17-Year Program Review for the Crab Rationalization Management Program in the Bering Sea/ Aleutian Islands

North Pacific Fishery Management Council
Draft: June 2024

For further information contact: Sarah Marrinan, North Pacific Fishery Management Council
1007 West 3rd Avenue, Anchorage, AK 99501
(907) 271-2809

Accessibility of this Document: Effort has been made to make this document accessible to individuals with disabilities and compliant with Section 508 of the Rehabilitation Act. The complexity of this document may make access difficult for some. If you encounter information that you cannot access or use, please call us at 907-271-2809 so that we may assist you.

List of Acronyms and Abbreviations

Acronym	Abbreviation Meaning
AAC	Alaska Administrative Code
ABM	Abundance-Based Management
ACA	Adak Community Allocation
ACE	Alternative Crab Exchange
ACEPO	Annual Community Engagement and Participation Overview
ACL	Annual Catch Limit
ACPAO	Alaska Crab Processors Arbitration Organization
ADF&G	Alaska Department of Fish and Game
AFA	American Fisheries Act
AI	Aleutian Islands
AIG	Aleutian Islands Golden King Crab
AK	Alaska
AKCRF	Aleutian King Crab Research Foundation
AKFSC	Alaska Fisheries Science Center
AKFIN	Alaska Fisheries Information Network
ALDERS	Alaska Data Entry and Retrieval System
AMA	Alaska Marketing Association
AP	Advisory Panel
APICDA	Aleutian Pribilof Island Community Development Association
AWT	State of Alaska Public Safety's Wildlife Troopers
BBEDC	Bristol Bay Economic Development Corporation
BBR	Bristol Bay Red King Crab
BMSY	Biomass that enables a fish stock to deliver maximum sustainable yield
BOF	Board of Fish
BS	Bering Sea
BSAI	Bering Sea and Aleutian Islands
BSFRF	Bering Sea Fisheries Research Foundation
BSS	Bering Sea Snow Crab
BST	Bering Sea Tanner Crab
CAS	Catch Accounting System
CBSFA	Central Bering Sea Fisherman's Association
CDQ	Community Development Quota
CEQ	Council on Environmental Quality
CFEC	Commercial Fisheries Entry Commission
CFR	Code of Federal Regulations
CFVS	Commercial Fishing Vessel Safety
CP	Catcher/processor
CMP	Crab Monitoring Plan
COAR	Commercial Operators Annual Report
CPC	Catcher Processor Crew (quota share)
CPO	Catcher processor owner (quota share)
CPS	Cooperative Pot Sampling Project
CPUE	Catch Per Unit Effort
CR	Crab Rationalization
CSP	Catch Sharing Plan
CV	Catcher vessel
CVC	Catcher Vessel Crew (quota share)

Acronym	Abbreviation Meaning
CVCC	Coastal Villages Crabbing Cooperative
CVO	Catcher Vessel Owner
CVRF	Coastal Villages Regional Fund
EAG	Eastern Aleutian Islands Golden King Crab
EBS	Eastern Bering Sea
EBT	Eastern Bering Sea Tanner Crab
DFO	Canada's Department of Fisheries and Oceans
EDR	Economic Data Reporting
EEJ	Equity and Environmental Justice
EFH	Essential Fish Habitat
EO	Executive Order
FAO	Food and Agriculture Organization
FCMA	Fishermen's Collective Marketing Act of 1934
FCVP	Federal Crab Vessel Permits
FFP	Federal Fisheries Permit
FFP	Fisheries Finance Program
FMP	Fishery Management Plan
FR	Federal Register
FT	Fish Ticket
FY	Fiscal Year
GC	NOAA General Council
GHL	Guideline Harvest Level
GKC	Golden King Crab
GMACS	General model for assessing crustacean stocks
GOA	Gulf of Alaska
IAD	Initial Administrative Decision
ICE	Inter-Cooperative Exchange
IFA	Integrated Fisheries Application
IFQ	Individual Fishing Quota
IPQ	Individual Processor Quotas
JEA	Joint Enforcement Agreements
KTC	King and Tanner Crab
LAPP	Limited Access Privilege Program
LBGTQ+	Lesbian, Gay, Bisexual, Transgender, and Queer
LLC	Limited Liability Company
LLP	License limitation program
MLOA	maximum length overall
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSA	Metropolitan Statistical Area
MSE	Management Strategy Evaluation
MSST	Minimum stock size threshold
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety & Health
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council

Acronym	Abbreviation Meaning
NSEDC	Norton Sound Economic Development Corporation
OF	Over Fishing
OFL	Over Fishing Limit
OLE	Office of Law Enforcement
PI	Pribilof Islands
PIG	Pribilof Islands Golden King Crab
PIHCZ	Pribilof Islands Habitat Conservation Zone
PIK	Pribilof Islands Red and Blue King Crab
PNW	Pacific Northwest
PQS	Processor Quota Share
PSMFC	Pacific States Marines Fisheries Commission
QS	Quota Share
RAM	Restricted Access Management
RCR	Registered Crab Receiver
ROFO	Right of First Offer
ROFR	Right of First Refusal

Acronym	Abbreviation Meaning
SAFE	Stock Assessment and Fishery Evaluation
SIA	Social Impact Assessment
SMB	St. Matthew Island Blue King Crab
SOC	Secretary of Commerce
SSC	Scientific and Statistical Committee
TAC	Total Allowable Catch
TBD	To Be Determined
US	United States
USCG	United States Coast Guard
VMS	Vessel Monitoring Systems
WA	Washington
WAG	Western Aleutian Islands Golden King Crab
WAI	Western Aleutian Islands (Adak) Red King Crab
WBT	Western Bering Sea Tanner Crab
YDFDA	Yukon Delta Fisheries Development Association

Table of Contents

ES 1 EXECUTIVE SUMMARY

Introduction

Section 303A(c)(1)(G) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires that each Limited Access Privilege Program (LAPP) undergoes a formal review every 7 years after the initial 5-year review. This document serves as the required program review that meets the MSA requirements. It also serves as the Allocation Review required under National Oceanic and Atmospheric Administration (NOAA) Fisheries Allocation Policy Directive 01-119 established in 2016 and the two associated Procedural Directives.

Nine Bering Sea and Aleutian Island (BSAI) crab fisheries were rationalized under the Crab Rationalization (CR) Program:

BBR Bristol Bay red king crab (*Paralithodes camtschaticus*)
BSS Bering Sea snow crab (*Chionoecetes opilio)*
EBT Eastern Bering Sea Tanner crab (*C. bairdi)* – East of 166º W
WBT Western Bering Sea Tanner crab – West of 166º W
PIK Pribilof Islands blue (*P. platypus*) and red king crab
SMB Saint Matthew Island blue king crab
WAG Western Aleutian Islands (Adak) golden king crab (*Lithodes aequispinus*) – West of 174º W
EAG Eastern Aleutian Islands (Dutch Harbor) golden king crab – East of 174º W
WAI Western Aleutian Islands (Petrol Bank District) red king crab – West of 179º W

