 2000 to \$104,000 (Brinson 2013). Between 2006 and 2011, revenue per halibut vessel exceeded \$170,000 (Brinson 2013). In 2018, the revenue per commercial halibut vessel was estimated at \$175,000.

There were several effects the IFQ implementation had on the economics of halibut and sablefish. Before the IFQ, the derby-style fishery often resulted in fishermen having to wait several days to deliver their catch to a processor, lowered product quality and the exvessel price as well as the wholesale and retail prices. In the post-IFQ fisheries, the fresh halibut market is reliant on moving product quickly, and processors that do not have access to such transportation cannot process for the fresh market and offer ex-vessel prices similar to those that do. In effect, it was anticipated that the IFQ Program would release some of the previous constraints on processing and lead to a mix of frozen and fresh products, but that this was likely to come at the cost of shifting processing out of some communities.

There are economic benefits for communities' ports to be the processor for the fishery. These include tax revenues, local employment at the processing plant, and expenditures within the community by processing workers, the processor's expenditures on fuel, electricity, water, etc., and expenditures by marine support service businesses within the community resulting from vessels making landings in the community (NPFMC 2016). However, remote Alaska communities without access to road or air transportation to hubs, which could compete for landings in the pre-IFQ halibut and sablefish fixed-gear fisheries, are at a comparative disadvantage under the IFQ Program (Dawson 2006) wherein the capacity to deliver the product to fresh markets has become increasingly important.

The commercial fishery for sablefish generated a gross exvessel value of \$96.5 million in 2017. The average exvessel price per pound for sablefish was \$5.66 in 2017, an increase of \$0.71 from the prior year. The sablefish fishery relies mostly on an international market and is marketed as a frozen product exported to Japan (Squires et al. 1988, Hastie 1989, Matulich and Clark 2003, Fell et al. 2011, Warpinski et al. 2016). The changes in the sablefish fishery included an extended season, increases in exvessel price, change in bargaining power between processors and fishermen, increased opportunity for direct marketing and contracting with wholesalers, change in advantage from small ports near grounds to larger ports with more processors and good freight services, etc. (Warpinski et al. 2016). The change to the IFQ fishery was positive and did lead to increased market opportunity for sablefish fishery. The slower-paced sablefish fishery also led to increased management precision and safety at sea. The revenue per vessel fishing sablefish increased by 128% from the baseline period of \$83,000 in 1995 to \$189,000 in 2004. In 2010, the revenue per

commercial sablefish vessel was \$325,000 (Brinson 2013). In 2018, the revenue per commercial sablefish vessel was again \$325,000.

The economic basis for QS prices and trends in halibut and sablefish QS prices since 1995 has changed dramatically. Figures 22 and 23 represent the time series of halibut QS prices by class for IPHC Areas 2C and 3A. The price of QS reflects the expected net present value of all future catches enabled by the possession of the QS (Newell et al. 2007; Huppert et al. 1996; Karpoff 1984). Note that the net present value reflects anticipated changes in commercial TAC, exvessel price, and uncertainty, as well as risk aversion and discounting. Figures 22 and 23 show that the exvessel price for halibut over the past 27 years has seen a steeper increase than the IFQ quota price. This difference reflects significant declines in the TAC during this same period.

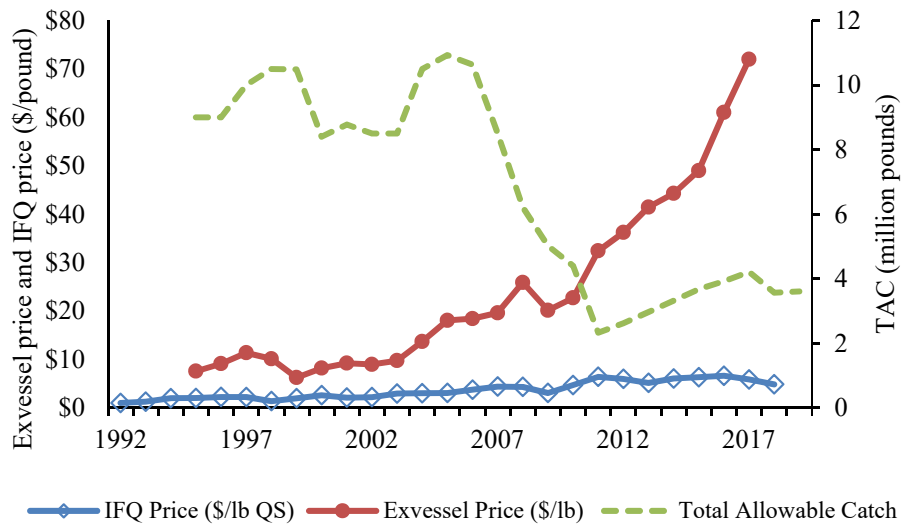


Figure 22. Exvessel price of Area 2C halibut compared with the price of Area 2C IFQ halibut quota per pound and Area 2C TAC.

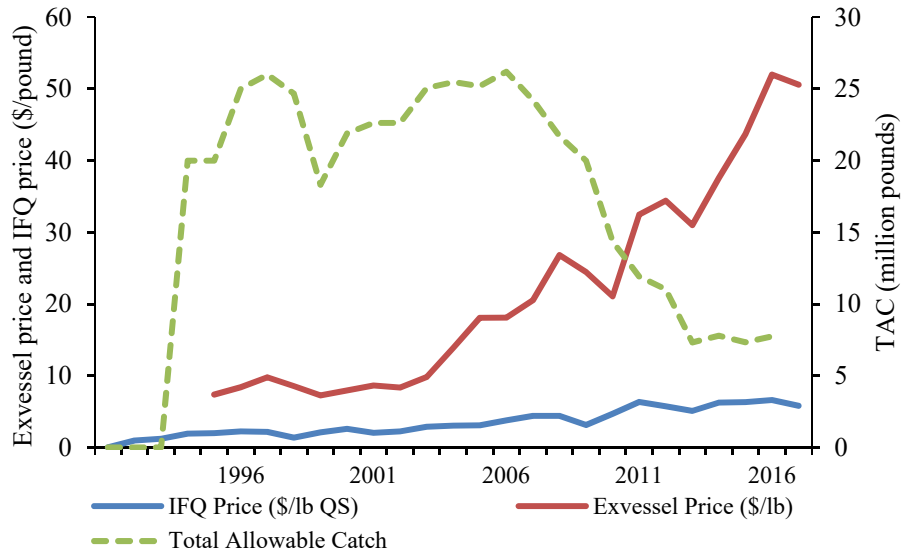


Figure 23. Exvessel price of 3A halibut compared with the price of Area 3A IFQ halibut quota per pound and Area 3A TAC.

Figures 24 and 25 represent the time series of sablefish QS prices by class for the SE and CG sablefish management areas.

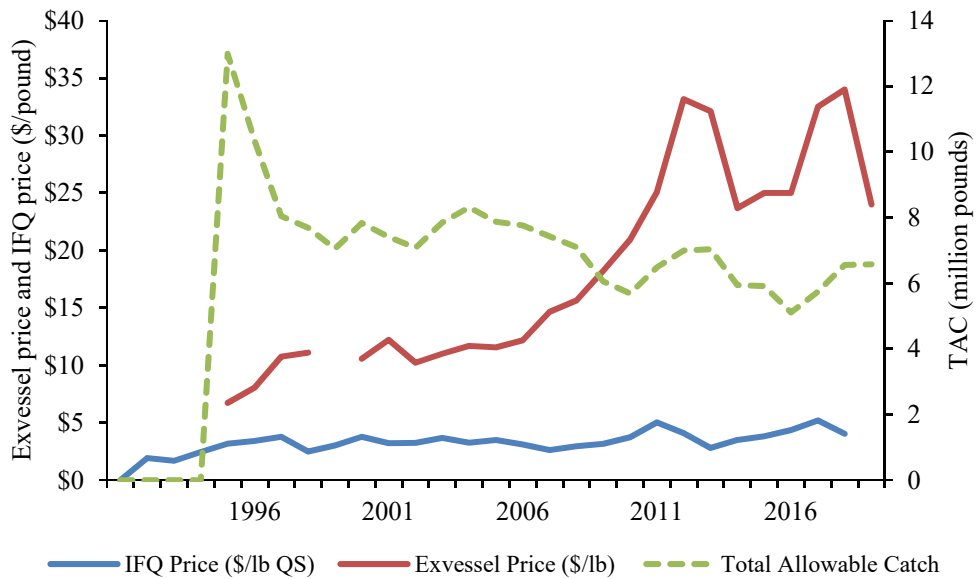


Figure 24. Exvessel price for Southeast Alaska sablefish compared with the price of Southeast Alaska IFQ sablefish and the Southeast Alaska TAC.

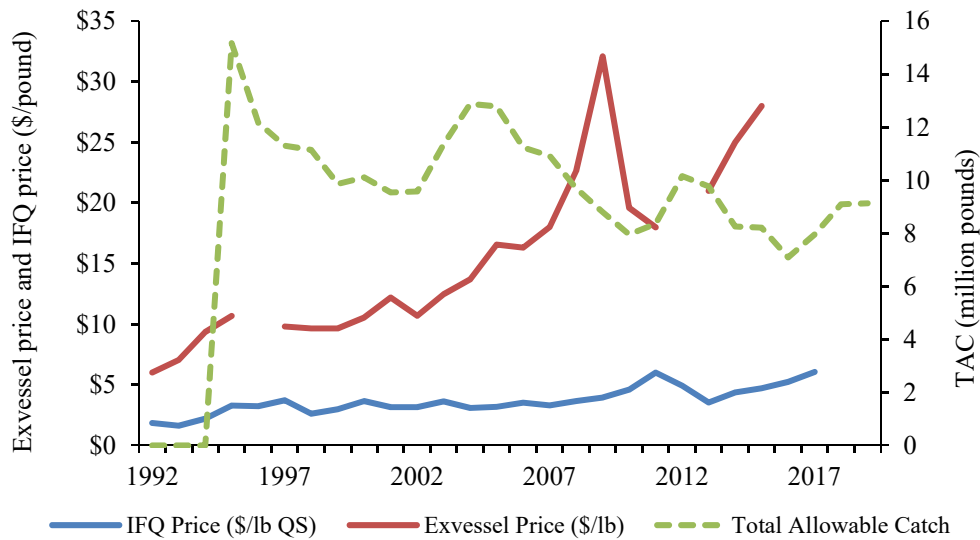


Figure 25. Exvessel price for Central Gulf of Alaska sablefish compared with the price of Central Gulf of Alaska IFQ sablefish and the Central Gulf of Alaska TAC. Prices are denoted in real (2018 base year) value.

These graphs show that the price the fishermen receive for sablefish and the price of sablefish IFQ have increased over the past 27 years, but the exvessel price has fluctuated to a greater degree than the price for purchasing quota. The price of SE sablefish IFQ has dropped in recent years due to the market changes for the quota. The total allowable catch has decreased to some degree but not as much as it has in the halibut fishery.

## Treatment of community support measures for the fisheries

### Community Support Measures in the Salmon Fishery

The State of Alaska has developed an entire division for the economic development of fisheries and seafood (Division of Economic Development) and various programs to help promote economic development in small communities and resident fishermen, but their efficacy has been limited. For example, although the State offers financial loans to Alaskan residents for the purchase of LEPs, these loans are rarely utilized by small-scale fishermen in remote communities. The reasons that small-scale fishermen from remote communities fail to take advantage of the LEP loan program include qualification requirements and loan terms (interest rates, repayment

schedules, collateralization, and the magnitude of required minimum down payments). In effect, those most in need of State loans are least likely to qualify.

One reason the State of Alaska has had difficulty designing regulations or programs to assist fishermen who reside in small rural communities is that the state constitution (Article 8§15) specifies that state residents should have equal access to fisheries resources (Harrison 2019). While that language has not prevented the creation of LEPs, it has prevented restrictions on where LEP holders reside. For example, it would not be lawful to establish a requirement that LEPs for a particular fishery could only be held by individuals who reside near the fishery.

One unique method that the State of Alaska has allowed is permit sharing and stacking; this is intended to make it easier for new fishermen to enter the Bristol Bay and Cook Inlet drift gillnet LEP fisheries (CFEC 2012). The dual permit program allows two LEPs to be fished on a single vessel and allows that vessel to use a net that is 33% longer than the standard net (150 fathoms to 200 fathoms). This program was intended to make it possible for young fishermen to enter the fishery without the need to purchase a vessel as well as an LEP. Unfortunately, in practice, this program has helped more nonresident fishermen than resident fishermen (CFEC 2012).

Some fisheries in Alaska have more rural participants than others. For example, the statewide salmon troll fishery has a stronger representation of rural fishermen than nonresidents and urban residents of Alaska. The troll fishery is open for most of the year but has low catch rates; most of the LEP holders in this fishery are Alaskan residents (Gho and Farrington 2018). In contrast, in the statewide salmon power troll fishery, the number of permits holders held by rural and urban Alaskans has increased, and the number of non-resident permit holders has gone down.



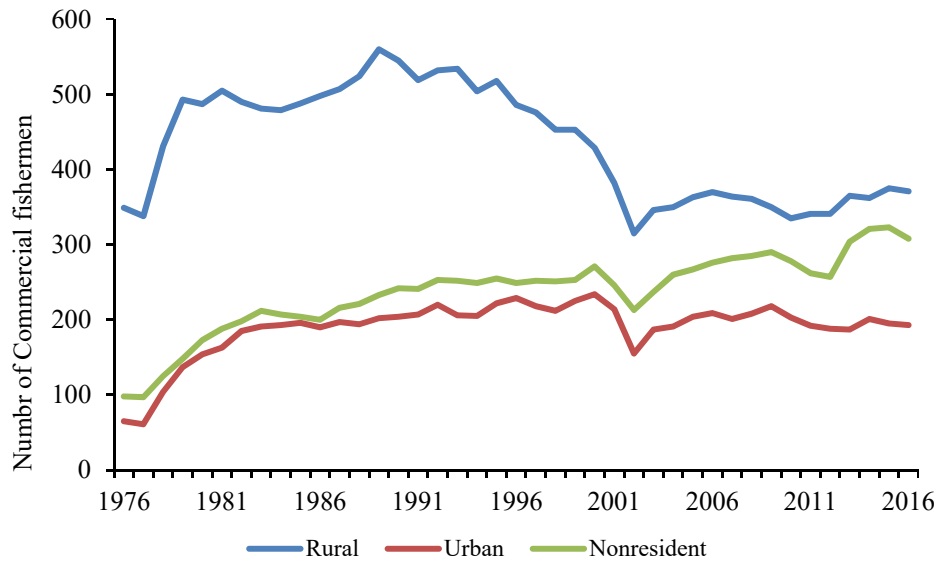


Figure 26. The number of QS holders for statewide troll fishery.

In contrast, in highly lucrative and seasonally compressed fisheries, such as the Bristol Bay salmon fisheries, a majority of the LEPs are held by nonresidents, and the share of permits held by nonresidents has increased through time mainly through transfers of permits from rural Alaska (Figure 27) (Gho and Farrington 2018).