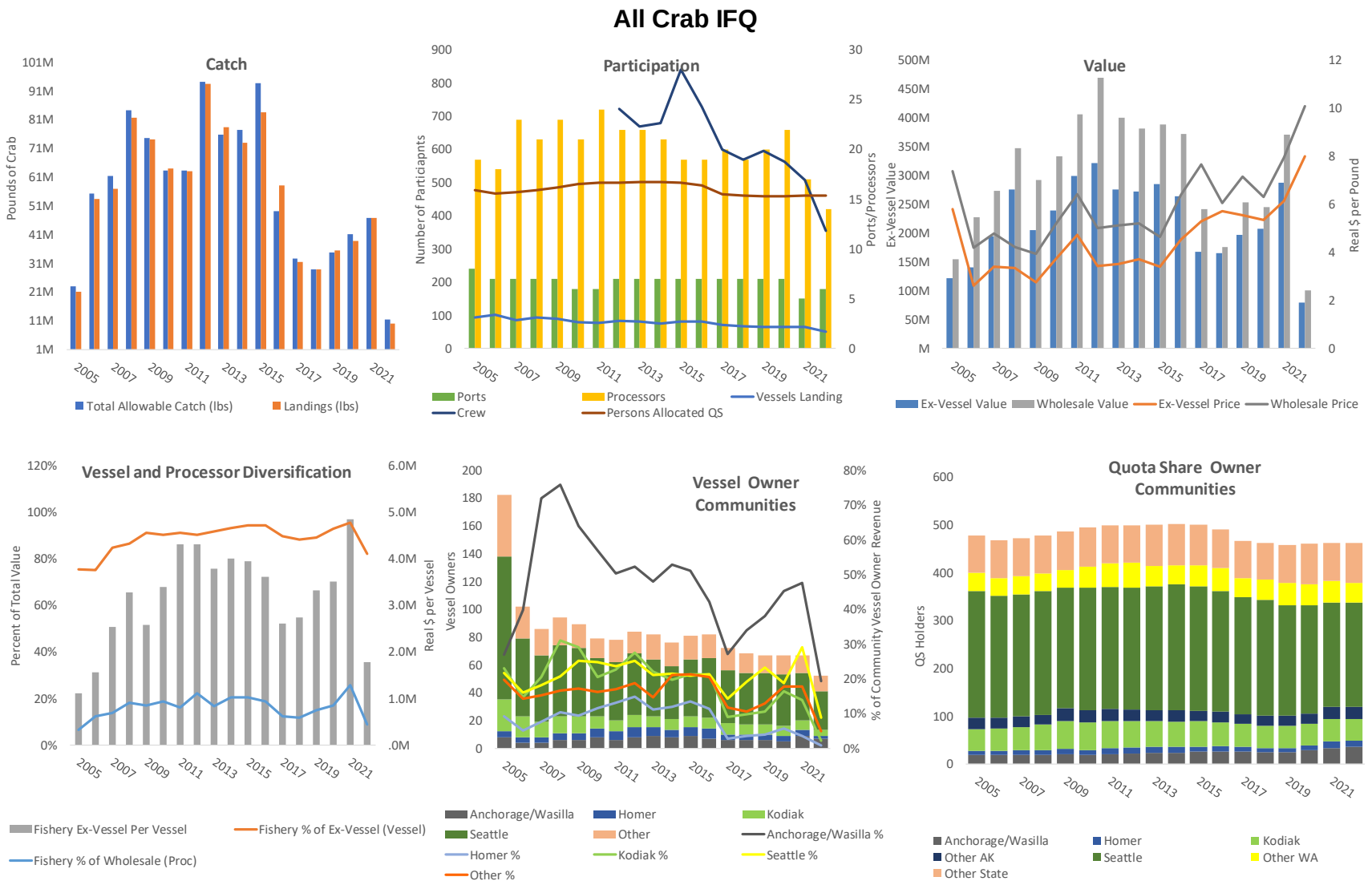
The CR Program fishery covers all Federally managed BSAI crab fisheries except Norton Sound red king crab and Pribilof golden king crab.

Many of the problems the BSAI crab industry is currently facing result from low total allowable catches (TACs) (Table 2-2), closed fisheries, weak markets, surplus inventories, and general uncertainty of future trends in the fishery that are outside the direct control of the CR Program (see Section 3.2). While the CR Program has mitigated some of these negative impacts through the original program design and the many Federal regulatory changes (Table 2-7) and Alaska Board of Fisheries (BOF) regulatory changes (Table 2-9), stakeholders continue to seek new and creative ways to make their operations more viable under current fishery conditions.

Dashboards by Fishery

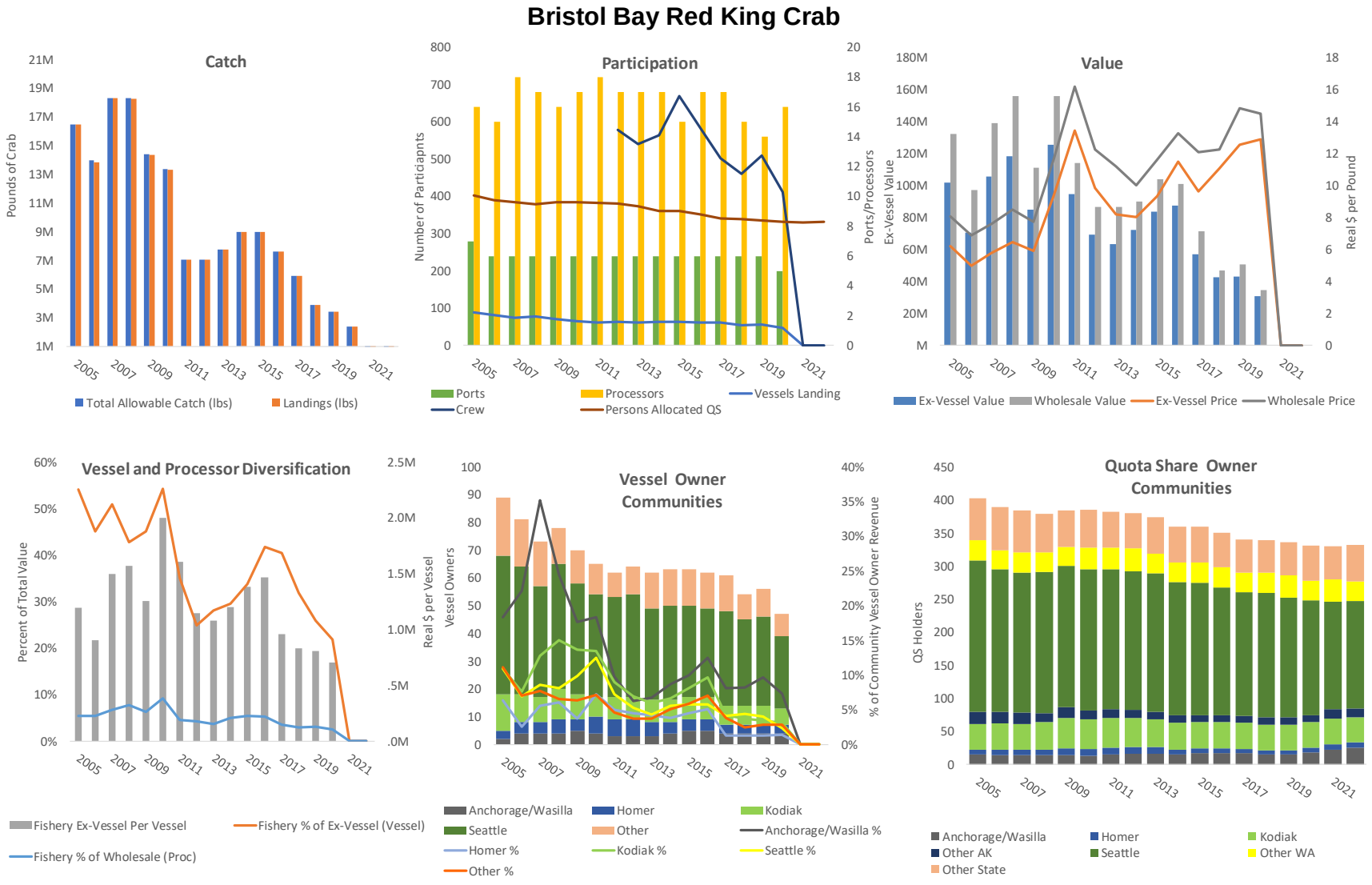
Dashboards for all CR Program Individual Fishing Quota (IFQ) fisheries, BBR, BSS, and Aleutian Islands golden king crab (AIG) fisheries are presented as a general overview of the CR Program. Community Development Quota (CDQ) catch and production data are excluded. Six figures are presented for each fishery or fishery group, and they report information on catch, participation, value, diversification, vessel owner communities, and catcher vessel and catcher processor shareholder communities (excludes processor shares). Information is presented for the calendar years 2005 through 2022, covering the CR Program period up to the most recent year that complete data is available. Data for 2005 should be used with caution as it was the first year of the CR Program. The issues with calendar year data versus crab fishing year, which occurs July 1 – June 30, data also tend to confuse certain data in all years, but especially 2005. Economic Data Report (EDR) surveys were modified starting with the collection of 2012 data. That change impacted crew information. As a result, crew data are only reported for the years 2012 through 2022. Finally, counts of processors include persons that used custom processors so the counts are greater than the number of plants that actually processed crab.