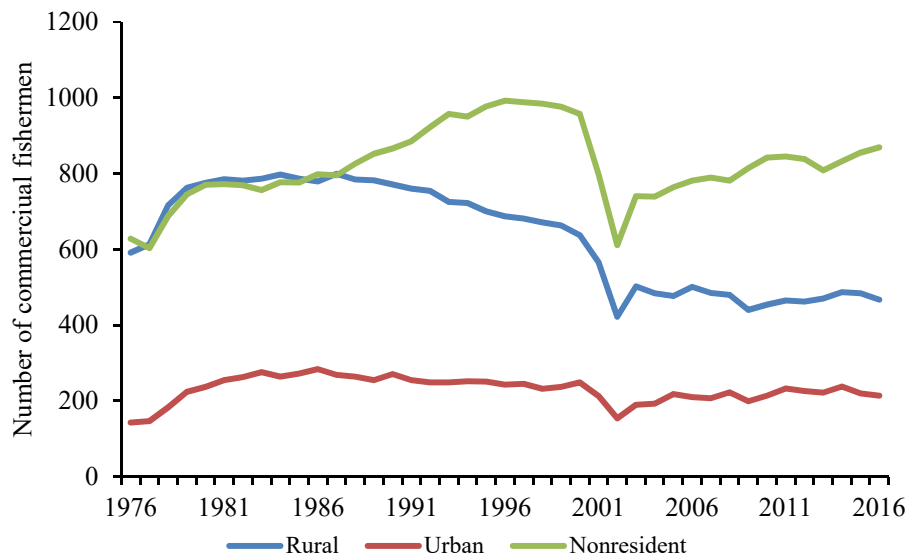


Figure. 27. The number of QS holders in Bristol Bay who fished, 1976-2017 (CFEC 2018).

Many small fishing communities have witnessed a similar decrease in the size of their local salmon fishing fleet. The overall decline of 2,474 permits held by Alaska Rural Locals (ARL) represents 30.0% (2,474 total net change/8,246 total initially issued) of all transferable and non-transferable permits issued to them (Gho 2018).

### **Community Support Measures in the Pollock Fishery**

The idea of allocating a portion of the BSAI pollock TAC to support economic development in coastal Western Alaska was started in the late-1980s and early-1990s. It was championed by Harold Sparck from Bethel and Henry Mitchell from Dillingham, who wanted a way to include the Bering Sea coastal villages into this new fishery (King 2009). Their groundwork led to the creation of the Western Alaska Community Development Quota (CDQ) program in 1992 as an element of the initial inshore-offshore sector allocation (NPFMC 1992a). The CDQ program provided residents of economically disadvantaged western Alaska communities with an opportunity to derive value from the BSAI groundfish fisheries that had been foreclosed to them because of the high capital investment needed to enter the fishery (Ginter 1995; NRC 1999b; Strong and Criddle 2013). From 1992 through 1998, the CDQ allocation included 7.5% of the BSAI pollock TAC. Importantly, this allocation was outside the open-access allocation, and the nonprofit CDQ entities (Figure 28) could lease their allocation in exchange for royalty payments and other considerations; also, the lessees could fish their portion of the CDQ allocation when the open-access fishery was closed (Ginter 1995; NRC 1999a; Strong and Criddle 2013).



Figure 28. Western Alaska CDQ communities and groups. (Source: NOAA Fisheries)

The CDQ program was designed to assist 65 small villages located within 50 nautical miles of the Bering Sea coast or on an island in the Bering Sea (Figure 28). Approximately 27,000 people, predominantly Alaska Natives, live in these communities. The communities have organized themselves as six 501(c) (3) non-profit corporations that manage and administer CDQ allocations, investments, and economic development projects. One CDQ group represents a single community (St. Paul), and the remaining CDQ groups represent between six and 20 communities (listed in Appendix 1). Since the implementation of the CDQ program, royalties from leasing quota to commercial partners and earnings based on those royalties have become one of the largest sources of non-governmental revenues in the CDQ communities (Northern Economics 2001; Northern Economics 2002; Strong and Criddle 2013). Annual allocations to the six CDQ entities are represented in Figure 29.

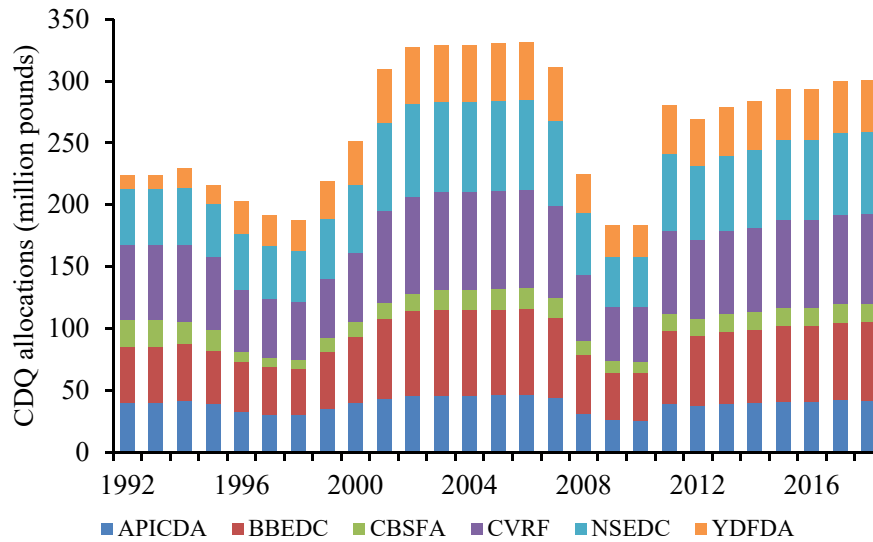


Figure 29. Total poundage of pollock allocated to CDQ entities, 1992 to 2018.

### CDQ Pollock Allocation

When originally implemented in 1992 as part of the inshore /offshore allocation of BSAI pollock, the CDQ program was subject to a three-year review/sunset cycle (FR 1992). It was reviewed and reauthorized in 1995 and 1997 (FR 1995, FR 1997). The AFA eliminated the sunset provision and increased the CDQ pollock allocation from 7.5% to 10% of the BSAI pollock TAC (Szymkowiak and Himes-Cornell 2013; AFA 1998). The CDQ allocations were expanded in 2007 to include 10% of the annual TAC for other BSAI groundfish species, sablefish, halibut, king, and Tanner crab, and limits on the bycatch of Prohibited Species (MSA 2007; USCG 2006; NMFS 2007). The six CDQ entities have grown over the past 26 years into multibillion-dollar nonprofit enterprises that have invested in fisheries-related economic development projects in their communities. In 2016, the CDQ entities harvested 550 million pounds of seafood worth \$120 million, and during that same year the CDQ groups processed 432,065,528 pounds of seafood worth \$213.9 million (NOAA 2018a). The CDQ program creates hundreds of jobs annually and funds programs that have provided training to thousands of community residents for employment in the seafood industry (Haynie 2014).

Each CDQ entity is guided by a board of directors elected from the constituent communities. Consequently, each CDQ entity has developed programs uniquely tailored to the needs and

priorities of their region. For example, the Bristol Bay Economic Development Corporation (BBEDC) has focused on three areas of emphasis:

1. Education, workforce development, and employment
2. Fisheries development
3. Community programs

BBEDC's education and workforce development projects include salmon camps for youth, seasonal employment, internships, scholarships for BBEDC region residents to attend universities or vocational colleges, student loan forgiveness, and at-sea employment. BBEDC's fisheries development projects include low-interest loans for fishing vessels, LEPs and fishing quotas, ice for vessels in the Bristol Bay salmon fishery, emergency transfer grants, interest rate assistance, permit brokerage and fisheries research. BBEDC's community programs include block grants to communities, grant-writing assistance, grants for infrastructure, and technical assistance. BBEDC has also provided personal finance education and tax preparation help. Additional details on the BBEDC's activities can be found on the internet (<http://www.bbedc.com/>), which shows in detail the programs the corporation operates to enhance regional fisheries.

Like BBEDC, the Norton Sound Economic Development Corporation (NSEDC) has programs aimed at education, workforce development, employment, fisheries development, and community support. Among other projects, NSEDC has helped to finance the regional vocational training center and has dedicated 25% of the earnings from their crab vessel, the Aleutian No. 1, to support the Bering Sea Women's group. The Bering Sea Women's group is a nonprofit that provides shelter for women and children who are victims of domestic violence. The estimated value of NSEDC's contributions to the Bering Sea Women's group, through 2013, totaled \$425,000 (Taufen 2016). When a new LLC took control of the boat, they bought out the Bering Sea Women's group at the market value. The group used the funds to match a grant to renovate their center and used the interest from the remainder of NSEDC's donation to maintain operations (Johnson 2019).

Other CDQ entities have supported projects such as docks and the construction and operation of small-scale fish processing plants in communities that lacked processing capacity. CDQ entities have also provided loans and other support for the development of local small boat fisheries for halibut and Pacific cod. Several CDQ entities have used portions of their earnings to invest in large

catcher vessels and catcher processors active in offshore fisheries for pollock, groundfish, and crab (NOAA 2018c). As of 2009, CDQ entities held more than 50% ownership position across firms in the catcher processor sector of the BSAI pollock fishery (Western Alaska CDQ Program 2012). For example, in 2010, Coastal Villages Region Fund (CVRF) exchanged its ownership shares in American Seafoods for the *C/P Northern Hawk*, a 341-foot pollock catcher-processor. In the deal, CVRF also took ownership of three freezer longliners (Goforth 2015).

It is difficult to know the total amount of assets the CDQ group holds in 2019. The last report posted in 2011 stated that six CDQ groups held approximately \$938 million in assets, and they invested more than \$176 million in CDQ communities and fisheries activities, down from a peak of \$251 million in 2010 (WACDA 2011, WACDA 2012). After 2011, there is no centralized report that summarized CDQ assets (NOAA 2018a).

### **Community Support Measures in the BSAI Crab Fisheries**

The BSAI Crab IFQ program includes several measures intended to protect revenues and employment in fishery-dependent coastal communities with a history of participation in the BSAI crab fisheries. Five community support measures have been established in the BSAI crab fisheries. First, the program established a temporary moratorium on transferring IPQ and restrictions that limited the ability of fishermen to change from one processor to another. Second, BSAI Crab quota was allocated to the Western Alaska CDQs. Third, the BSAI Crab IFQ program includes a “Right of First Refusal,” which means that communities with historic participation in the BSAI crab fishery have a chance to buy IPQ before it is transferred outside the community (50 CFR 680.41). Fourth, communities can establish a non-profit organization to purchase IFQ. Lastly, the Norton Sound regional red king crab fishery is organized as a super-exclusive registration fishery.

### **CDQ Crab Allocation**

The CDQ crab allocation began in 1998 as an amendment to the BSAI crab FMP (NPFMC 1997) and was expanded to 10% of the BSAI crab TAC under the Coast Guard and Maritime Transportation Act of 2006 (USCG 2006). The CDQ crab allocation is divided among the six nonprofit CDQ entities in a fixed portion but varying poundage over time. Figure 30 shows the number of pounds distributed to each CDQ from 1998 to 2018. The amount has fluctuated as the

CDQ quota is based on 10% of the entire quota, so in a year with high quota allocation, the amount of CDQ allocation also increased (NOAA 2019 CDQ). CDQ BSAI crab allocations for the 2018/2019 season are listed in Table 1.

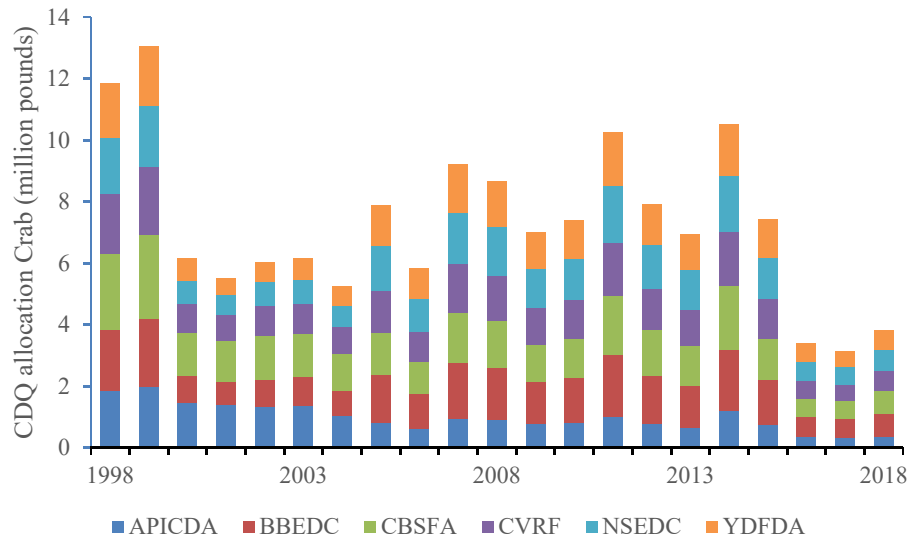


Figure 30. CDQ crab QS allocations by CDQ entity, 1998-2018.

Table 1. BSAI CDQ crab quota allocations, by fishery in 2018/2019.

Fishery	Vessel Landings	Allocation Pounds	Percent Landed
BBR	10	430,724	100
BSS	25	2,758,088	100
EAG	8	385,602	100
WBT	5	243,836	100
Total	52	3,818,400	

Source: <https://www.fisheries.noaa.gov/sites/default/files/akro/1819cratcdqland.htm>

Over the past 21 years, the CDQ entities have invested in crab harvesting vessels, purchased BSAI crab IFQ to add to their CDQ quota, and subsidized loans to help local fishermen purchase vessels and crab IFQ. Royalties and other earnings from their CDQ crab allocation have contributed to wages earned by local residents hired onto BSAI crab fishing vessels and in crab processing facilities. In addition, revenues from crab operations have contributed to workforce development, education, and community support programs in Western Alaska CDQ communities. CDQs that have invested in crab fishing vessels and processing facilities to help their region develop a

stronger presence in the crab fisheries include the NSEDC and the Central Bering Sea Fishermen's Association (CBSFA).

In 1995, NSEDC established Norton Sound Seafood Products (NSSP) to manage NSEDC's engagement in Norton Sound region fisheries for salmon, herring, halibut, king crab, and bait. Over the past 20 years, NSSP has expanded its operations and established Norton Sound Seafoods Center (NSSC) in Nome. NSSC was started to improve exvessel prices and to create a more stable market to enhance the overall presence and capability of NSEDC in the region (NSEDC 2017).

CBSFA established St. Paul Fishing Company (SPFC) in 2004. SPFC's purpose is to manage fishing assets belonging to CBSFA, including vessels, gear, equipment, limited license permits (LLP), and crab, pollock, cod, and sablefish QS allocations. (CBSFA 2019). A subsidiary of CBSFA is "*57 Degree North*", which bought two blocks of processing quota in 2014 and 2015. The purchase was a large block of north region opilio crab processing quota, (which historically had been processed on a floating processing vessel.) They made this purchase to ensure that this crab will be processed in the *Trident Seafoods* St. Paul plant. The addition of this product to the Trident plant increases the economic viability of and provides a stable landing tax base for the City of Saint Paul (CBSFA 2019). In 2015, *57 Degree North* purchased additional crab quota from *Icicle Seafoods*. This was a large purchase of opilio south region processing quota, (undesignated eastern Bairdi processing quota and undesignated western Bairdi quota.) The goal of CBSFA was to have a set amount of eastern and western Bairdi processed in the Trident plant on St. Paul Island (CBSFA 2019).

### **Processing Quota Community Provisions**

A processing quota provision allows communities the right of first refusal to purchase quota if a local processor plans to sell or transfer their PQS out of the community (NMFS 2004). To date, two communities have exercised this authority to purchase PQS: Kodiak (represented by Kodiak Fisheries Development Association) and King Cove/Sand Point (represented by Aleutia, Inc.). These two communities purchased a small amount of processing quotas in circumstances that have allowed them to participate in the program. The purchase was not part of a long-term plan to build up quota for the community; it was merely an opportunity they took when it presented itself. For



example, Kodiak purchased PQS when a local processor found itself hold excessive quota shares as a result of a business acquisition (NOAA 2019a). The Kodiak Fisheries Development Association now leases the processing quota and receives a profit from the sales each season (Freed 2019).

The implementation of the crab rationalization program brought a substantial decline in harvesting vessels over the fishing season and a corresponding change in the communities, with a shift in the amount of crab harvesting from smaller communities to larger communities and communities outside Alaska (Kasperski et al. 2016). The first right of refusal provision was intended to create a mechanism whereby small communities could retain local processing capacity and associated economic activities. However, there is a high level of confusion on these processing quotas provisions and how they can work for the local communities. Several communities indicate that they do not understand the program and that they fill out the paperwork that the lawyers provide. These communities express a desire for greater clarification on what these provisions do and how they can benefit their community.

**Eligible Crab Community Organizations**

Eligible Crab Community Organizations (ECCO) are authorized to purchase and lease BSAI crab to support economic development and continued community engagement in the BSAI crab fisheries (NMFS 2004). The eligible communities are listed in Table 2. Any eligible community may apply to form an ECCO<sup>2</sup>, and, once approved, the ECCO may purchase BSAI crab QS and lease the associated IFQ to community residents. ECCOs that purchase QS are required to submit annual reports to NMFS. To date, none of the eligible communities has formed an ECCO.

Table 2. Eligible Crab Communities.

CDQ Communities	Non-CDQ Communities
Akutan (APICDA)	Unalaska/Dutch Harbor
False Pass (APICDA)	Kodiak
St. George (APICDA)	King Cove
St. Paul (CBSFA)	Port Moller
	Adak

<sup>2</sup> The application to form an ECCO is available at <https://alaskafisheries.noaa.gov/sites/default/files/eccoapp.pdf>.

There has been some communication with communities talking about different programs, and the ECCO was one that many community members did not know about or have difficulty understandings. Some of the comments received recommended that advertising these programs to nonprofits in rural fishing communities would be a helpful way to inform the communities. Communities also suggested that the programs need to be described in simple terms, such as free fishing permits, no strings attached, etc., which would help get people's interest.

### Norton Sound Superexclusive Registration

The Norton Sound red king crab fishery is not included in the BSAI crab IFQ program. Instead, this small fishery that grosses about \$3 million per year is managed by the state. The fishery was restricted to small boats in 1993 and designated a superexclusive fishery in 1994. The superexclusive designation means that a vessel registered for the Norton Sound red king crab fishery cannot participate in any other king crab fishery during that year (Natcher et al. 1996; Natcher et al. 1999). The superexclusive designation has discouraged larger vessels from participating in this fishery. Thus in practice, superexclusive registration in the Norton Sound red king crab fishery has functioned to create a *de facto*, communally held, Territorial Use Right Fishery (TURF) (Criddle et al. 2001). Time series of exvessel revenues and participation in the Norton Sound red king crab fishery are represented in Figure 31.

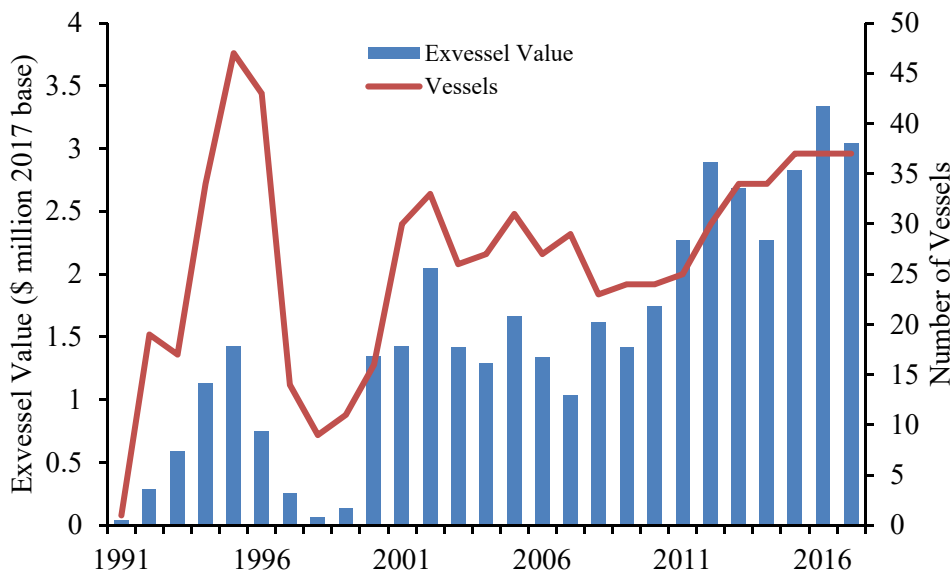


Figure 31. Participation (number of vessels) and exvessel nominal value in (\$ million) for the Norton Sound red king crab fishery, 1991-2017.

The superexclusive designation of the Norton Sound red king crab fishery has provided some improvement in economic and social sustainability in Norton Sound communities because that designation reduced the number of participants from outside the region and reduced the intensity of the race-for-fish.

### **Community Support Measures in the Halibut and Sablefish IFQ Fisheries**

The general pattern of halibut and sablefish QS ownership since program inception entails decreasing ownership in remote rural communities with ownership consolidating towards urban centers, such as the greater-Anchorage area, and to larger rural communities with superior logistic resources. The halibut and sablefish IFQ program has been cited as a contributing factor to the decline of remote fishery-dependent communities (Himes-Cornell and Hoelting 2015; Carothers et al. 2010; Carothers 2008). Many residents of smaller communities in Alaska participated in the halibut fishery because it was a natural fishery to participate in, with inexpensive gear that could be deployed from small general-purpose vessels. Moreover, during the pre-IFQ derby, the advantage of being close to productive fishing grounds more than offset the disadvantages of fishing from small ports with limited port services and few fish buyers.

The two principal community support programs for the halibut and sablefish fisheries are the Western Alaska CDQ program that allocated halibut and sablefish QS to the six CDQ entities and the GOA Community Quota program that allows the formation of Community Quota Entities (CQE) that are authorized to purchase halibut QS.

### **Halibut and Sablefish CDQ allocations**

The NPFMC added halibut and sablefish to the Western Alaska CDQ program when it took final action to establish an IFQ program for the commercial halibut and sablefish fisheries in 1995 (59 FR 61877, 12/02/1995). The CDQ allocation of halibut is in IPHC Area 4. In total, the CDQ entities were allocated 35% of the QS for IPHC Area 4. They received 100% of the halibut QS in Area 4E, 50% of the halibut QS in Area 4C, 20% of the halibut QS in Area 4B, and 30% of the halibut QS in Area 4D. Because halibut can be caught near some CDQ communities, these allocations were expected to provide real fishing opportunities for CDQ community residents. The CDQ fleet targets halibut but may retain incidental catches of other groundfish for personal use.

Additionally, CDQ fishermen are allowed to retain undersized halibut for personal use, provided they hold a Subsistence Halibut Registration Certificate from NMFS Restricted Access Management. Catches of CDQ halibut had an exvessel value of \$7.0M in 2018. The fleet delivered 69% of its landings to Atka and St. Paul. The average exvessel price per pound for CDQ halibut was \$2.91, an increase of \$1.06 from the prior year. From 1995 through 2017, the cumulative allocation of CDQ halibut was 44.46 million pounds (Figure 32). To calculate the exvessel value of 44 million pounds, one would take the average price of the amount landed and multiply it by the price of halibut being offered at that time. If the amount were around \$3.00/pound, this would mean that the CDQs were awarded halibut QS worth approximately \$133 million.

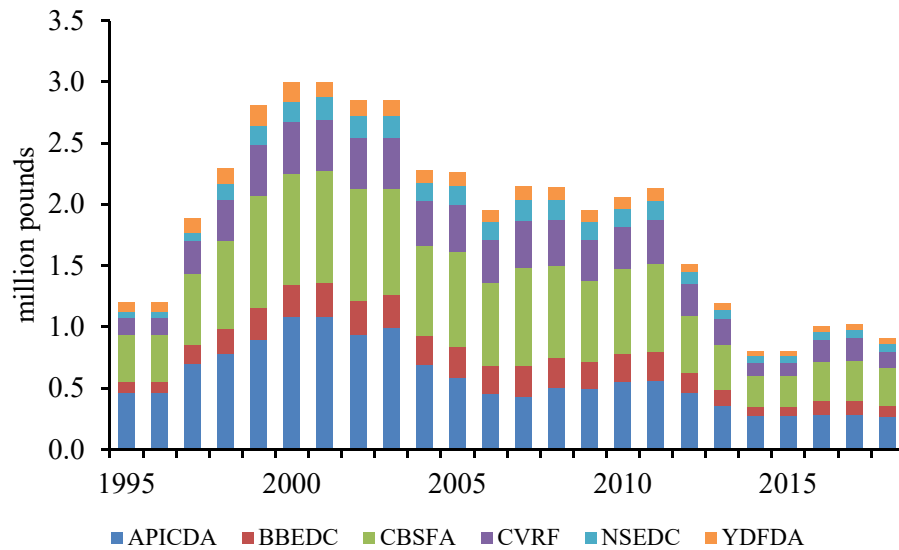


Figure 32. Total allocation (million pounds) of halibut IFQ to the CDQ nonprofit corporations, 1995-2018.

The CDQ entities were also allocated about 2 percent of the combined BSAI and GOA sablefish QS. In 2018, the CDQ allocation of sablefish was 1,181,344 pounds (NOAA 2018a). From 1995 through 2017, the cumulative allocation of CDQ sablefish was 31.59 million pounds, with an exvessel value of \$112 million (Figure 33).

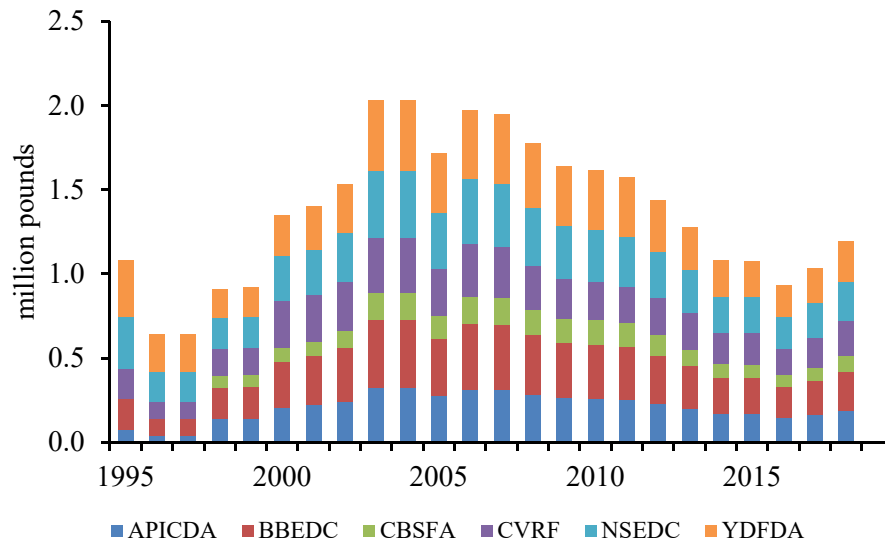


Figure 33. Total allocations (million pounds) of sablefish IFQ to the CDQ non-profit corporations, 1995-2017.

The total allocation to sablefish from CDQ has fluctuated from 1995 to 2017. Recent years have seen a slight increase.

### The CQE Program

In 2004, nine years after the implementation of the halibut and sablefish IFQ program, the NPFMC approved the creation of a Community Quota program for the GOA (FR 2004). The program authorized the creation of Community Quota Entities (CQE) and modified the IFQ program to allow a community to purchase halibut or sablefish QS (FR 2004). The objective of this program was to enable smaller GOA communities to rebuild and sustain their engagement in the halibut and sablefish fisheries. The communities eligible to participate in this program are illustrated in Figure 34.

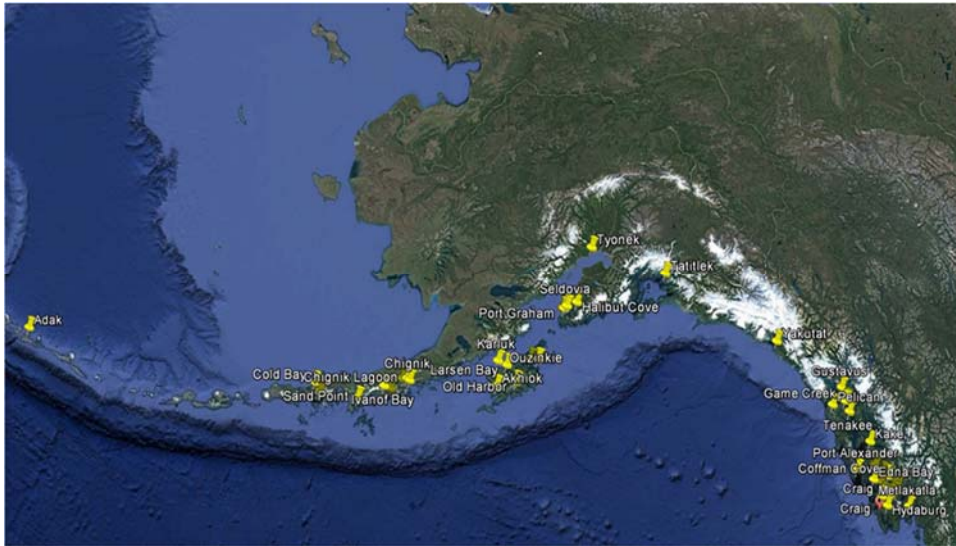


Figure 34. Communities eligible to submit applications to form Community Quota Entities. (See Appendix 1 for a list of CQE eligible communities.)