Figure E-1-1 Summary of all CR Program IFQ fisheries combined, 2005 through 2022



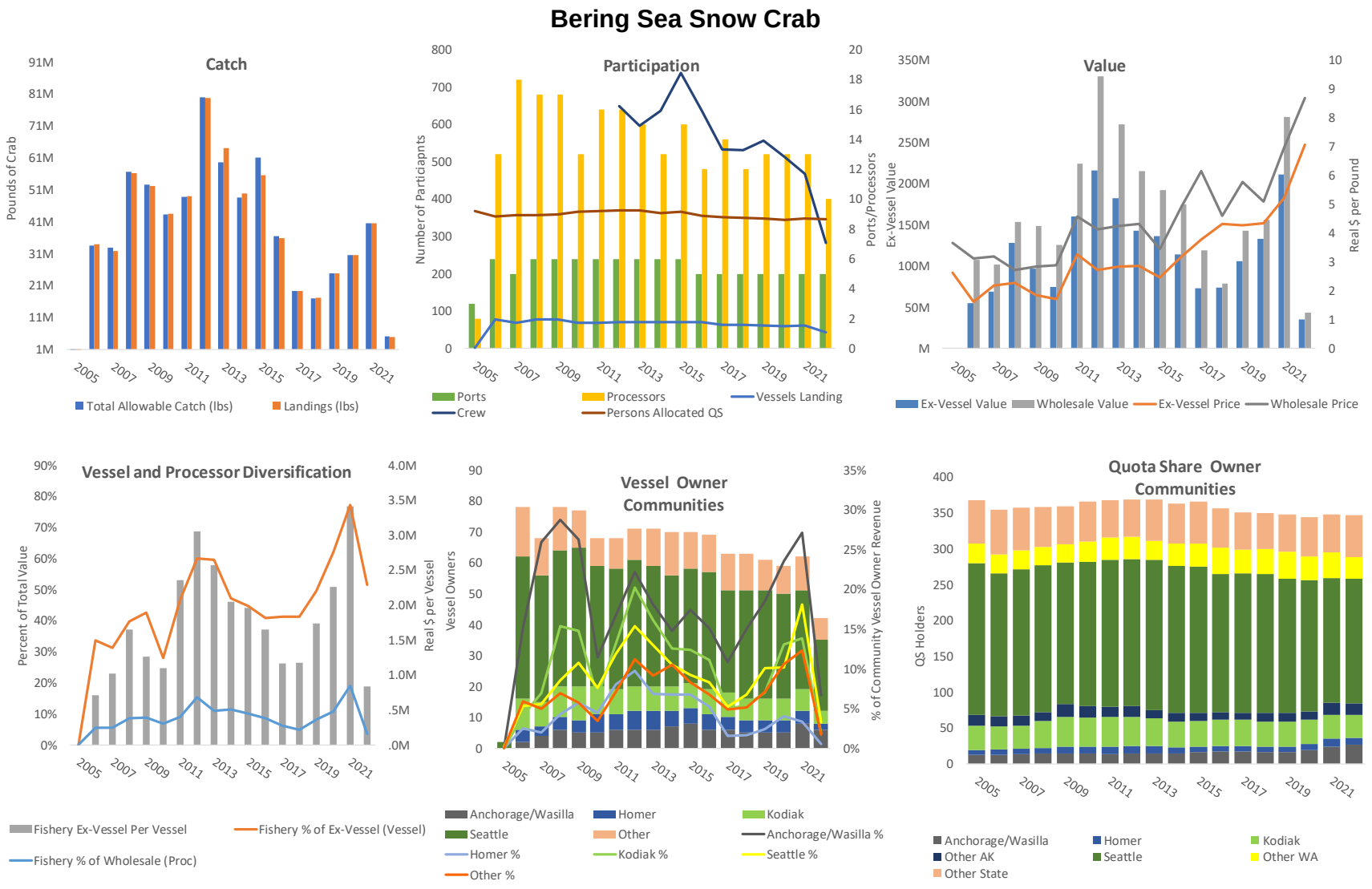
Source: Alaska Fisheries Information Network (AKFIN) summary as provided in Crab Figures (2_2_24).xls

Figure E-1-2 Summary of Bristol Bay Red King Crab CR Program IFQ fishery, 2005 through 2022



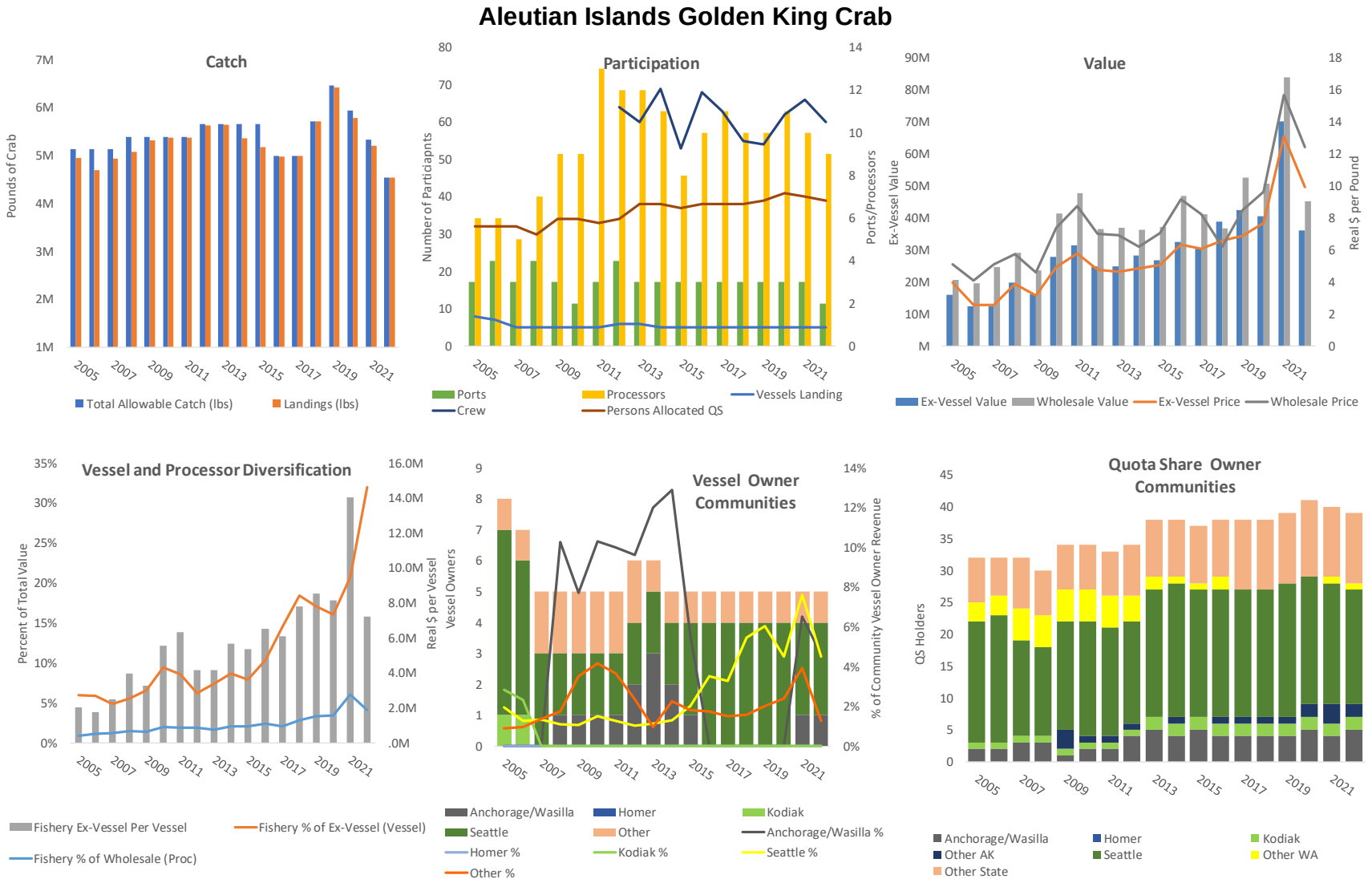
Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