NOAA (2016) shows that the amount of quota held in the communities that qualify for the CQE program has declined since 1995 in poundage (Figure 35) and exvessel value (Figure 36). The number of individuals making landings has also declined.

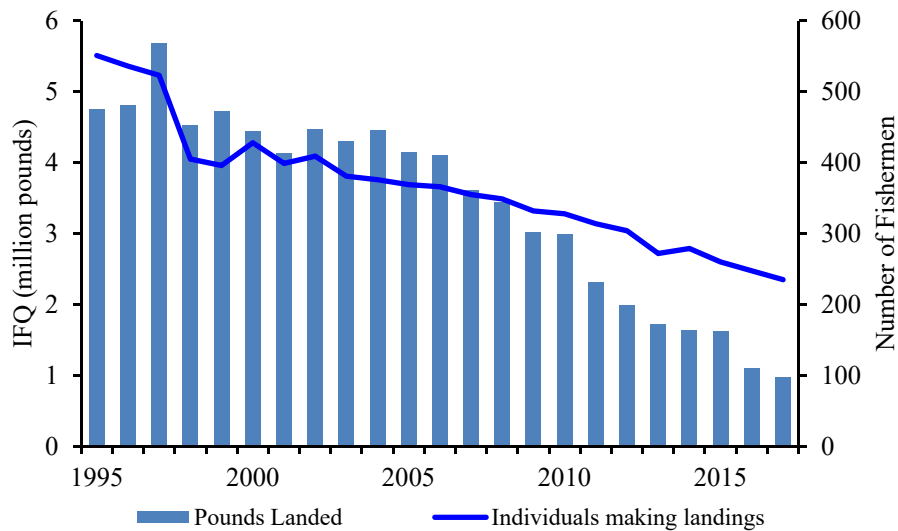


Figure 35. Total IFQ (million pounds) held by fishermen who reside in 42 CQE communities and the number of fishermen making landings of CQE quota for both halibut and sablefish (NOAA 2016).

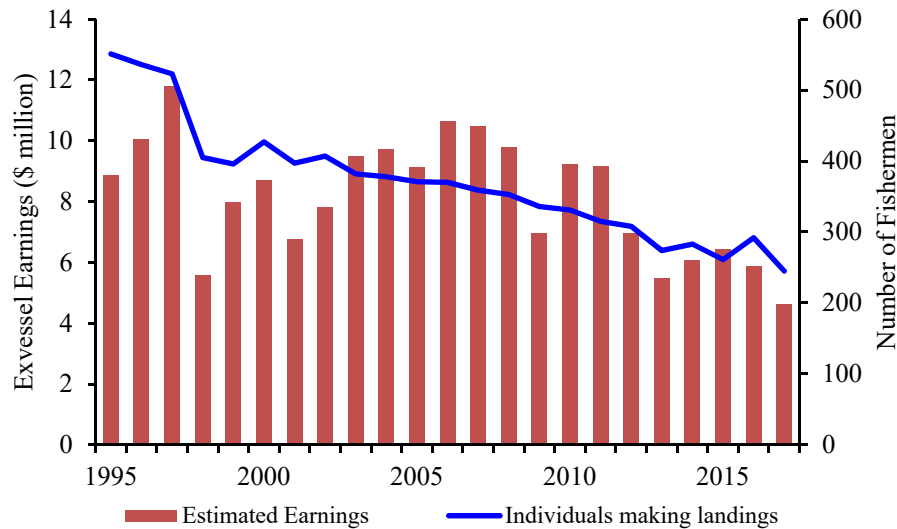


Figure 36. Estimated earnings in real prices (\$ million) from IFQ held by halibut and sablefish fishermen who reside in 42 CQE communities and the number of fishermen making landings of CQE quota. (NOAA 2016). (See Appendix 1 for a list of the communities.)

Since 1995, together, the 42 small GOA fishing communities eligible to form CQEs have experienced a 56% decline in individuals making landings, and a 79% drop in pounds landed (Figure 35). In addition, as depicted in Figure 36, these communities have experienced a 35% decline in halibut IFQ and a 55% decline in sablefish IFQ (NOAA 2016). A portion of the decline in IFQ pounds is due to reductions in the halibut and sablefish TACs, but most of the decline is due to reductions in the amount of QS held by community residents (Himes-Cornell and Hoelting 2015; NOAA 2016; NOAA 2015a; NOAA 2010; NOAA 2007). Employment and income in these remote communities are mainly dependent on fisheries because there are few alternative economic opportunities. Consequently, a decline in the number of QS holders can have significant social and economic impacts (Himes-Cornell and Hoelting 2015; Carothers et al. 2010; Carothers 2008). The CQE program allows small coastal communities (Figure 34) to purchase limited amounts of class-B and class-C halibut and sablefish QS to hold in trust for use by community residents. The eligible communities each have fewer than 1,500 residents, are not on the road system, and have a history of fishing halibut and sablefish. So far, 28 of the 42 eligible communities have formed nonprofit CQEs, but only five of these CQEs have purchased quota (NOAA 2019c). One reason so few communities have taken advantage of the program is the opportunity cost of using scarce financial resources to purchase quota; expenditure of community funds to purchase QS vies against

expenditures to support community infrastructure, schools, and other economic development activities. QS prices are roughly ten-times the mean expected exvessel price, so the acquisition of enough QS to support a viable community fishery could be very expensive.

## **CQE Extensions**

### Charter Halibut Permits (CHP)

In 2011, the sport-charter (for-hire) fishery for halibut was put under an LEP program, the Charter Halibut Limited Access Permit (CHLAP) program (NPFMC 2009). Under the program, Charter Halibut Permits (CHP) were issued to 1,022 individuals or businesses that could document their history of halibut charter fishing trips during 2004 or 2005 in 2008. Since program implementation, charter halibut operators are required to have a CHP onboard every vessel used for halibut charter fishing trips. Like IFQ and LEPs, CHPs are revocable perpetual use rights that can be transferred by gift or sale. The CHLAP program limits the number of CHPs that can be held by any individual and sets an upper limit on the number of anglers-per-trip. In addition to limiting entry in the charter halibut fishery, the CHLAP program included a provision to allow CQEs to request no-cost community CHPs for the halibut charter fishery in areas 2C and 3A. To date, NMFS has issued 104 CHPs to CQEs (NOAA 2019c).

### Pacific Cod License Limitation Permits (LLP) Program

The CQE program was extended in 2011 to allow CQEs to qualify for License Limitation Program (LLP) permits (longline or pot) for Pacific cod (50 CFR 679.4(k)). Each community may receive a limited number of Pacific cod LLP licenses and assign those LLP licenses to specified users and vessels (which must be < 60' LOA and use longline or pot gear) operating from those communities (50 CFR Part 679: Table 21). The program allows issuance of up to 27 licenses for Western GOA CQEs and up to 58 licenses for Central GOA CQEs. To date, five communities have qualified for this license; one community is currently using the LLP.

## **Community Participation in CQE and Aligned Programs**

Although communities have been slow to take advantage of the full suite of community support programs, most of the programs have been implemented in at least a few communities. Table 3



summarizes the CQE community support programs and the extent to which communities have taken advantage of those programs.

Table 3. CQE program permits and use.

Community Program	Name of Permit	Year Initiated	Eligible Communities	Communities with approved CQEs <sup>1</sup>	CQEs with QS, LLPs or CHP
Halibut and Sablefish IFQ Community Purchase Program	Quota Share (QS)	2004	46	27	6 CQEs hold QS (2.5 million QS units)
Charter Halibut Limited Access Program (CHLAP)	Community Charter Halibut Permit (CHP)	2011	32	20	12 CQEs hold 48 CHPs for are 2C; 8 CQEs hold 56 CHPs for Area 3A
Groundfish License Limitation Program (LLP) (non-trawl groundfish permits endorsed for Pacific cod)	Community Pacific cod Permit (LLP)	2011	21	5	5 CQEs hold 36 LLPs (2 named vessels for 2019) <sup>2</sup>
BSAI crab IFQ Community Purchase Program	Eligible Crab Community Organizations (ECCO)	2005	9		0

1. Aleutia, Inc. represents both King Cove, Cold Bay, and Sand Point.

2. Community LLP licenses cannot be used in a year unless and until a CQE names vessels and individuals who will fish its permits. PACIFIC QUEST, SHAREENA

<https://alaskafisheries.noaa.gov/sites/default/files/reports/19cqenamescontacts.htm>

### Halibut and Sablefish CQE

Figure 37 depicts the time series of CQE halibut QS holdings for the five communities that have purchased halibut QS and the corresponding time series of commercial QS holdings for community residents.

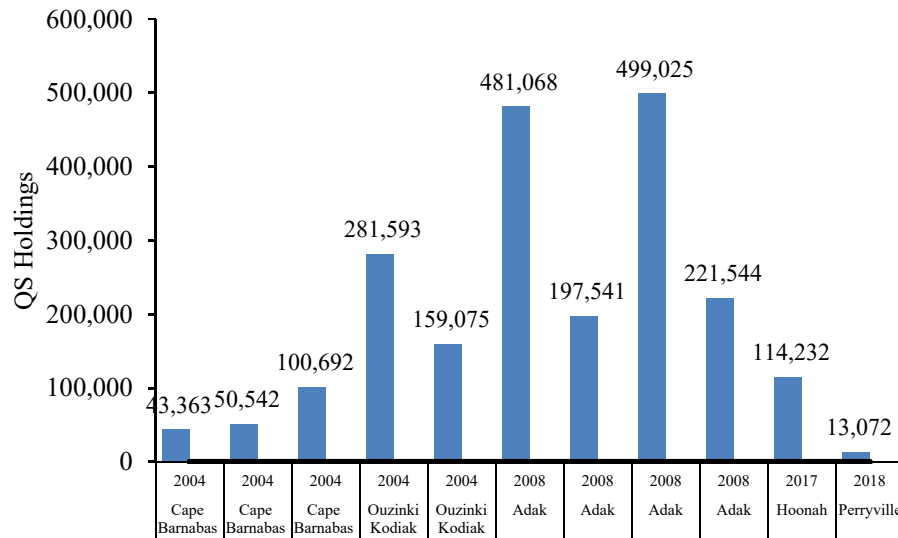


Figure 37. Time series observations of halibut QS purchased by the five CQEs that have purchased halibut QS.

The five CQE communities that have purchased halibut or sablefish QS have each done so in unique ways. One of the first to purchase quotas was Cape Barnabas Inc., a CQE for the community of Old Harbor on Kodiak Island. Cape Barnabas Inc. is a nonprofit 501(c)(3) organization supported by the Old Harbor Native Corporation. To date, Cape Barnabas Inc. has purchased 43,363 units of class-C halibut QS in IPHC Area 3A, and 50,542 units of class-B halibut QS in IPHC Area 3B, and 100,692 units of class-C halibut QS in IPHC Area 3B (NOAA 2019). The total poundage associated with Cape Barnabas’ QS in 2019 is 8,391 pounds. Fishing this poundage has provided crew jobs each year for community members. Unfortunately, Cape Barnabas Inc. purchased halibut QS right before a substantial drop in halibut biomass that caused the poundage associated with halibut QS to drop by a large percentage (Fields 2019).

Ouzinkie, a community on Spruce Island in the Kodiak archipelago, formed a CQE, the Ouzinkie Community Holding Corporation (OCHC), in 2004. Shortly after getting established, Ouzinkie authorized OCHC to use a portion of the proceeds from the sale of timber on tribal lands to purchase 281,593 units of class-C halibut QS and 159,075 units of class-D halibut QS in IPHC Area 3A. The total poundage corresponding to OCHC’s halibut QS in 2019 is 19,210 pounds.

The Adak Community Development Corporation (ACDC), representing the Aleutian Islands community of Adak, was added to the CQE program in 2008. ACDC purchased 481,068 units of class-B halibut QS and 197,541 units of class-C halibut QS in IPHC Area 4B, and 499,025 units of class-B sablefish QS in the AI management area, and 221,544 units of class-C sablefish QS units in the AI management area. In 2019, those QS holdings will support up to 166,575 pounds of halibut and sablefish.

In 2017, the city of Hoonah, through the nonprofit Hoonah Community Fisheries Corporation (HCFC), purchased 114,232 units of class-C halibut QS in IPHC Area 2C. To finance this purchase, Hoonah used funds accumulated over seven years from lease payments received for the use of their community CHPs. HCFC also received a \$500,000 grant from the City of Hoonah. The HCFC leases QS at rates intended to return 45% of exvessel revenues to the program, leaving 55% of exvessel revenues to lessees. Halibut caught by lessees is sold to a local processor and is offered fresh at the local fish and chips restaurant that caters to cruise ship tourists (Gray 2019). HCFC plans to purchase more quota in the future.

Perryville, a small (~100 persons) community on the Alaska Peninsula, formed the Perryville CQE to purchase 13,072 units of class-C halibut QS in IPHC Area 3B. This yielded 631 pounds of halibut quota to be fished by several small boats in 2019. It is anticipated that this poundage will be used, in part, to help young fishermen learn how to fish for halibut (Perryville 2019). The Perryville CQE plans to purchase an additional 57,349 QS units of IFQ halibut quota as funds become available.

Some elements of the CQE program have made it difficult for eligible communities to form CQEs and for the CQEs to function as profit centers for their communities. One limiting requirement is that a person must be a resident of the community for 12-months to be eligible to fish CQE halibut or sablefish QS. This might be a good model for retaining fishermen who already reside in the community but is not a suitable mechanism for attracting new fishermen to establish themselves in the community.

For some communities, another barrier to the development of CQE-based fisheries is that in the 25-years since the implementation of the Alaska halibut and sablefish IFQ program, many of the

active fishing vessels have increased their QS holdings up to the maximum allowed under vessel cap regulations<sup>3</sup>. The vessel caps are maximum fractions of the IFQ that can be caught on any single fishing vessel by any given QS-holder. Vessel caps were established to limit fleet consolidation. Vessels that have reached the vessel cap are not eligible to help fish the CQE quota. An unintended outcome of the vessel caps is that it has been difficult for some CQEs to find fishermen and vessels to fish their QS. In 2012, the NPFMC considered an amendment to the halibut and sablefish IFQ program to create an exemption to the vessel caps to allow a vessel to catch its quota (subject to the cap) as well as the CQE quota (not subject to the cap). The proposed amendment did not pass (NPFMC 2014).

Several communities have expressed a desire to form CQEs and acquire QS to sustain and expand local fishing fleets. However, many of these communities have found that anticipated lease revenues are insufficient to offset traditional financing costs without raising lease rates to levels that are financially infeasible for local fishermen. These communities suggest that they would be more likely to acquire QS if grants or low-interest loans were made available through state or federal economic development programs.