Figure E-1-3 Summary of Bering Sea Snow Crab CR Program IFQ fishery, 2005 through 2022



Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

Figure E-1-4 Summary of Aleutian Islands Golden King Crab CR Program IFQ fishery, 2005 through 2022



Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

Select Findings

The allocation of quota shares (QS) has provided a substantial benefit by allowing persons to harvest or process their annual allotment of crab species during low TAC years. Without the individual allocations, harvesters and processors would have continued to race to catch and process the available crab. Management of a large fleet with excessive harvest capacity would not have been possible under the License Limitation Program (LLP) during some of the low TAC years. Because of the CR Program management structure, agencies were able to open directed fishing and provide the fleet an opportunity to fish. This allowed participants to generate some revenue, allowed the cooperative structure to be used to ensure cooperatives stay within their allocation, harvest and process allocations more efficiently, and provide opportunities for crew and processing employment that would not have been available before implementation of the CR Program.

Under the CR Program, new discard systems on some vessels and a slower fishery have contributed to improved deck sorting methods to mitigate handling mortality. Other conservation issues included increased average duration of pot soak time and catch per unit effort (CPUE). Data suggests a correlation between extended soak times and legal male catch as a proportion of total catch for some stocks but discard rates under the program remain within the range of historic levels for most stocks. The CR Program created additional opportunities to high-grade. Vessel operators high-grade because of the economic incentive to retain crab that generate the most revenue since each pound is deducted from a person's allocation. To discourage high-grading, ADF&G has reduced the TAC to account for discards of legal males. Deadloss has been reduced slightly in the BSS fishery under the CR Program when compared to years before implementation. No significant changes have been apparent in other CR Program fisheries.

Harvesters, under low crab TACs, look for new opportunities to fish but those opportunities are limited by management measures (sideboards) implemented to protect participants in open access fisheries as well as vessel design. The Federally managed Pacific cod (Gadus microcephalus) fisheries in the Gulf of Alaska (GOA) are limited to effort expansion by sideboard limits attached to groundfish LLP licenses linked to crab LLP license and vessel sideboards. Vessels are limited by the Pacific cod endorsements assigned to their groundfish LLP licenses in the GOA and BSAI. A vessel must have an LLP license assigned to the vessel that allows it to participate in directed fishing for Pacific cod in an area using a designated gear type. Persons participating in other catch share programs are protected from increased effort through constraints on entry into those fisheries.

One opportunity that may be more available to pot gear vessels is the Greenland turbot (*Reinhardtius hippoglossoides*) fishery. Pot gear is allowed in the Greenland turbot fishery, however, may not be longlined making the fishery difficult to prosecute and inefficient using single pots due to deeper depths this species inhabits. In April 2023, the Council recommended a motion to allow longline pot gear in the only for vessels in the hook-and-line catcher processor sector when directed fishing for Greenland turbot in the Bering Sea subarea. Once the proposed amendment to allow longline pot gear to be used in that fishery is implemented, it may allow vessels to use pot gear to avoid whale predation of catch and harvest a species whose TAC has not been fully utilized.

Former crab vessels have been utilized as tenders to deliver salmon and some groundfish to processors (including vessels that are no longer used in crab fisheries). The opportunities to utilize crab vessels

appear to be fewer than the vessels available, since several vessels remain for sale[1]. Weak demand for these vessels is a result of the limited fishing opportunities available to potential buyers.

The share matching and arbitration processes continues to be one of the more debated aspects of the program with the harvesting sector generally supporting the structure and the processing sector having more concerns. Share matching is required to determine where holders of Class A CVO shares will deliver their catch. A five-day window after IFQ and IPQ are issued is established to allow both parties to agree on deliveries. After the five-day window, holders of Class A IFQ may notify an IPQ holder, with sufficient uncommitted IPQ, that they intend to deliver to that processor and it creates a share match after the processor is notified. Delivery terms and price agreements are often negotiated later and could be accomplished through mediation or arbitration.

When the CR Program was implemented, an arbitration system was established to resolve price, delivery terms, performance standards, and other disputes fairly and equitably if class A IFQ and IPQ holders are unable to reach an agreement. One factor that led to the development of the arbitration program was concern by some stakeholders that the overall structure of the CR Program may have created shifts in the balance of market power between the harvesting and processing sectors.

A "baseball" style arbitration structure was selected for use in the CR Program. Baseball arbitration requires that both parties provide evidence supporting the requested outcome. Along with that evidence, both the IFQ holders and IPQ holders must each submit their proposed outcome. That outcome could be the ex-vessel price paid or other disputes (e.g., delivery terms). The arbitration procedure up to the presentation of evidence is virtually identical to standard arbitration. However, baseball arbitration imposes strict limits on the arbitrator's ability to select an outcome. The arbitrator is only empowered to take one of two actions: accept the IFQ holder's proposal or accept the IPQ holder's proposal. The arbitrator is not empowered to negotiate an agreement other than the outcome requested by the IFQ holders or the IPQ holders.

Crab arbitration may only be triggered by IFQ holders that have joined a CR Program arbitration organization. Individual Processing Quota (IPQ) holders are prohibited from initiating the arbitration process. Because only IFQ holders may initiate the arbitration process, they have control over the years and fisheries that will utilize arbitration. It also means that IFQ holders are most likely to initiate the arbitration process in fisheries and during years they anticipate prevailing in the arbiter's ruling. Information on the number of arbitration proceedings by fishing year indicates that fewer arbitrations have occurred in recent years (Table 7-6). Since the last program review only two arbitrations were initiated. Both were in 2021/2022 and the arbitrator sided with the harvesters.

Certain requirements are established for catcher vessel owners who hold class A QS/IFQ and processors that hold Processor Quota Shares (PQS)/IPQ regardless of whether harvesters initiate binding arbitration during a year. Because the required submission dates are set before the determination of whether the stocks will support a fishery that crab fishing year, the arbitration system process must be conducted and the costs to collect and submit the required information must be incurred each year. The four data collections that must be submitted annually are the Annual Arbitration Organization Report, Market Report, Non-binding Price Formula Report, and Cost Allocation Agreement. A Contract Arbitrator Report must also be submitted if any arbitration occurs within a fishery. The shared arbitration system costs are outlined in an annual report submitted to the National Marine Fisheries Service (NMFS) and the Council

[1] https://dockstreetbrokers.com/vessels/category/crabbers

by participants in the Alaska Crab Processors Arbitration Organization (ACPAO). Arbitration costs are divided equally between the harvesters and processors based on a landings fee structure.

Stakeholders expressed concern that certain costs associated with the arbitration process are incurred even when a fishery is not opened. These costs are a result of the timing of when cooperatives must be formed and when management agencies determine if a fishery can be opened to directed fishing. Due to the timing of each process, devising a solution to avoid these types of costs may be difficult.

A concern of harvesters is the steady decline in the number of active processors in total and the number of communities that have active crab processors. In 2022, eight active processors were reported in the data, the lowest number of active processors over the 2003 through 2022 period. The Council has attempted to address some aspects of this concern by modifying processing caps and excluding custom processing from counting towards the cap. This issue is discussed more thoroughly in the Social and Community Section. However, current market conditions and TACs appear to be the primary drivers of reductions in active processors. It is possible that more processors could exit the fishery, if they are unable to operate profitably. Some harvesters have also expressed frustration regarding the requirements to share match when there are concerns about the financial stability of a processor. In the 2023/24 season some harvesters sharematched with an IPQ holder and, at the time of this review, have not been paid for the crab delivered.

Crew wages as a percentage of ex-vessel value have declined and the average daily compensation for captains and crew have varied by year (Section 6.8.1). Wage per day has been greatest and most variable in the AIG fishery with a daily rate increasing from about $1,000 per day in 2009 to almost $2,200 per day in 2021 before falling back to $1,322 per day in 2022. The BBR fishery average daily wage declined from 2018 ($1,626) through 2020 ($1,368), the most recent year data were available. The BSS fishery had the lowest daily rate. It varied from over $1,000 per day in 2019 and 2021 to less than $900 per day in 2020 and 2022. Captain's pay followed similar trends and depending on the fishery averaged from 2.4 to about 2.8 times the average daily crew compensation. Daily pay tends to correspond with ex-vessel prices.

The Right of First Offer (ROFO) provision is an industry-led program intended to benefit active Bering Sea crab crew members by providing them an increased opportunity to purchase crab quota shares. In past years the largest harvesting cooperative, the Inter-Cooperative Exchange (ICE) provided qualified crew members an opportunity to purchase at least 10 percent of crab quota share sold between ICE members and often other cooperatives, under most circumstances. Active Bering Sea crab crew members were notified when opportunities to purchase crab quota share were available. This program was deemed to be successful in the past. Recent downturns in the crab fishery have limited demand for quota by active crew members and funding limitations have prevented ICE from supporting the website that aids transfers. Should stocks rebound, demand from active crew members could increase and ICE, potentially, could again support the information exchange to aid transfers. Also, to help captains and crew purchase quota the CR Program established a low interest loan program in 2008 (see Section 6.9.4) During the fiscal years 2011 through 2023 the Fisheries Finance Program approved 18 loans for a total of $5.7 million to finance the purchase of CR Program quota for an average of about $317k per approved loan application.

At the start of the 2023/24 season, for the first time, some C share QS was revoked because required evidence of active participation was not provided. However, recent circumstances, including the COVID-19 pandemic, crab stock declines and subsequent closures, have made it difficult for all C shareholders to achieve the required active participation during the preceding years. In addition, future low TACs may create similar challenges for C shareholders to achieve active participation requirements as prescribed in

regulations. Because of these factors, regulatory amendments have recently been adopted to reissue C share QS that was revoked during this period and to allow C shareholders more flexibly in meeting the requirements (see Section 2.3.7.2). These changes were determined to be necessary because of the limited opportunities for crew members that hold crew quota to meet the days-at-sea requirements to retain those shares.

Lease rates have been relatively stable in recent years as stakeholders have generally agreed to limit lease rates in the BBR fishery to 65 percent and BSS to 50 percent of the ex-vessel value of landings after taking certain cost reductions off the top. To address Council concerns regarding lease rates, cooperatives ask members to consider voluntarily capping their lease rate asks and offers at 65 percent of adjusted gross revenues for BBR crab and 50 percent of adjusted gross revenues for BSS. Lease rates include the deductions of certain costs, but those adjustments are not standardized across all vessels making direct comparisons are difficult. Lease rates for WBT are currently reported to be about 65 percent after deductions.

For lease rates to decline based solely on market forces it is expected that the supply of quota available for lease would need to outpace the demand for leasing quota. For that to occur, TAC would need to increase to a level that the available fleet would reach or be close to its harvesting capacity. Given that lease rates have been a concern over the duration of the program, those conditions have not been met based on historical TACs and fleet capacity. Rates tend to be high because harvesters are willing to bid up the price until anticipated returns of that asset are less than the cost, unless constrained by external forces (e.g., Council oversight).

Owner QS sales have been slow in recent years. Limited transfers are a result of uncertainty in the fishery. Persons holding owner QS do not want to sell at a low price relative to historical rates and buyers do not want to pay more than they expect the quota to provide in future profit streams. An example cited was the high QS prices paid for BSS crab during 2021 coupled with the recent fishery closures and TAC decreases making debt service on those QS loans more than the returns from the fishery.

Buyback loan repayments are discussed in Section 6.10. In the SMB and PIK fisheries, closures have resulted in the current unpaid interest being more than the original principle. Recent closures and low TACs in the BBR and BSS fisheries have also resulted in the accrual of unpaid interest. No estimate is made of benefits of the buyback program relative to the cost, but it was credited with reducing the number of persons qualifying for the program which fostered support for implementing the CR Program.

The cost recovery program has been able to fully cover recoverable costs of the program after the first three years of the program until the most recent year (2022/23). Costs were about twice the recoverable amount, so those costs had to be absorbed by the management agencies.

The CR Program has created more opportunities for agency/industry collaborative biological research programs. New recordkeeping and reporting regulations implemented with the CR Program have improved in-season fishery data collection. All vessels are required to complete daily fishing logbooks. Registered Crab Receivers are required to use eLandings, which improves data quality. The slower fishing pace contributes to data improvements since sampling paperwork is completed, entered, and edited more promptly. Longer seasons provide additional in-season opportunities to instruct dockside staff and vessel-based observers, which also contributes to higher quality data. The slower fishery pace has allowed observers to participate in data collection for special projects (i.e., recording male chela height to help inform size at maturity information used in stock assessments, mature female, and egg clutch collections

for use in assessing reproductive potential, and collection of crab hemolymph, to assess bitter crab disease.

The CR Program fostered industry-funded research foundations starting with the Bering Sea Fisheries Research Foundation (BSFRF) in 2003. Contributions have been severely impacted by the recent collapse of the BSS fishery and closure of the BBR fishery. Recent BSFRF research projects include crab surveys, crab movement, bycatch, habitat, recruitment limitation, and predation. Tagging and movement research is a multi-year effort that is currently focused on BBR. A doctoral student partially funded by the group enabled logbook data entry that supported findings that areas of higher abundance of BBR shifted seasonally and were different in the logbook data collected during fall harvest season than in the summer trawl data collected by NOAA annually. Temperature was found to be an important predictor for fall crab distribution and these results support the assumption that trawl closure areas are protecting red king crab. The Aleutian King Crab Research Foundation (AKCRF) has promoted the development of a fishery-based cooperative survey for the AIG stock and red king crab in the waters of the Adak District. To help gain biological information essential to understanding these crabs, AKCRF has provided live golden king crab to the NOAA Fisheries lab in Kodiak for a variety of research, including handling mortality, ocean acidification impacts, and growth studies.

MSA Act requirements for the management, monitoring, and enforcement of limited access programs present unique challenges to the federal and state agencies involved in successfully administering the BSAI Crab Rationalization Program. Management and administration of the program is primarily carried out through NOAA Fisheries Restricted Access Management (RAM) and has been aided by implementation of seven amendments since 2017, although challenges continue to arise in response to variable conditions.

Since 2020, low crab abundance and impacts of the COVID-19 pandemic caused limited opportunities for crew active participation in crab fisheries, prompting proposal of amendment 54 to provide additional flexibility to catcher vessel crew (CVC) and catcher processor crew (CPC) QS holders. Additionally, aging computer infrastructure has contributed to additional challenges regarding online tracking of IFQ and IPQ application status, stranded CVC and CPC shares, timely IFQ issuance, potential for reporting inconsistencies, and even administration of QS beneficiary transfer privileges. While rationalization of BSAI crab fisheries inherently limited access to the resource, some individuals have noted that barriers to entry remain a concern and given the substantial changes in the fishery may warrant monitoring. Commercial fishing opportunities for CR Program vessels are further limited during periods of closed seasons or low TACs by sideboard restrictions implemented to protect harvesters in open access fisheries from increased fishing pressure from CR Program vessels. The sideboard protections for the GOA Pacific cod fisheries appear to have been effective in protecting Pacific cod harvesters but remain a concern of persons subject to the sideboard limits given current crab fishery conditions.