### **Halibut CHP**

Thirty-two eligible communities have access to the CHLAP, but only 20 communities have approval and are successfully taking advantage of Halibut CHP. As noted above, Hoonah applied for and was awarded 4 CHPs. Lease payments from the first seven years were saved, and with additional funds from the city, they were able to purchase 114,232 units of halibut QS in 2018 for the HCFC. The HCFC leased its QS to commercial operators for a percentage of the value of the landed halibut. Similarly, the CQE nonprofit established by the Thorne Bay receives the lease payments from their four CHPs. The Thorne Bay CQE intends to continue to accumulating funds until it has sufficient to use to purchase halibut QS to lease to its commercial fleet (Egelston 2016).

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<sup>3</sup> The IFQ vessel caps vary by IPHC management area, QS-class, and fishery. For halibut, the vessel caps are typically 1% of the Area 2C and 0.5% of the combined Area 2C, 3A, and 3B halibut QS, and 1% of Southeast and 1% of all combined sablefish QS.

## **Pacific Cod LLP**

It is difficult to describe the success of communities taking advantage of Pacific cod LLPs. Only one CQE, Aleutia, has taken advantage of the opportunity to acquire Pacific cod LLPs. Aleutia currently operates two vessels that have LLP licenses for Pacific cod under this program. When asked about their lack of participation in this program, the CQE leadership of other communities indicated that the application is complex and challenging to understand. CQE leaders suggested that it would be helpful to have examples available to serve as templates to follow in the preparation of application forms. They also suggested that it would be helpful if the NMFS-Alaska Region Office could create a dedicated staff position filled by someone who understands the program and is willing to help CQE's better understand opportunities within existing community support measures, how to complete applications and options for financing purchases of QS. A large amount of paperwork needs to be submitted with these programs, and this can be overwhelming for small communities.

## **ECCO Eligible Crab Communities**

The Bering Sea Aleutian Islands (BSAI) Crab Rationalization Program included provisions to allow nine named communities to establish nonprofit Eligible Crab Community Organizations (ECCOs) patterned after the halibut CQEs. The nine ECCs and their governing bodies are:

- Adak – City of Adak
- Akutan – Aleutian Pribilof Island Community Development Association
- Unalaska/Dutch Harbor – City of Unalaska
- False Pass – Aleutian Pribilof Island Community Development Association
- King Cove – the City of King Cove and Aleutians East Borough
- Kodiak – the City of Kodiak and Kodiak Island Borough
- Port Moller – Aleutians East Borough
- Saint George – Aleutian Pribilof Island Community Development Association
- Saint Paul – Central Bering Sea Fishermen's Association

All of the ECCs, except Adak, have a registered an Eligible Crab Community Entity (ECCE). The ECCE has the authority to exercise a right of first refusal of transfer (ROFR) of crab Processing

Quota Share (PQS) or Individual Processing Quota (IPQ) outside the ECC. For ECCs that are also CDQ communities, the ECCE is the CDQ Group. For non-CDQ communities the ECCE are:

- Unalaska - Unalaska Crab, Inc.
- Port Moller - Aleutia, Inc.
- King Cove - Aleutia, Inc.
- Kodiak - Kodiak Fisheries Development Association

At present, none of the ECCEs hold crab quota share (QS) on behalf of an ECC, and no ECCE has ever obtained QS by transfer. An ECCE is only required to submit an annual report if they hold QS<sup>4</sup>.

With regard to which communities have ROFR contracts with PQS holders, NMFS does not require contracts to be submitted or require that the PQS holders inform NMFS annually whether or not they have a contract in place. A list of PQS holders on the NMFS website shows which PQS holders have PQS that may be subject to a ROFR agreement with the community listed (NOAA 2013).

### **Community, Ceremonial, and Educational Use Permits for Halibut**

In 2005, the Pacific halibut subsistence fishery rules were amended to create special permits for community, ceremonial, and educational harvests by qualified Alaska communities and Alaska Native Tribes (70FR16742 2005). Permit holders must comply with Subsistence Halibut Registration Certificate (SHARC) registration and reporting requirements. These special permits for halibut harvests could be used as a tool to help youth and the community get engaged in halibut fishing.

Community and ceremonial harvest permits can be fished in Area 2C or Area 3A by representatives of Alaska Native tribes or on behalf of communities listed in 50 CFR 300.65(g)(1) or 50 CFR 300.65(g)(2). NMFS may issue a community or ceremonial harvest permit to any community or Alaska Native tribe that applies and that is qualified to conduct subsistence fishing for halibut. NMFS will issue a community or ceremonial harvest permit to a community in Area

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<sup>4</sup> Note that individual ECCE holdings of QS would be confidential and that total ECCE holding of QS could only be reported if at least three ECCEs held QS.

2C or Area 3A only if the applying community is listed as eligible in Area 2C or Area 3A, and no Alaska Native tribe exists in that community. As of 2018, one ceremonial and education permit, and eight community harvest permits have been issued (NOAA 2019d).

Eligible communities or Alaska Native tribes may each appoint one community harvest permit coordinator. The participating fisherman must carry a Community Harvest Permit (CHP) card as well as a valid SHARC. CHPs expire one year from the date of issuance but can be renewed. Tribes or communities that hold CHPs must maintain a harvest log and submit the log to NMFS on or before the permit's expiration date (NOAA 2019e).

### **Federal Halibut Education Permits**

Federal halibut education permits are similar to community and ceremonial harvest permits and can be obtained in Area 2C or Area 3A. The person that is coordinating the permit must have a SHARC card, and the permit only allows harvest of up to 25 fish. Permittees must submit a harvest log upon completion of the fishery (70 FR 16742 2005.). Some communities have taken advantage of this program, including Ketchikan and Tatitlek. There is a provision that allows the vessel operator to be reimbursed for their fuel and other expenses.

### **State of Alaska Educational Harvest Permits**

For state-managed fisheries, e.g., salmon, the Alaska Commercial Fisheries Entry Commission (CFEC) can issue a limited number of permits for use in middle school or high school educational programs. CFEC has approved ten educational permits over the years. For example, the Cordova High school program has a classroom component and an apprenticeship component that places students on working vessels for the summer season. Upon completion, the students receive two years of participation history that can be used towards meeting state LEP and vessel loan eligibility requirements. The program in Bethel involved 14 resident middle school students and two instructors with a skiff and subsistence fishing gear. In the classroom, students were taught about vessel operations and maintenance, personal safety, fishing techniques, fish identification, and a history of commercial fishing with an emphasis on the Yukon–Kuskokwim area and commercial fishing regulations (Twomley 2016).

## **Other Programs Intended to Help Youth Enter Fisheries**

There are several examples of how regions encourage their youth to participate in the local commercial fisheries. One example is in Maine, where there is a student program created when the lobster fishery entered into a limited entry fishery, to allow access for younger people growing up on the coast of Maine to enter the fishery. To qualify for the program, the individual must be a full-time student, they must complete the apprenticeship program, and they must purchase their license before they turn 18, which will allow them to avoid being on a waitlist to receive quota. The students can fish up to 150 lobster traps for the season and it has helped youth enter the lobster fishery in Maine (Gilbert 2016).

The Alaska Longline Fishermen's Association in Sitka Alaska started an apprenticeship program, and as of 2019, 54 apprentices have entered the program. The program was funded by the National Fish and Wildlife Foundation's Fishery Innovation Fund and the City of Sitka, and it was supported by local fishermen who took the time to train young fishermen out on the fishing grounds. The common goal was to motivate young people and to provide safe real-world experience in commercial fishing and the lifestyle it provides. In each of the past two years, over 100 young people have applied to the program, which is more than the current program can accommodate, but this shows that there is a keen interest from youth to participate in commercial fishing careers (Behnken 2019).

Norway has also implemented a program that recruits young boat owners that fish on vessels 30 to 45 feet. That program has distributed quota to 10 to 20 individuals, and it has helped sustain fisheries in their communities. Another program intended to attract Norwegian youth to fishing careers is the "youth recreation quota" that allows youth (aged 12-25) to offer recreational fishing charters during the summer (June 21 to August 31). The youth recreation quota is limited to no more than 3,000 tons a year (Eythorsson 2016).

## **International approaches to helping fishing communities**

### Community-based Fishery Programs in Iceland

Iceland has two programs to help support community-based fisheries. First, the local fishermen can be issued a class of quota shares that includes a requirement that catches be landed in their



home community (Chambers 2016). The community has a right of first refusal to buy the quota and boat when it leaves a fishery. The second Icelandic program intended to support coastal communities is the coastal fishing quota program. The coastal fishing quota is a share of total allowed catch allocated to an open-access fishery. The fishery is open from May to August, Monday through Thursday, with a 14-hour time limit. Participants are allowed to use up to four jig machines and are allowed to land up to 1,433 pounds of bottom fish per day (Chambers 2016).

#### Community-based Fishery Programs in Norway

Norway has implemented several programs to sustain place-based fisheries since the inception of an individual vessel quota (IVQ) program for the coastal fleet in the 1990s. Norway has placed limitations on where the large IVQ vessel quotas can be transferred to reduce a spatial redistribution of IVQ ownership across counties (Eythorsson 2016). Another program Norway offers is called the open group fishery that was developed to help small scale fishermen who did not qualify for IVQ quota in 1990. The open group fishery is open to fishermen who own a fishing vessel and have less than \$40,000 annual income. These programs were not popular with the large IVQ quota owners at first, but with the increase in cod quota over the past several years, there seems to be less controversy about these new programs (Eythorsson 2016).

#### **Why the Number of locally-held QS and LEPs have decreased in some Alaska Communities**

When the Alaska halibut and sablefish IFQ program was implemented in 1995, individuals received quota based on their catch history. Upon receiving the quota, individual fishermen had greater flexibility in their choices of homeport and delivery port and could choose to cash out of the fishery through the sale of their QS. Many QS recipients in rural and urban areas chose to liquidate the asset value of their QS, and many rural QS recipients moved away from remote communities that provided limited or low-quality public services, had a high cost of living, and offered little opportunity for employment outside the fishing season. Those individual decisions to sell QS or move had adverse spillover effects on other businesses and households in the community. (Kotlarov 2018; Carothers et al. 2010)

In pre-historic times, Pacific Northwest native tribes and clans used diplomacy and force to secure spatial rights to the fisheries they relied on (Higgs 1982, Newell 1993, Troster 2003). With colonization, those prior spatial rights were overridden by new claimants. Early on, and through most of the Territorial Era, fisheries off Alaska were controlled by canneries that operated as local monopsonies that exercised *de facto* territorial use rights through negotiated agreements among neighboring canneries, lobbying federal agents for exclusive spatial rights, or through extralegal means. With statehood, the power of the canneries ebbed, and fisheries came to be mainly allocated pursuant to an open-access race for fish. LEPs, introduced in the 1970s, shifted the race-for-fish from an open-access derby to a limited access Olympic race that encouraged the concentration of fishing and processing capacity near to productive fishing grounds. While fisheries are subdivided into regions based on biological and historical considerations, under federal and state constitutions, the rights of local residents are not superior to the rights of other state residents or other U.S. citizens. That some communities have a lengthy history of serving as a base for fisheries has never imbued those communities with legal authority to decide who gets to fish, how they can fish, or how they may dispose of their catch. Communities are fishing communities because their location and services attract fishermen. Under the race-for-fish allocation system, nearness to productive fishing grounds helped some communities attract more fishermen than other communities. As fisheries were moved to limited entry and quota share allocation systems and as consumer preferences shifted away from canned and other minimally-processed products to product forms requiring access to high-quality transportation services and sophisticated processing technology, the advantages of nearness to productive fishing grounds became less important than the higher exvessel prices offered at larger ports where multiple buyers compete for fish deliveries. Small fishing communities that adapted to new opportunities have continued to thrive under these new circumstances. Those that failed to adapt have seen declines in the number of vessels based in their ports, declines in the number of vessels that deliver to their ports, and declines in the number of fishermen who reside in the community. The direct, indirect, and induced impacts of declines in fishing, the economic base of fishing communities, have jeopardized their continued existence (Himes-Cornell and Hoelting 2015; Himes-Cornell et al. 2016; Kent and Himes-Cornell 2016). As noted above, the community support measures included in state LEP and federal LLP and QS programs have had limited success in stemming the decline.

Policy changes that make a fishery more profitable tend to favor non-locals. This can occur as a result of policy actions such as the implementation of limited entry or QS programs or as a result of global market dynamics. The price of transferable limited entry permits and transferable QS is quickly bid up to reflect the expected net present value of future catches (Newell et al. 2007; Huppert et al. 1996; Karpoff 1984). Consequently, the cost of entry rises to include the cost of purchasing the required permit or QS in addition to the cost of purchasing a fishing vessel, fishing gear, and supplies. Besides, in limited entry fisheries, the race-for-fish incentivizes investment in large, high capacity, high power, expensive vessels. Non-locals tend to have better access to capital because they have more liquid assets or assets that can be used as collateral, more connections, and are better able to work with banks (Knapp 2016). Paradoxically, policymakers want a fishery to be fished by local residents, and they want it to be profitable. The more profitable the fishery is, the more likely the permits are going to be transferred to non-locals and the non-Alaskans. Policymakers have not been very successful at devising policies that simultaneously promote local fishers and increase fishery revenues (Knapp 2016).

### **Legal context**

Opportunities for community ownership of QS, PQS, LLPs, and LEPs are underpinned and constrained by state and federal law, tribal rights, and international treaties. Although this roadmap is focused on community support programs in federal fisheries, state fisheries management offers some possible avenues for community support. For example, Article VIII, section 15 of the Alaska Constitution, as amended, allows the State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State. That is, in addition to limiting entry to support biological sustainability, the State can limit entry to support the economic sustainability of fishing businesses and fishing communities. Moreover, the spatial character of state fisheries management facilitates the adoption of management measures, such as superexclusive registration and pot limits, that tilt the playing field somewhat in favor of local and small-scale fishermen.

The Metlakatla Indian Community has exclusive access rights to fisheries within the Annette Island Reserve. The Reserve surrounds Annette Island with a seaward boundary of approximately

one nautical mile. Unlike Metlakatla, the other Native Alaska tribes are parties to the Alaska Native Claims Settlement Act, which assures subsistence fishing rights but does not assure commercial fishing rights. Nevertheless, through their control of uplands needed for setnet sites, etc., tribes have some ability to exercise influence that contributes to *de facto* local control of local fisheries.

The ten National Standards enumerated in the MSA include two that are particularly relevant to the development of measures to support community-based fisheries. National Standard 8 states that:

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 requirements of paragraph (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.

While National Standard 4 stipulates that:

Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The dissonance between these two National Standards sets the legal context and constraints for federal measures to support fishery-dependent communities. On the one hand, FMPs are to provide for the sustained participation of fishery-dependent communities while, on the other hand, FMPs are proscribed from unfairly discriminating among U.S. citizens. That is, these two MSA National Standards direct that FMPs should favor citizens who reside in fishery-dependent communities but without disadvantaging fishermen who do not reside in those communities. Specifically, under federal law, as confirmed by the courts, residents of one state cannot be preferred to receive quota over residents of other states solely as a function of their residency status (Brennan 2016). Nevertheless, the Regional Fishery Management Councils have developed FMPs that have endeavored to balance National Standard 2 and National Standard 8 and have withstood legal

challenges. For example, the NPFMC amended the Alaska Halibut and Sablefish IFQ program to allow the community of Adak the opportunity to establish a non-profit entity authorized to purchase halibut and sablefish quota for community residents to fish. (Baker 2016).