Monitoring of the CR Program is carried out through various roles involving multiple agencies. While monitoring post-rationalization is not as active of an endeavor as prior, NOAA fisheries, ADF&G, the U.S. Coast Guard (USCG) and NOAA's Office of Law Enforcement (OLE) utilize several tools including recordkeeping and reporting requirements to accurately and effectively monitor landings, vessel and crew participation, and regulatory compliance. ADF&G conducts early vessel inspections, dockside sampling, confidential interviews, and administers the CR Program's observer program. ADF&G also verifies scales for registered crab receivers (RCRs). NOAA fisheries certify daily automatic hopper scales, monitors regulatory limits and caps, and crab monitoring plan standards. Both ADF&G and NOAA Fisheries monitor their respective recordkeeping and reporting requirements through the interagency electronic

reporting system, eLandings. USCG encourages and facilitates pre-trip safety compliance checks and issues commercial fishing vessel safety decals.

Enforcement of the CR Program is a collaborative effort carried out by OLE, the State of Alaska Public Safety's Wildlife Troopers (AWT), and the USCG. The OLE is assisted in on-the-water enforcement of CR Program Requirements and federal fishing regulations by the USCG, although The USCG primarily focuses on safety, prevention, and response efforts. AWTs also provide enforcement assistance of federal fishing regulations through Joint Enforcement Agreements (JEA) with OLE. The AWTs generally enforce gear regulations, documentation and licensing compliance, and species size restrictions. The CR Program continues to present unique challenges for enforcement agents, largely regarding tracking and enforcing limits imposed on QS, ownership interests, and CVC/CPC QS participation requirements. However, monitoring and enforcement of the CR Program, in general, has been effective.

Potential future actions may be needed to resolve challenges regarding the AIG season dates and regulations over ex-vessel volume and value reports. While a BOF proposal to alter the GKC fishing season did not pass, the rationale for the proposal remains and may require a regulatory amendment and/or collaboration between the BOF and North Pacific Fishery Management Council (NPFMC). In light of decreased value and TAC for several CR Program fisheries, one catcher vessel has obtained a (Registered Crab Receiver) RCR permit to sell their catch directly to consumers. However, regulations regarding ex-vessel volume and value reporting requirements from these entities are ambiguous and may require regulatory clarification. For example, reporting requirements for crab monitoring plans (CMPs) may be prohibitive for some catcher vessel owner/operators to obtain a RCR permit.

A North region QS designation for the EAG, BBR, BSS, PIK, and SMB crab fisheries was designed to help keep shore-based processing activity in St. Paul and St. George, based on historical participation. The North region program element has helped to ensure sustained participation of the community of St. Paul through processing CR Program crab at the local shore-based processing facility or on floating processors outside of St. Paul's harbor. There have been periods when exemptions to North region landings and processing requirements were triggered by ice conditions. While the overall viability of the shore-based processor operating in St. Paul depends on CR Program fisheries, it has also provided a market for local small boat halibut fleets in both St. Paul and St. George until recently. The St. Paul shore-based plant has been in mothballed status since the 2021/2022 crab fishing season (the most recent year the BSS fishery was open). Halibut catches of the St. Paul or St. George local fleets have not been processed in the facility since 2019, when the last halibut season before the Covid pandemic occurred. Following the resumption of local halibut fishing after a hiatus during pandemic conditions, local St. Paul and St. George small boat catches of halibut have been tendered to Unalaska/Dutch Harbor for processing. The economic activity fostered by the local shore-based processor and the vessels that deliver to the processor has also served to generate support service activity and harbor infrastructure development in the community that resulted in a range of community and social benefits for St. Paul.

The creation of a West region designation for WAG was to keep shore-based processing activity occurring in Adak and Atka. Since the implementation of the CR Program, shore-based processing of WAG has occurred in Adak but not Atka. The West region program element has also been less successful in fostering sustained participation of the community of Adak than the North region QS designation has been for St. Paul. Multiple factors have contributed to this outcome, including the intermittent operation of Adak processing facilities by a succession of multiple processing firms, all of which are largely external to the CR Program.

The northern Gulf of Alaska region community protection "sweep up" feature was designed to protect Kodiak Island communities. This is a ROFR element specific to the sale of PQS whose qualifying history occurred within the northern region of the Gulf of Alaska but was otherwise not assigned to a community

Since implementation of the BSAI CR Program there have been instances of PQS moving among Eligible Crab Communities, but there are no known cases of holders of the ROFR exercising their right to purchase quota shares by specifically following the formal procedures established under the CR Program. However, all the Eligible Crab Community Entities except Unalaska Crab, Inc. currently hold, or have held, CR Program PQS shares obtained after the implementation of the CR Program. In two cases, PQS was acquired by the two Eligible Crab Community Entities (Aleutia and APICDA) when the initial allocation recipients were forced to divest some of their PQS to stay under ownership caps. In a third case, the Kodiak Fishery Development Association acquired PQS from a willing seller that was subject to the northern Gulf of Alaska ROFR "sweep-up" feature. In all three cases, the involved Eligible Crab Community Entities credit the fact that ROFRs existed as a positive influence on their ability to reach PQS acquisition agreements without a ROFR being triggered. Unalaska Crab Inc. was presented with an opportunity to exercise its ROFR in 2008, it waived that right, which allowed those shares to be obtained by another Eligible Crab Community Entity (APICDA). CBSFA is the only Eligible Crab Community Entity that holds PQS acquired after initial allocation where none of those acquisitions were due to, or influenced by, their being the ROFR holder or stepping in after another ROFR holder waived their rights.

While the CR Program ROFR element has functioned to help keep PQS in the community where its qualifying history was accrued, this has not happened in all cases. In St. George, False Pass, and Port Moller, all CR Program PQS qualifying history was earned on floating processors rather than in shore-based processing plants. Processing of BSAI crab has not occurred in any of these communities since the implementation of the CR Program as the use of floating processors overall declined immediately after the CR Program was implemented and has continued to decline in recent years as a larger percentage of the CR Program crab is processed at shorebased facilities.

One challenge reported by the Eligible Crab Community Entities holding ROFR contracts is that the contracts typically include, in addition to processing shares, other goods/assets. To date, no Eligible Crab Community Entity has indicated they have the capacity to acquire not only processing shares, but also the processing operation goods/assets that are typically part of such agreements and to take over operational responsibility for those goods/assets.

The increase of CDQ program allocations from 7.5 percent to 10 percent of the TAC and the waiver of sea time eligibility requirements for the purchase of owner QS for CDQ groups have been successful in markedly increasing in engagement in the CR Program fisheries through expansion of CDQ ownership of CVO and CPO shares. In addition to increasing existing CDQ interests in these fisheries, these program features have also led to Tribal acquisition of ownership interest in LLCs that, in turn, own QS.

The Adak Community Allocation has provided the community of Adak with resources to use toward building sustained participation in the CR Program fisheries. This allocation, however, has not been as successful as it potentially could be, due to multiple factors, including the intermittent operation of Adak processing facilities by a succession of multiple processing firms and being unable to successfully utilize other allocations (e.g., pollock) that were intended to make the processing facility more viable. All these factors are external to the CR Program.

Ownership and use caps, particularly in conjunction with ROFR program elements, have functioned as CR Program community protection measures through facilitating Eligible Crab Community Entity ownership of PQS.

1 INTRODUCTION

The Consolidated Appropriations Act of 2001 (Pub. L. No. 106 554) implemented a fishing capacity reduction program for the Bering Sea and Aleutian Islands (BSAI) crab fisheries that permanently removed harvesting capacity from certain fisheries. Reducing the catch history that would be used to determine individual allocations aided in the development of a share-based rationalization program. The funds available under the program were used to permanently reduce the number of Crab License Limitation Program (LLP) licenses and the vessels associated with those licenses were prohibited from participating in any fishery, worldwide. After the number of Crab LLP licenses and vessels were reduced, and in response to concerns raised by stakeholders, Congress directed the North Pacific Fishery Management Council (Council or NPFMC) to conduct an analysis of several different approaches for rationalizing the BSAI crab fisheries under Title VIII (j) of the of the Consolidated Appropriations Act of 2004:

"(1) By not later than January 1, 2005, the [Secretary of Commerce (Secretary or SOC)]shall approve and hereafter implement by regulation the Voluntary Three-Pie Cooperative Program for crab fisheries of the Bering Sea and Aleutian Islands approved by the North Pacific Fishery Management Council between June 2002 and April 2003, and all trailing amendments including those reported to Congress on May 6, 2003. This section shall not preclude the Secretary from approving by January 1, 2005, and implementing any subsequent program amendments approved by the Council.

"(2)…approve all parts of the Program referred to in such paragraph. Further, no part of such Program may be implemented if, as approved by the North Pacific Fishery Management Council, individual fishing quotas, processing quotas, community development quota allocation, voluntary cooperatives, binding arbitration, regional landing and processing requirements, community protections, economic data collection, or the loan program for crab fishing vessel captains and crew members, is invalidated subject to a judicial determination not subject to judicial appeal. If the Secretary determines that a processor has leveraged its Individual Processor Quota shares to acquire a harvesters open-delivery "B shares", the processor's Individual Processor Quota shares shall be forfeited.

"(3) Subsequent to implementation pursuant to paragraph (1), the Council may submit and the Secretary may implement changes to or repeal of conservation and management measures, including measures authorized in this section, for crab fisheries of the Bering Sea and Aleutian Islands in accordance with applicable law, including this Act as amended by this subsection, to achieve on a continuing basis the purposes identified by the Council."

The required analyses resulted in the implementation of the Crab Rationalization (CR) Program. The CR Program is a Limited Access Privilege Program (LAPP) as defined in the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This document serves as the required program review that meets the requirements of Section 303A(c)(1)(G) of the MSA. It will also serve as the allocation review required under NMFS' Fisheries Allocation Policy Directive 01-119 established in 2016 and two associated Procedural Directives[2].

[2] https://meetings.npfmc.org/CommentReview/DownloadFile?p=d8187f71-2494-4ba9-9bd7-28677715c094.pdf&fileName=D3%20Allocation%20Review%20Triggers%20discussion%20paper.pdf

1.1 Policy Guidance for Conducting Catch Share Program Reviews

NMFS policy guidance describes the information that should be included in Catch Share Program (CSP) reviews[3]. Based on that guidance, CSP reviews should contain the following eight elements. If an element is determined not applicable for a specific review, the Council should document in its final plan for the review its rationale for not conducting a more formalized analysis of that element. The eight elements are:

1. purpose and need of the review,
2. goals and objectives of the program, the Fishery Management Plan (FMP), and the MSA,
3. history of management, including a description of management prior to the program's implementation, a description of the program at the time of implementation (including enforcement, data collection, and monitoring), and any changes made since the program's implementation or the previous review (including an explanation of why those changes were made),
4. a description of biological, ecological/environmental, economic, social, and administrative environments before and since the program's implementation,
5. an analysis of the program's biological, ecological/environmental, economic, social, and administrative effects,
6. an evaluation of those effects with respect to meeting the goals and objectives (i.e., program performance), including a summary of the conclusions arising from the evaluation,
7. a summary of any unexpected effects (positive or negative) which do not fall under the program's goals and objectives,
8. identification of issues associated with the program's structure or function and the potential need for additional data collection and/or research.

Along with the eight elements, NMFS Policy guidance indicates the review should contain an assessment of the program's effects on net benefits to the Nation, including net benefits that are not exclusively economic in nature. It is worth noting that changes in employment and tax revenues are not economic benefits within a cost-benefit analysis. The latter is a transfer of money within the economy and the former is an example of an economic impact. Both these issues are important to policy makers, stakeholders, and the public and are considered as part of this CR Program review. However, information that is available does not allow the formal calculation of net benefits to the Nation4 (NPFMC 2023 p. 82). However, the data and discussion provided in this document suggests that net National benefits have increased relative to the pre-CR Program. For example, revenue was increased in years that fisheries were able to be opened when they would have remained closed, costs were reduced by allowing harvesters and processors to better scale capacity to the TAC, and measures were implemented to provide community protections. It is also worth noting that the net benefits to specific individuals or communities may not be positive under the CR program.

[3] https://media.fisheries.noaa.gov/dam-migration/01-121-01.pdf

[4] Operating costs not accounted for in available data are substantial, including other direct, variable vessel operating and capital maintenance and repair costs, and other expenses that enter cash flow, including overhead and financial (principal and interest) expenses. As such, the estimated residual values reported in these results represent an incomplete and imperfect index of actual gross profit of vessel operations within the active BSAI crab fleet. As such, results should be interpreted with caution, and should not be misinterpreted as estimates or indices of net operating profit.

Unlike the forward-looking analytical documents that are required to implement regulatory or plan amendments, the CSP reviews are retrospective to describe how the program has met its original (and current - as the program matures) goals and objectives. Because of this difference, CSP reviews compare the fishery before implementation against what has occurred under the program versus comparing the No Action alternative to the expected future program under the proposed FMP or regulatory amendment alternatives. After considering the information presented in a CSP review, the NPFMC may determine whether modifications to the CR Program should be considered. Those program modifications would be analyzed using the standard forward-looking analytical document development process.

1.2 Original Program Purpose and Need Statement

The NPFMC adopted the following purpose and need statement when considering rationalization alternatives for the fisheries:

> *Vessel owners, processors and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992 still exist for the BSAI crab fisheries. Problems facing the fishery include:*
>
> 1. *Resource conservation, utilization and management problems;*
> 2. *Bycatch and its' associated mortalities, and potential landing deadloss;*
> 3. *Excess harvesting and processing capacity, as well as low economic returns;*
> 4. *Lack of economic stability for harvesters, processors and coastal communities; and*
> 5. *High levels of occupational loss of life and injury.*
>
> *The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets.*

Concerns identified in this problem statement and direction from Congress led the NPFMC to develop the CR Program to mitigate these issues.

1.3 17-year Program Review Requirements

Section 303A(c)(1)(G) of the MSA requires a catch share program review every 7 years after the initial 5-year review. Councils are given the authority to conduct program reviews more frequently. This document serves as the program review that is required every 7 years.

1.4 Allocation Review Requirements

The National Oceanic and Atmospheric Administration (NOAA) Fisheries created the allocation review process to ensure fisheries allocations are periodically evaluated to remain relevant to current conditions and that fisheries are managed to achieve National Standard 1 (prevent overfishing and achieve optimum yield). The allocation review policy and complementary procedural directives provide guidance for the periodic assessment of fishery allocations. The Council has defined the primary trigger for determining when the CR Program allocation review should take place as a time-based trigger every seven years, corresponding with the Program Review.

1.5 Previous CR Program reviews

Table 1-1 provides a list of the previous CR Program review documents and a link to each. The information in these documents is referenced and provides detailed background on the CR Program. The first CR Program review occurred 1.5 years after its implementation. The focus of the review was the distribution of benefits between harvesters and processors because of the program's unique structure compared to other LAPPs implemented by the NPFMC. Unique features included Congressional authority to allocate processor shares, an arbitration system to help establish ex-vessel prices, the right of first refusal (ROFR), and different harvest share classes. A 3-year preliminary review was presented in 2008. A more extensive 5-year review was completed in 2010. The 10-year review of the CR Program was delayed one year to allow additional data to become available and was completed in 2016. In addition to the main document, the 3-, 5-, and 10- year reviews each included a Social Impact Assessment (SIA) appendix and an executive summary of the SIA. An appendix focused on safety in the crab fisheries was included as part of the 10-year review.