The State of Alaska and NOAA fisheries conducted outreach in eligible communities when the CQE program was implemented in 2004. NOAA explained the structure of the program and the process of applying for recognition of CQE entities, and the state explained the application process for state fishing loan programs. Unfortunately, at about this same time, the price of QS quickly climbed, and it became increasingly difficult for communities to justify QS purchases. Moreover, each new program created to help individuals buy QS has the perverse effect of increasing the demand for a fixed supply of QS, which in turn bids up the price of QS. That is, the introduction of programs to subsidize the purchase of QS or subsidize loans for the purchase of QS invariably increases the market-clearing price of QS, making QS even less affordable for new entrants who do not receive the subsidies.

### **A Roadmap for Sustaining and Rebuilding Community-based Fisheries in Alaska**

This section presents a roadmap suggesting steps that agencies and rural communities can take to sustain or reestablish their fishing fleets through the acquisition of QS, LLPs, PQS, CHPs, etc. The first step is for agencies to conduct outreach to provide each community with a clear explanation of all the programs that are currently available and what their community can do to take advantage of these opportunities. Once this is established, the community should research what quota the community held in the past. This would give them a general idea of their community's history with commercial fisheries. Next, each community needs to develop a strategic plan and identify the specific programs that best address community goals and submit the necessary application materials. Finally, each community needs to identify options for allocating fishing opportunities to community members and recovering costs of acquiring QS, LLPs, etc.

#### **Understanding community fishing history**

Provide each community with a clear explanation of all the programs that are currently available to their community and what steps the community needs to take to understand these opportunities

better. For example, there are different opportunities for the communities in the Gulf of Alaska and Southeast Alaska under the community quota entity program. Some communities were allocated charter quota that they could lease, and other communities were provided LLP cod quota.

In developing a roadmap for sustaining and rebuilding community-based fishing fleets, it is important to have a clear understanding of past participation and factors that contributed to the decline in participation. The historical baseline of actual landings and permit ownership is available in reports published by the CFEC and the NMFS dating back several decades. Longtime fishermen, processors, and community leaders have local knowledge that can provide an understanding of the factors and circumstances, such as changes in management policies, changes in markets, and changes in stock abundance and returns that were responsible for trends in the historical data. It would be best practice to compile the information and interpretation into a report that would be available for future reference. Public discussion and analysis of the report will help the community determine whether factors and circumstances have changed such that rebuilding community-based fisheries is a viable option. The report need not be exhaustively detailed; a simple summary of key trends could suffice. For example, the community of Angoon in 1995 had a fleet of 29 commercial vessels participating in the halibut and sablefish IFQ fisheries, and they made 92 offloads from 33 IFQ permit holders (NOAA 2016). The number of QS holders dropped by one half by 2001, and fell to four in 2007; from 2008 until the present, there are no QS holders. This shows a very dramatic drop in QS holders for this community. Another way a community can be analyzed is the actual pounds landed in the community by anyone over a period of time. Again looking at Angoon, in 1995, 275,688 pounds of halibut and sablefish were landed with an estimated value of \$773,696. From 2014 until the present, there have been no commercial landings of halibut or sablefish in Angoon. These two indicators represent the beginning of a picture of trends in landings and permit ownership for fisheries in which Angoon-based fishermen have participated. Adding information about the salmon fishery and other fisheries will give the community a comprehensive picture of the fishing history of a community.

## **Developing a Strategic Plan; to start, develop or enhance a Community Quota Entity program**

Once the community has decided it wants to rebuild its fisheries, it should follow a series of steps to support these goals. Crucial steps include where the community wants to go, what they want to archive, and how they are going to get there. Starting with a strategic plan.

1. Strategic plan
  - a. In speaking with a leader of the community, have them help identify the people that should be involved in the planning process.
  - b. Set up a collective meeting of the community
  - c. Present the historical fishing practices of the community
  - d. Identify the communities strengths, opportunities, weakness, and threats
  - e. Develop a list of broad goals achievable in 4 years
2. Mission statement (needs to be developed)
  - a. The role that the community intends to play to facilitate the realization of the vision.
  - b. Write what is essential to the community and organization
  - c. What is the purpose of the organization
3. Vision statement
  - a. Looking into the future of 4 years what has the community done to revitalization their fisheries
  - b. What will the headlines be in the national newspaper, the local paper?
  - c. What is the community's vision for how the revitalized fishery will be sustained and how it will contribute to the community?
  - d. Expand economic opportunity and access to markets for fishermen in the community

4. Goals and steps to achieving those goals, e.g.,
  - a. Identify funds that the community can invest in quota and for ways the CQE can generate income
  - b. Use charter halibut permits or LLP cod permits or any other funds generated income to save for purchasing IFQ commercial fishing quota to then be leased back to community members.
  - c. Strengthen local fishing and fisheries support sector businesses through community acquisition of QS, PQS, CHPs, LLPs, LEPs, etc.
  - d. Keep fishing a way of life through training and loan programs to encourage new entrants and through encouraging current participants to continue to use the community as a base for their fishing activities
  - e. Lease quota that is purchased back to the community members
    - i. Support new generations of fishermen by encouraging both crew and family members to become captains
    - ii. Encourage youth to participate in local fisheries.
    - iii. Help build businesses that keep money local and uphold local tradition and culture.
5. Objectives
  - a. Action statement
  - b. Description of how the community organization is going to get there.
  - c. Make the milestones easy to measure
  - d. Establish targets.
  - e. Track progress
6. Financing - Pursing long term funding the CQE should focus on
  - a. Develop a track record of working with multiple groups, CQE, village corporations, municipalities, etc., to structure successful community focused financing.
  - b. Ability to secure financing with a wide range of collateral types.
  - c. Develop financial skills required to structure funding approaches that work with constraints (high prices) of the current IFQ market.
  - d. Seek out low down payment requirements, below-market interest rates, and long term loan repayment schedule.



7. Anticipated outcomes and assessment of the extent to which measures taken by the community have succeeded.
  - a. A resilient community of fishermen working together
  - b. New entrants to mentors working together to revitalize community-based fisheries.
8. Guiding principles
  - a. Support growth and stability of well-run fishing businesses
  - b. Encourage diversification across fisheries to reduce dependency on a single dominant fishery.
  - c. Develop opportunities that maximize the socioeconomic benefits of small boat independent fishing and local processing.

Community leaders need to secure community support for the Strategic Plan; the likelihood of securing community support is increased if community members have contributed to shaping the vision statement, mission statement, goals, and outcomes assessment plan. A well-structured Strategic Plan will guide decisions about what types of QS or permits the CQE will seek to acquire and identify preferred options for allocating fishing opportunities among community members and recovering costs of QS and permit acquisition. Several communities have done this successfully and could serve as models for other communities that are interested in developing an effective CQE.

Finally, the community CQE board needs to identify options for allocating fishing opportunities to community members and recovering the costs of acquiring QS, LLPs, etc. This can be done in many different ways. First, the CQE board reviews applications for eligibility: applicants must be a U.S. citizen who has maintained a domicile in the CQE's community for the 12 consecutive months prior to the declaration of residency on the lease application. Eligible applicants can then be ranked based on the CQE's scoring criteria, such as, whether they already have some IFQ, whether they have prior fishing experience, whether they have previously fished CQE QS, and met associated obligations, and whether they intend to employ community residents as crew. The CQE board may deduct points for fishing violations or failure to pay crew. There are lots of different options, and each community needs to establish its methods.

### **Impediments to CQE Success**

The price of QS has been the biggest obstacle to the development and expansion of CQEs. In 2004 the average price for halibut QS was \$6 to \$8 a pound. The price for quota is now between \$50

and \$65 a pound. At current exvessel prices and depressed halibut catch limits, earnings from fishing are insufficient to cover the cost of loan payments, cover variable operating costs, and provide profit to fishermen. For example, in 2019, the purchase of 2,500 pounds of class C halibut QS in Area 2C could cost over \$165,000. At current biomass levels, 2,500 pounds of halibut QS would only yield annual landings of 2,450 pounds, which at current exvessel prices would only yield about \$14,700 in gross revenue. At a 5% interest rate with a 10-year repayment schedule, annual payments for interest and capital would be \$21,368.

### **Setting up a CQE**

If the community supports the establishment (or expansion) of a CQE as part of the Strategic Plan, the next step is to form the CQE or expand the scale and scope of its existing CQE. Once the community has qualified as a community eligible to form a CQE, it can proceed with establishing a 401(c) non-profit corporation to act on its behalf. Next,

1. The non-profit applies to NMFS for authority to receive and hold QS;
2. NMFS provides a 30-day window for the State of Alaska to review the application and make comments.
3. When the application is approved, the nonprofit is certified as a Community Quota Entity (CQE) and is eligible to enter the QS market;
4. The CQE then “leases” annual IFQ permit amounts to community residents;
5. The CQE remains in the market and can buy or sell QS as their finances and interest allow.

There are restrictions on the amount and type of quota that CQEs may purchase. Southeast communities may not acquire halibut quota in Area 3B. Southcentral CQEs may not acquire quota in Area 2C. CQEs may not acquire vessel category D quota—which is reserved for vessels under 35 feet—in Areas 2C or 3A (NOAA 2010). Also, there is a cap on the total quota that can be owned under the program. This was in response to individual quota holders’ concerns that, without such a restriction, most of the quota would eventually be owned by communities, leaving little if any available on the market for individuals. The cap for the entire program started at 3% in the first year, 2004, and increases by 3% per year until ultimately up to 21% of all the halibut and sablefish quota under the IFQ program may be held under the CQE program.

As of 2019, only 30 of the 42 eligible communities have established a certified CQE. A list of all the current CQEs is included in Appendix 2. The 15 communities that do not currently have a CQE set up are listed in Table 4.

Table 4. Communities eligible to participate in the CQE program but that have not, as of 2019, set up a CQE.

<b>Southeast Alaska</b>	<b>Gulf of Alaska</b>
Game Creek	Akhiok
Gustavus	Chignik
Hollis	Chignik, Lagoon
Kasaan	Chignik Lake
Meyer Chuck	Ivanof Bay
Naukati Bay	Karluk
	Tatitlek
	Tyonek

This list is updated daily on the NOAA website – this is as of 2019 (NOAA 2019).

Since the implementation of Amendment 66 to the GOA Groundfish Fisheries Management Plan, in 2010, two fishing privileges have been added to the CQE program. These two revisions allow CQE programs to obtain CHPs for the guided sport halibut fishery in Areas 2C and 3A and fixed gear LLPs for Pacific cod in the Western and Central Gulf. These revisions allow CQEs to request a limited number of CHPs to support new charter businesses or as an investment that earns lease payments. The community could also request a fixed gear LLP for Pacific cod in the Western and Central Gulf. In a review of the current charter permits, there are 34 communities that may hold charter permits, but only 19 have applied for CHPs permits. (See Table 5.)

Table 5. Total number of communities that have applied and not applied for charter halibut permits under the CQE program.

Southeast			Southcentral		
Applied	# CHPs*	Not applied	Applied	# CHPs*	Not applied
Angoon	4	Game Creek	Chenega Bay	7	Akhiok
Coffman Cove	4	Hollis	Halibut Cove	7	Chignik Lake
Edna Bay	4	Kake	Larson Bay	7	Karluk
Hoonah	4	Kasaan	Old Harbor	7	Tatitlek
Hydaburg	4	Klawock	Ouzinkie	7	Nanwalek
Pelican	4	Metlakatla	Port Graham	7	Tyonek
Point Baker	4	Naukati Bay	Port Lions	7	Yakutat
Port Alexander	4		Seldovia	7	
Port Protection	4				
Tenakee	4				
Thorne Bay	4				
Whale Pass					

\*The total number of permits held by CQE communities. Each CHP can be used to take out up to 6 anglers per day. As of June 2019 50 CFR 300.67

The fixed gear Pacific cod fishery is a slightly different situation. The NPFMC recommended that NMFS issue some permits to each CQE equivalent to the number estimated to be removed from residents of the represented community, one or two permits, whichever is greater, such that access to Pacific cod remains a long-term community asset (Sea Grant 2009). Some communities may get up to nine LLP groundfish licenses. Thus Pacific cod LLPs held by CQEs could represent a long-term community asset. The 22 CQEs eligible to hold Pacific cod LLPs are listed in Table 6.

Table 6. The total number of Pacific cod LLPs that could be held by CQE communities, 2019.

Community	Cod LLPs	Community	Cod LLPs
Akhiok	2	Ouzinkie	9
Chenega Bay	2	Perryville	2
Chignik	3	Port Graham	2
Chignik Lagoon	4	Port Lions	6
Chignik Lake	2	Sand Point	14
Cold Bay	2	Seldovia	8
Halibut Cove	2	Tatitlek	2
Ivanof Bay	2	Tyonek	2
Karluk	2	Yakutat	3
King Cove	9		
Larsen Bay	2		
Nanwalek	2		
Old Harbor	5		

\*indicates the number of permits that each community qualified for as of 2019

Of the 22 eligible communities, only five communities (Chignik Lagoon, Old Harbor, Ouzinkie, Sand Point, and Port Lions) have filled out the required documentation within the last six years. At present, only one company is using two Pacific cod LLP held by a CQE, the CQE associated with Sand Point. Earnings from lease payments on CQE-held CHPs and Pacific cod LLPs could provide funds for discretionary investments targeted towards rebuilding local fishing fleets.

### ***Financing***

There are options for financing CQE purchases of QS and limited entry permits that could be advantageous to Alaskan communities. The four main options are:

- 1) Commercial Fishing Revolving Loan Fund: The State of Alaska, through the Division of Investment, offers loans for the CQEs to purchase QS. The interest rate is 2% above the prime rate (not to exceed 10.5%), the maximum loan term is 15 years, and the maximum loan amount is \$2 million per community. Also, the State of Alaska requires collateral

(vessels, property, or other assets) to cover the loan value (NPFMC 2016). Consequently, while this loan program has been in place for several years, the terms of the loan have not been viewed as favorable, and the program has not been widely used.

- 2) NMFS Fisheries Finance Program: Under the MSA, cost recovery funds can be used to support loans to assist entry-level and small-vessel fishermen, and refinance QS. NMFS Financial Services Division administers these loans, which are long term, low-interest loans that may finance up to 80 percent of quota value (Kotlarov 2018). For example, the NMFS Financial Services Division (FSD), Seattle Branch, issues loans to purchase or refinance of QS. These loans are available primarily to entry-level fishermen and those fishing from small vessels. In the Federal fiscal year (FY) 1998, Congressional appropriations established a loan fund of \$5 million for each fiscal year. Later Congress increased the IFQ loan authority to \$8 million and then to \$24 million to meet higher costs of QS in IFQ programs, to serve more constituents, and to provide funds for other catch share programs (NOAA 2012, NPFMC 2016). Over the last several years, the total amounts of loans issued under the NMFS Fisheries Finance Program have decreased substantially. The average loan amount per borrower peaked in 2011 at \$365,000, a 250% increase over initial average loan amounts of \$104,000. (NPFMC 2016) The decreasing TACs in the IFQ fisheries over the last several years has led the Fisheries Finance Program to implement stricter credit criteria for halibut and sablefish QS loan applicants. The total number of loans went from 52 in 2010 to 7 in 2018 (Bennett 2019).
- 3) Alaska Commercial Fishing and Agriculture Bank (CFAB): The Alaska Commercial Fishing and Agriculture Bank is a private member-owned cooperative that provides loans for commercial fishing operations using QS as collateral. CFAB makes direct loans to the borrower with a maximum term of 20 years. There are no limits on how much an individual may borrow from CFAB. Fishermen generally need to have collateral for 50% of the equity value of the QS. Other assets can also be used as collateral to offset the down payment if needed.
- 4) Small Business Administration (SBA) Loans: Communities may be able to access SBA loans to support CQE acquisition of QS and permits. The SBA can provide loans, loan guarantees, and counseling for new businesses that meet program eligibility requirements.
- 5) Private Social Objective Lenders: Social objective lenders, such as Ecotrust, may offer more generous terms than those offered under State or Federal government loan programs

(Fields 2019). For example, to entice fishermen to adopt “best fishing practices,” a social objective lender may offer below-market interest rates. Many Alaska region fisheries already comply with “best fishing practices” (Fields 2016).

When the CQE Program was implemented, many thought that the village and regional corporations formed under the Alaska Native Claims Settlement Act (ANCSA) would be a potential funding source for CQE purchases of QS. Alaska Native people own the regional and village for-profit corporations through privately owned shares of corporation stock. However, ANCSA corporations are limited in their investments, in that they face a legal vulnerability in providing “disproportional dividends”. In effect, this means corporations must provide dividends (e.g., cash distributions) in equal proportion to shareholders, and cannot benefit a shareholder or group of shareholders disproportionately. The ANCSA corporations find it difficult to provide direct funding, or a loan program, to benefit a specific group of its shareholders, such as a resident fisherman in one of its member villages (NPFMC 2016).

In addition to loan programs, there is a federal new market tax credit (NMTC) program, which was set up to create tax incentives to induce private sector investment in low-income communities. This program might be a source of funding for an expansion of CQE holdings of halibut and sablefish QS or LLPs. For example, the CDQ group Coastal Villages Region Fund (CVRF) used the NMTC to attract financing used to build a new fish processing plant in Goodnews Bay. Construction of the plant created 325 construction jobs. While operating, the plant employed 225 permanent seasonal employees and purchased fish from 596 fishermen (NMTC 2019). Unfortunately, the plant was not financially self-sufficient and relied on substantial subsidies (\$6 to \$7 million per year) from CVRF (Demer 2017). CVRF discontinued the subsidies in 2018, and the plant has ceased operation.

### **Land and Fisheries Trusts**

Land trusts and water trusts have a long history as tools for unbundling various use rights from the suite of rights attached to real property. Land trusts have also been used as an organizational framework for the administration and disposal of public lands set aside to generate income to support public services, such as land grant colleges, K-12 education, and mental health services.

For example, a land trust could be set up to maintain farmland on the urban-rural fringe. When there is a high demand for residential development, there may be a substantial difference between the price of land for development and the value of the marginal product of land in agriculture along the urban-rural fringe, and farmland will tend to be developed (Wright and Anella 2007). Groups interested in preserving agrarian land could form a trust to purchase the land outright or to purchase the associated development rights (conservation easements) from willing landowners (Daniels 2000, Parker 2004). The most common limitation attached to such easements is a legal restriction of future subdivision and development of the land (Kiesecker et al. 2007). Payment for the development rights could be some combination of present and future direct payments and tax breaks in exchange for amendment of the property title by covenant (specification of prohibited land uses) or by easement (specification of permitted uses).

The Alaska Mental Health Land Trust is a good example of the second category of Land Trust—public lands that are given as an endowment to be used to generate revenues needed to support a specific public purpose. In this instance, Congress endowed the trust with one million acres of land to generate revenues to support a comprehensive mental health care program. The trust works like a private foundation with a Board of Trustees charged with managing the portfolio of lands and funding projects and programs that improve the lives of beneficiaries. On average, the trust grants \$10 million per year to various state agencies that provide mental health services and to individuals who qualify for mini-grants. The Alaska Mental Health Trust Authority receives income from land sales, royalties from coal, oil/gas material, and mineral, right of way easements, and timber sales. The trust uses this income to invest in the trust assets. The mineral interest in the Fort Knox mine is an example of how the trust receives royalties on the mine production each year. Since the mine production has started, the royalty payments to the trust have been over \$24 million (Alaska Mental Health Trust Authority 2018).

### **Fisheries Trusts**

Fisheries Trusts are similar to the first form of Land Trusts; they are established to support the continuation of place-based activities that are at risk due to market forces. Fisheries Trusts are private non-profit organizations established to support retention of LEPs, LLP, QS, IFQ, etc. Fisheries Trusts may act as permit banks, leasing or selling QS and permits to local fishermen.

Like Land Trust lands, QS and permits leased or purchased from Fisheries Trusts may be subject to covenants or easements restricting resale or subletting of the QS or permit and specifying particular fishing practices (e.g., fish handling techniques and bycatch reduction measures). One key difference between Fisheries Trusts in Land Trusts is that in many nations, including the United States, LEPs, LLPs, QS, and IFQ are conditional use rights and lack many of the legal protections that are attached to the ownership of land (Mansfield 1994, Schwindt and Globerman 1996). For example, it is easier for governments to revoke or amend conditional use rights than it is for governments to take private land or to introduce new restrictions on the use of private land. While these differences between conditional use rights and real property are meaningful, the differences are not absolute; they are a matter of degree (Hanisee 1993). For example, federal, state, or local governments can seize private land through eminent domain or change the suite of permissible uses of private land through zoning or designation of critical habitat, etc. Similarly, although many conditional use rights are ostensibly revocable without compensation, governments often choose to compensate permittees when those rights are terminated or attenuated (Criddle and Wardle 2018). For example, federal and state funds are often used to reduce overcapacity in fisheries through the purchase and retirement of LEPs when the same reductions could be achieved through revocation of permits that have not even been used in recent years (GAO 2000, Hannesson 2007, Squires 2010).

Several non-profit fisheries trusts have been set up on the east coast of the United States, on the Gulf of Mexico coast, in California, and Alaska to support retention of fishing rights. Most of these fisheries trusts are structured as permit banks that acquire LEPs, LLPs, or QS to lease to local fishermen at favorable rates. While their accomplishments and challenges have depended on their goals, structure, and level of flexibility, the main barrier fisheries trusts have faced has been access to capital.

#### Cape Cod Fisheries Trust (CCFT)

The Cape Cod Fisheries Trust (CCFT) was formed in 2008. CCFT first bought quota in 2008, and now owns more than six million pounds of scallop and groundfish quota. The original funding to capitalize the trust included gifts from provided by fishermen and other private donors, grants from charitable foundations, loans from banks to private individuals who subsequently donated the loan amount to the trust (these bank loans were often offered at below-market rates), and loans from



charitable foundations to the CCFT that were offered at 1-3% interest rates (Parker 2019). The initial loans have been paid off, and a new round of loans have been granted to allow the trust to assist fishermen in more quota. The trust's objective is to stem the outmigration of locally owned quota and to encourage local fishermen to diversify the suite of species they target to help them avoid becoming overly specialized and reliant on a single fishery (CCFT 2019). CCFT pursues its objective by operating as a quota bank; it buys quota from retiring fishermen and leases it to local fishermen at submarket rates. CCFT also provides financing, business planning, and technical assistance to fishermen who want to buy quota and build their businesses. CCFT's quota portfolio has appreciated and CCFT has been able to stabilize the cost of access to quota for local fishermen (CCFT 2012). In 2019, the CCFT leasing program helped 106 captains and crew working aboard 26 fishing vessels to catch 623,000 pounds of fresh seafood worth \$2.9M in fisheries off Cape Cod (CCFT 2019). These "fishing dollars" stay on Cape Cod and have a multiplier effect on the Cape's economy. Since CCFT was formed, none of the quota held by the local fleet has been sold to larger off-Cape companies. Indeed, local ownership of scallop quota has increased by 26% from 2009 to 2011. The trust is also helping scallop and groundfish fishermen diversify their catches to include dogfish, monkfish, skate, tuna, lobster, conch, and striped bass (CCFT 2019). The CCFT has become an inspiration and model for others who are working to create sustainable fisheries and economies, and the Fund has continued to receive support from investors.

Recently the founders of the Cape Cod Fisheries trust established a charitable fishing organization called Catch Together that provides low-interest loans to fisheries trusts in other regions (Table 7).

Table 7. Loans made to fisheries trusts in different regions.

No.	Transaction	Community Partner	Species	Approximate \$	Co-Lenders
1	Martha's Vineyard Scallop	Martha's Vineyard Fishermen's Preservation Trust	Atlantic scallop	\$1.0M	Woodcock Foundation, Stephenson Foundation, Fink Family Foundation
2	Martha's Vineyard Whelk Permits	Martha's Vineyard Fishermen's Preservation Trust	Channel Whelk		The Nature Conservancy
3	Martha's Vineyard Lobster Tags	Martha's Vineyard Fishermen's Preservation Trust	Atlantic lobster		
5	New England Groundfish	Cape Cod Commercial Fisherman's Alliance	New England groundfish, Atlantic scallop	\$1.0M	
6	Gulf Shareholders	Gulf Shareholders Alliance	Red snapper	\$2.0M	Campbell Foundation
7	Local Fish Fund	Alaska Sustainable Fisheries Trust	Sablefish, halibut	\$2.0M	Rasmuson Foundation, The Nature Conservancy
8	Sablefish A-Shares	Alaska Sustainable Fisheries Trust	Sablefish	\$1.0M	

(Parker 2019)

### Martha's Vineyard Fishermen Preservation Trust

The Martha's Vineyard Fishermen Preservation Trust was started because the price for quota was not affordable for local small boat fishermen. The trust worked closely with the former director of the Cape Coder Fisheries Trust and founder of Catch Together to acquire quota. The Martha's Vineyard Fishermen Preservation Trust initially raised \$500,000 on its own and received two \$250,000 loans from investors (Reichel 2017). The fishing community was being pressured to move out of their local towns to make room for more yachts. The community worked together to support local fishing and understand the importance of the year-round economic impact of having a local fishing fleet. There are currently eight communities that participate in the Martha's Vineyard Fishermen Preservation Trust (CCFT 2019).

### Reef Fish Quota Bank

The Reef Fish Quota Bank was started in 2013 and operates in the Gulf of Mexico from, Texas to Florida. The quota bank was initially funded by donations and philanthropic contributions from

fishermen. They started working with CCFT's Catch Together in 2016. The primary purpose of the Reef Fish Quota Bank is to help grouper fishermen obtain red snapper quota. Under the regulation, grouper fishermen have to discard red snapper unless they have sufficient quota. By helping fishermen obtain red snapper quota, the Reef Fish Quota Bank reduces bycatch discards and associated discard mortality and increases fishing revenues. Eligible fishermen can lease red snapper allocations from the Quota Bank on an annual basis. They lease the quota in advance of their trips and report their usage rates after each trip. As of 2019, the Reef Fish Quota Bank has acquired more than 70,000 pounds of red snapper for allocation to grouper fishermen (Gulf of Mexico Reef Fish Shareholders Alliance 2019, Brazer 2019).

#### Alaska Sustainable Fisheries Trust

The Alaska Sustainable Fisheries Trust (ASFT) was formed to promote and support access for communities and independent fishermen. The ASFT mission is to strengthen Alaska fishing communities and marine resources through research, education, and economic opportunity. ASFT views maintaining or increasing the number of fishing permits and the amount of QS held by community residents as essential mechanisms for incentivizing sustainable, conservation-oriented fishing practices such as sharing information to avoid bycatch (Behnken 2016). To support that mission, the ASFT seeks to help fishermen overcome barriers to entry. In a survey conducted among halibut and sablefish fishermen, the main reasons listed for not purchasing QS in Alaska were the difficulty obtaining financing, concerns about low TACs, and concerns the growth of charter catches (Kotlarov 2016). ASFT recognizes that residents of rural Alaska communities have few alternative income sources to help support the purchase of QS and that the IFQ program has dramatically increased the cost of entry (Behnken 2016). Rural residents have limited access to capital and often few employment alternatives to fishing. The transition of fisheries from open access to limited access and QS systems has added to the cost of entry. The cost of LEPS, LLPs, or QS is often as much as or much more than the cost of purchasing a fishing vessel and fishing gear. Often, fishermen who are retiring care about the next generation of fishermen and the sustainability of their fishing-dependent communities, but they also are cognizant of their financial investment and the need to plan for retirement (Behnken 2019).

The local fish fund was established to support Alaska's fishing communities by reducing specific barriers to entry into commercial fisheries. The Alaska Sustainable Fisheries Trust established this

fund with the main goal of engaging the next-generation fishermen in policy leadership. Alaska Sustainable Fisheries Trust was set up to capitalize the Local Fish Fund from supporters like the Nature Conservancy, Craft3, Rasmuson Foundation, and Catch Together (Parker 2019).

The loan that is given to the fishermen is different than the traditional commercial loan with fixed payments like a car or house loan. The Local Fish Fund uses a “revenue participation” system in which loan repayment is based on fish landings rather than a fixed loan repayment structure. The loan also incentivizes LFF borrowers to participate in resource conservation and management initiatives through variable interest rates (Behnken 2019). The fund offers loans with reduced down payment options with competitive interest rates. The overall goal is to allow fishermen to build sufficient equity to access conventional loans. This program is one of the few paths of ownership of quota for new fishermen in Alaska to bring ownership back to rural communities in Southeast and the Gulf of Alaska.

The Local Fish Fund was set up by the Alaska Sustainable Fisheries Trust located in Sitka, Alaska. The loan fund aims to support Alaska’s fishing communities by reducing some barriers to entry into commercial fisheries and to encourage next-generation fishermen to enter into commercial fisheries. Another goal of the ASFT is marine stewardship and policy leadership. Alaska Sustainable Fisheries Trust was supported in setting up and capitalizing the Local Fish Fund by The Nature Conservancy, Craft3, Rasmuson Foundation, and Catch Together (Behnken 2019). These loans are not like the traditional commercial fish loans that require fixed payments, like a home loan. The Local Fish Fund loans use a “revenue participation” approach in which loan repayment is based on fish landings rather than a fixed loan repayment structure. This method lowers the risk for entry-level commercial fishing businesses because the allowable catch and fish price can vary dramatically from year to year.

The Local Fish Fund offers loans with competitive interest rates and reduced down payment options, and allows fishermen to build sufficient equity to access conventional loans. These agreements provide new fishermen with a path to ownership, which is anticipated to ultimately bring ownership back to rural communities in Southeast Alaska and the Gulf of Alaska and sustain them over time. (Behnken 2019).

ASFT secured \$1.5 million in 2019 for Program Related Investment capital to lend to entry-level fishermen willing to purchase and fish halibut or sablefish quota share. ASFT also purchased category A share halibut quota that can be leased to fishermen to generate cash flow for fishermen and fund conservation initiatives (Behnken 2019). The ALFA has also started an apprenticeship program, and as of 2019, 54 apprentices have entered the program. ASFT is currently accepting LFF applications from Alaska residents.

#### Morro Bay Community Quota Fund

In contrast to the preceding examples, the Morro Bay Community Quota Fund (MBCQF) was kick-started by The Nature Conservancy (TNC), an environmental NGO with a long history of involvement in Land Trusts. Before 2000, most of the fishing based out of Morro Bay, California, was done by trawlers. Their catch consisted primarily of a mix of rockfish species, including several with very small TACs. Catches of those species had to be discarded when their TAC was exceeded. Because rockfish have a closed swim bladder, discarded rockfish suffer high mortality. In addition, there were concerns about habitat impacts of the trawl gear, and trawl-caught rockfish had lower market value than line-caught rockfish. In 2000, the fishery was declared to be “overfished” and placed under a stock rebuilding plan. Also, the fishery was declared an economic disaster (Brown 2014, Bell 2014). TNC got involved in reducing fishing effort, improving fishing methods, and preserving habitat. They reached an agreement to buy limited entry licenses from fishermen wanting to exit the fishery (Deacon 2009). TNC also drew on the fishermen’s expertise to design a new habitat closure area and engaged with the Pacific Fisheries Management Council as the Council modified the FMP for this fishery from an LLP to QS. As the fishery transitioned to a catch share system, and the partnership between TNC and local fishermen developed into the MBCQF, and TNC transferred its QS to the MBCQF to permanently secure local access to fishing. The MBCQF leases QS to local fishermen (Morro Bay 2014). Between 2014 and 2017, the fisheries trust leased between 580 to 219 thousand pounds to local fishermen. Between two and three local vessels participated in the fisheries during this period.

Table 8. Local Lease participation MBCQF.

<b>Local Leases and Participation</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Total Non-Whiting QP leased locally	1,793,719			
Total MBCQF QP leased Annually	476,189	517,164	580,911	219,455
Total number of local Vessels	3	2	2	2
MBCQF QP Landed Locally	561,816	446,711	274,813	227,862
Total Morro Bay Landings	6,669,442	3,455,138	4,168,680	4,052,431
Total landings as a % of total Morro Bay Landings	8%	12.9%	6.6%	5.6%

### Ecotrust

Ecotrust was formed in 1991, and in 2006, Ecotrust formed the North Pacific Fisheries Trust to support the efforts of coastal communities and local fishing families. Ecotrust wanted to provide financing and make investments in community organizations, quota entities, and meet economic development goals. To date, Ecotrust has helped finance one loan to the CQE representing Old Harbor (NPFMC 2016). Ecotrust has not completed any additional loans and is currently not taking applications for more communities in Alaska at this time (Lane 2019, Kadish 2019).

### **Conclusion**

This chapter has given a brief overview of changes in commercial fisheries in Alaska and how those changes have affected small coastal communities. Until now, most discussions of the negative impacts of IFQ on small communities have failed to offer viable suggestions for helping rural communities reestablish and sustain their fishing-based economies (e.g., Carothers 2008, Carothers et al. 2010). This chapter has focused on the halibut and sablefish IFQ program, and it also provides an overview of different management programs from three other fisheries and varied levels of success.

All of the fisheries in Alaska changed dramatically in 1976 when the U.S. fishing boundaries expanded from 12 to 200 miles offshore. Over the next 14 years, the groundfish fisheries off Alaska went from mostly foreign vessels to a fully Americanized fleet. By the early 1990s, these new fisheries had large fleets that could quickly harvest the total annual catch in a short time, and this increased the competition among the vessels (Strong and Criddle 2013). The resulting race-for-fish reduced the value of the landed catch, increased the risk of overharvest, increased risk-taking by fishermen, and reduced the economic viability of fishing.

These events led the fisheries managers on the North Pacific Fishery Management Council to adopt catch share policies to restrict access to several fisheries. Implementing catch share programs is frequently controversial and challenging, even though catch share programs are widely recognized as a practical approach to end overfishing (Costello et al. 2008; Grimm et al. 2012; Melnychuk et al. 2016). The Alaskan fisheries have all been through rough periods in their histories, and some of them have experienced economic disasters. The scientists and managers of both the federal and state fisheries are continually focused on rebuilding depleted fish populations with the shared goal of maintaining sustainable fisheries.

Before the North Pacific Fishery Management Council started rationalizing the federal fisheries, the State of Alaska had already taken steps to manage their fisheries through limited entry. The salmon fisheries being faced with over-fishing led to a constitutional change to limit entry into the salmon fishery as well as into other oversubscribed state-managed fisheries starting in 1973.

In 1992, federal fisheries managers started analyzing the large federal fisheries in Alaska and began taking steps to rationalize those fisheries. This was done through the North Pacific Fishery Management Council by amending the Fishery Management Plans under which the National Marine Fisheries Service develops and enforces regulation to manage the fisheries. The FMPs have focused primarily on those national standards that address the conservation of fish stocks and marine ecosystems while treating national standards that address the social and economic factors as less imperative.

The Western Alaska CDQ program, implemented in 1992, was the first federally managed catch share program in Alaska. During that same year, the NPFMC approved the halibut and sablefish IFQ program, which was implemented in 1995. This was followed by the AFA pollock Coop allocations that were implemented in 1999. In 2005 the BSAI crab fisheries for IFQs and IPQs were implemented. All of these federal fisheries had been over-capitalized and needed to be regulated more effectively. While restricting the access helped to make the fisheries more manageable and addressed some economic and social concerns, it created new economic and social dynamics between fishermen, crew, processors, and, of course, their Alaskan communities. The impacts on the small communities following the transitions from open- to limited-access or share-

based management brought about negative impacts on some communities while it brought benefits to other communities.

One primary concern is the reductions in the quota share held by residents of some small for halibut and sablefish in the Central GOA that depend on commercial fishing for their economic base (e.g., Carothers 2008, Carothers et al. 2010). The transfer of QS to persons outside a local area and changes in delivery patterns under the program might have harmful effects on some communities. The well-being and resilience for fishery-dependent communities in Alaska depend on the state of the available fish resources as well as the extent to which community residents are vested in the fishery through ownership of LEPS, LLPs, and QS (Himes-Cornell and Kaspersky 2016). Concerns about the long-term social changes that have occurred since the implementation of the Alaska Halibut and Sablefish IFQ Program have been voiced by some fishery stakeholders. Specifically, constituents are concerned about perceived financial barriers to entry (and exit); the growth of *de facto* (and *de jure*) leasing and consequent dilution of owner-on-board requirements; reduction in the number of crew positions; and changes in crew compensation, due to share payments to quota shareholders.

Once these catch-share programs were established, smaller communities had concerns that the programs did not benefit them, and so these fisheries set up programs specifically designed to help these small rural communities. The affected communities are all unique and require different approaches to resolve their fisheries-related issues. The State of Alaska manages the salmon fishery and has tried to set up special loan programs to help new entrants purchase LEPS. The State has also allowed some exceptions in the statutes to allow the use of longer nets in certain fisheries to create a natural path for younger fishermen to enter the fishery. However, because of the strong language in the Alaskan constitution that limits the State's authority to prioritize regions with special allocations, the State's programs have not had much success in sustaining rural fishing-dependent communities.

When it was established in 1992, the Western Alaska Community Development Quota (CDQ) program allocated 7.5% percent of the Bering Sea pollock TAC quota to six nonprofit organizations representing 64 small communities in Western Alaska. Over time, the pollock CDQ increased to 10%, and the program was augmented to include allocations of portions of the TAC



for halibut, sablefish, crab, and other groundfish species. This program has been very successful for these remote western Alaska communities.

The halibut and sablefish IFQ program was amended to provide for the Community Quota program in 2004. The program allowed communities to form nonprofit Community Quota Entities (CQEs) that could purchase halibut or sablefish QS to be leased to community members. This program has not been as successful as the policymakers had hoped. By 2019, only five CQEs have purchased quota, and the total amount of QS held by the CQEs is small.

The BSAI Crab fishery has several programs that have been set up to benefit smaller communities. A provision in the regulations allows communities the right of first refusal to purchase processing quota from a processing company when the processors want to sell their shares outside the community. To date, two communities have taken advantage of this provision, and this generates income for the communities each year. A second program that helps rural communities in Western Alaska is the CDQ crab allocation, which allocates 10 percent of the entire BSAI TAC to the six non-profit organizations that represent the CDQ communities. These funds help small communities in Western Alaska address infrastructure needs, secure permits and QS in other fisheries, and helps finance vessel purchases. The EECO program is similar to the halibut CQE. It allows the community to purchase and own crab quota to be leased to community members. A unique program in Norton Sound allows a vessel to fish in their area only if they do not fish in any other location. This is called a super-exclusive system and has allowed the community to participate in the fishery more exclusively.

Since some programs that have been established for these communities are not fully being utilized and are often not well understood due to the complexity of the regulations, a final section in this research establishes a “roadmap” for sustaining and rebuilding community-based fisheries in Alaska. This roadmap sets out steps that a community needs to do once it has received a clear explanation of all the programs currently available and the advantages of these opportunities. The next step is for the community to research what historic quota the community held in the past. This would give them a general idea of what their communities’ history was with the commercial fisheries before their fisheries declined. Each community would next need to develop a strategic plan and identify the specific programs that best address community goals and then submit the

necessary application materials to purchase quota share for their community. Finally, each community needs to identify options for allocating fishing opportunities to community members and recovering the costs of acquiring QS or LLP licenses.

As described in this chapter, small communities could begin to rebuild their fisheries in several ways. For example, communities could reestablish their cultural heritage and roots by using the Federal halibut special permits for Ceremonial, Celebration, and education fisheries for the next generation of fishermen. One possible strategy for the IFQ halibut sablefish fisheries is for the communities to form a CQE through which to buy QS for use community residents; revenues from leasing the QS can generate income that could be reinvested in additional QS purchase.

Another positive step that has been helping communities is the increased number of fisheries trusts that have emerged in the United States and in Alaska that are committed to helping small communities gain quota for this economic well-being. There has been one established in Alaska that has been working with fishermen to help them enter the fishery. This chapter describes a few fisheries trusts and how they were able to accumulate quota and distribute the quota to younger generation fishermen living in small communities.

The CQE could borrow from the example of Fishery Trusts like MBCQF or ASFT, using CQE quota to help community residents develop equity that would enable them to purchase their QS. There are opportunities for communities to obtain QS for use by community residents through the development of CQEs or Fishery Trusts. Once the community has come together and committed to rebuild or strengthen its local fishing fleet, the community can develop a strategy for achieving that goal.

The outcome of this research is hopeful that there is some progress in the communities' finding opportunities to generate more fishing income for their community. When writing marine policies, the policymakers should focus on maintaining the sustainability of the fisheries as well as meeting the needs of fishermen and coastal communities. This means making sure fishermen are safe, and fisheries operate efficiently and profitably, along with minimizing their impact on the environment and, most importantly, including the small communities in the discussions so that they do not

become left out. There is a real opportunity for communities in Alaska, and if they can navigate through all the regulations, it would be worth it for their next generation and their ways of life.

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## **Appendix 1**

### Aleutian Pribilof Island Community Development Association (APICDA)

APICDA represents the villages of Akutan, Atka, False Pass, Nelson Lagoon, Nikolski, and Saint George.

### Bristol Bay Economic Development Corporation (BBEDC)

BBEDC represents the villages of Aleknagik, Clark's Point, Dillingham, Egegik, Ekuk, Ekwok, King Salmon, Levelock, Manokotak, Naknek, Pilot Point, Port Heiden, South Naknek, Togiak, Twin Hills, and Ugashik.

### Central Bering Sea Fishermen's Association (CBSFA)

CBSFA represents the village of Saint Paul Island.

### Coastal Villages Region Fund (CVRF)

CVRF represents the villages of Chefnak, Chevak, Eek, Goodnews Bay, Hooper Bay, Kipnuk, Kongiganak, Kwigillingok, Mekoryuk, Napakiak, Napaskiak, Newtok, Nightmute, Oscarville, Platinum, Quinhagak, Scammon Bay, Tooksook Bay, Tuntutuliak, Tununak.

### Norton Sound Economic Development Corporation (NSEDC)

NSEDC represents the villages of Brevig Mission, Diomedea, Elim, Golovin, Gambell, Koyuk, Nome, Saint Michael, Savoonga, Shaktoolik, Stebbins, Teller, Unalakleet, Wales, and White Mountain.

### Yukon Delta Fisheries Development Association (YDFDA)

YDFDA represents the villages of Alakanuk, Emmonak, Grayling, Kotlik, Mountain Village, and Nunam Iqua.

## Appendix 2

<b>CQE Non-Profit</b>	<b>Community Name</b>
Adak Community Development Corporation	Adak
Admiralty Island CQE	Angoon
Chenega Heritage Incorporated	Chenega Bay
Coffman Cove CQE	Coffman Cove
Aleutia, Inc.	Cold Bay
Edna Bay Community Fisheries	Edna Bay
Elfin Cove CQE	Elfin Cove
Halibut Cove Fisheries and Mariculture Holding Company	Halibut Cove
Hoonah Community Fisheries Corporation	Hoonah
Hydaburg Community Holding Corporation	Hydaburg
Kupreanof Island CQE	Kake
Organized Village of Kasaan CQE	Kasaan
Aleutia, Inc.	King Cove
Klawock CQE	Klawock
Larsen Bay Development Company	Larsen Bay
Nanwalek Natural Resources Fisheries Board, Inc.	Nanwalek
Cape Barnabas, Inc.	Old Harbor
Ouzinkie Community Holding Corp (OCHC)	Ouzinkie
Pelican Fishing Corporation	Pelican
Perryville CQE, Inc.	Perryville
Point Baker Community Fisheries, Corporation	Point Baker
Port Alexander Community Holding Corporation	Port Alexander
Port Graham CQE, Inc.	Port Graham
Port Lions Fisheries, Inc.	Port Lions
Port Protection Community Fisheries Corporation	Port Protection
Aleutia, Inc.	Sand Point
City of Seldovia Community Holding Corporation	Seldovia
Tenakee Springs Business Association	Tenakee Springs
Thorne Bay Fisheries Association	Thorne Bay
Whale Pass Charter Halibut Permits Management Committee	Whale Pass