Table 1-1 CR Program 1.5-year, 3-year, 5-year, and 10-year program review document links

Document	Link to Web Address
18-month review	
Main document	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/18MonthRev.pdf
3-year review	
Main Document	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/3yearreview1208.pdf
SIA Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/3yearreview1208_appendix.pdf
5-year review	
Executive Summary	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/5yearRevExSummary.pdf
Main Document	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/5YearRev1210.pdf
SIA Executive Summary	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/5yearExSum_SIA.pdf
SIA Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/5YearRev1210_AppxA.pdf
Safety Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/5YearRev1210_AppxB.pdf
10-year review	
Main Document	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/10YearRevFinal_2017.pdf
SIA Executive Summary	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/10YearAppA_ExecSumm.pdf
SIA Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/10YearAppA_SIA.pdf
Community Engagement Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/10YearAppB_CommFishEngageIndi.pdf
Safety Appendix	https://www.npfmc.org/wp-content/PDFdocuments/Publications/CrabProgramReview/10YearAppC_AssessSafety.pdf

1.6 Scope of CR Program Review and Allocation Review

1.6.1 Program Review

A workplan was presented to the Council and its advisory bodies at the October 2023 Council Meeting. After reviewing that workplan the Council's Scientific and Statistical Committee (SSC) and Advisory Panel (AP) recommended that the information included in the workplan and additional information focused on community impacts be included in the final report. The SSC also recommended the CR Program review be revised to follow the general structure of the BSAI Pacific Cod Allocation review[5] document (NPFMC, 2019). That structure includes the use of dashboards to summarize information and focuses on how the CR Program elements have or have not met the goals and objectives defined by the Council. That information is included along with the other required elements of a program review.

The MSA helps establish the scope for evaluating the CR Program by providing some general guidance on what is expected of a LAPP. According to Section 303A(c)(1) a LAPP program shall: promote capacity reductions, promote fishing safety, promote fishery conservation and management, promote social and economic benefits, preclude attainment of excess shares solely for the purpose of realizing the security interest on the privilege, and include an effective system of enforcement, monitoring, and management.

[5] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Pcod/BSAIPcodAllocationReview2019.pdf

National Standards 4 (allocations) and 8 (fishing communities) have also been identified as important to be considered as part of this review.

In addition to the MSA guidance, NMFS policy guidance and Executive Orders (E.O.) provides direction on information that should be considered in program reviews. They are discussed in the sections of the document where they apply.

Requirements for a program review that were established upon implementation of the CR Program. The Council also explicitly requested the use of its problem statement to evaluate the CR Program. Rather than explicitly identifying a list of program goals, the Council's purpose and need statement lists and explains the primary areas of concern that existed within the pre-rationalization crab fisheries. Assuming these primary areas of concern were, in fact, the chief objectives of the program, the Council was seeking to:

(1) [Promote] resource conservation, utilization, and [address] management problems;

(2) [Reduce] bycatch and its' associated mortalities, and potential landing deadloss;

(3) [Reduce] excess harvesting and processing capacity, as well as [discouraging a system that promotes] low economic returns;

(4) [Promote] economic stability for harvesters, processors and coastal communities;

(5) [Eradicate] the high levels of occupational loss of life and injury;

(6) Address the social and economic concerns of communities;

(7) Promote efficiency in the harvesting sector;

(8) [Promote] equity between the harvesting and processing sectors, including healthy, stable, and competitive markets.

These eight objectives that are embedded in the Council's purpose and need statement are referenced throughout the rest of the program review.

1.6.2 Allocation Review

This Allocation Review is designed to provide information to assist the Council in determining whether the development of an FMP amendment to consider alternative allocations is necessary. The review should consider the FMP6 objectives along with other relevant factors that have changed and may be important to the fisheries' allocation. The Crab FMP includes the consideration of economic benefits that are broadly defined to include, but are not limited to: profits, income, employment, benefits to consumers, and less tangible or less quantifiable social benefits such as the economic stability of coastal communities. Allocation reviews do not require in-depth analyses but do require a discussion of how the CR Program objectives are or are not being met and the factors considered.

[6] https://www.npfmc.org/library/fmps-feps/

1.7 Methods and Data Sources

This review uses quantitative and qualitative analyses to describe and evaluate the past, present, and near future (e.g., biological indicators) status of the CR Program fisheries in relation to program objectives, focusing on issues that are directly controlled by the CR Program's elements. Findings from relevant literature are also utilized whenever possible. Primary data sources include harvest activity from Alaska Department of Fish and Game (ADF&G) Fish Tickets/eLandings enhanced by Commercial Fisheries Entry Commission (CFEC) Gross Earnings file, fishing and processing privilege data (LLP licenses, quota share (QS), processing quota share (PQS), etc.) from NOAA Restricted Access Management (RAM) Division, wholesale production values self-report by producers in Commercial Operators Annual Report (COAR) and social and economic information is derived from the annually submitted crab Economic Data Reports (EDR). Data are primarily sourced and compiled by Alaska Fisheries Information Network (AKFIN) and Alaska Fisheries Science Center staff (Crab Economic Stock Assessment and Fishery Evaluation (SAFE) data). Qualitative information is collected from relevant literature, records of public testimony, and solicited communication with stakeholders and community residents impacted by the CR Program fisheries.

2 DESCRIPTION OF MANAGEMENT

The Description of Management section utilizes information presented in previous CR Program reviews as well as more recent information. This section is designed to fulfill the information requirements of the third item listed in NMFS program review policy guidance by providing the

> *"history of management, including a description of management prior to the program's implementation, a description of the program at the time of implementation (including enforcement, data collection, and monitoring), and any changes made since the program's implementation or the previous review (including an explanation of why those changes were made)".*

A summary of Federal and State of Alaska authority over the Federal BSAI crab fisheries off the coast of Alaska, a brief description of pre-rationalization management, and current management elements of the CR Program are included. Management information that has not changed since the 10-year review is primarily included by reference with management changes since the last review described presented in tabular form that describes the objective that the program modification is intended to address.

2.1 Three Categories of Management under Federal and State Authority

The FMP for the commercial king and Tanner crab fisheries in the BSAI establishes a State/Federal cooperative management regime that defers BSAI crab management to the State of Alaska (State) with Federal oversight. State regulations are subject to the provisions of the FMP, including its goals and objectives, the Magnuson-Stevens Act National Standards, and other applicable federal laws.

The FMP specifies three categories of management measures for the king and Tanner crab fisheries in the BSAI (Table 2-1). Category 1 measures are fixed in the FMP and require an FMP amendment to change. Category 2 measures are framework-type measures that the State can change following criteria set out in the FMP. Category 3 measures are under the discretion of the State of Alaska.

Table 2-1 BSAI king and Tanner crab management measures by category

Category 1 (Fixed in the FMP)	Category 2 (Frameworked in the FMP)	Category 3 (Discretion of the State)
Legal Gear	Minimum Size Limits	Reporting Requirements
Permit Requirement	Guideline Harvest Levels/ Total Allowable Catch	Gear Placement and Removal
Federal Observer Requirements	In-season Adjustments	Gear Storage
Limited Access	Districts, Subdistricts, and Sections	Vessel Tank Inspection
Norton Sound Super Exclusive Registration	Fishing Seasons	Gear Modifications
	Sex Restrictions	Bycatch Limits (in Crab Fisheries)
Essential Fish Habitat	Pot Limits	State Observer Requirements
Habitat Areas of Particular Concern	Registration Area	Other
	Closed Waters	

Source: Fishery Management Plan for Bering Sea/Aleutian Islands king and Tanner crabs (NPFMC 2021)

The FMP applies to all Federal crab fisheries in the BSAI. In addition to the CR Program fisheries (see Section 2.3) these management measures also apply to Norton Sound red king crab and Pribilof Islands

golden king crab. An amendment to the FMP in 2008 removed 12 BSAI crab stocks from the FMP and shifted full authority to the State.[7]

2.2 Pre-CR Program Management

Before the CR Program's implementation, a guideline harvest level (GHL) for each fishery established a target catch. Initially, crab GHLs were ranges, but later they became fixed amounts. State managers monitored harvests using the number of vessels that registered for each fishery, their estimated daily harvest capacity, and harvests through in-season reports. A fishery was closed by the State when the GHL was estimated to be harvested.

"Limited Access" is included within Category 1 under Federal jurisdiction. Beginning in 1992, the Council began considering a "Comprehensive Rationalization Program" that would limit entry into all groundfish and crab fisheries under its authority. Consideration of that program lead to limiting entry in a stepwise fashion that began with a temporary moratorium on new entry implemented in 1995, the LLP implemented in 2000, and finally the CR Program. All these limited access programs were developed to address conservation, safety, socio-economic, and management issues present in the open access fisheries. The LLP and CR Program are currently used to limit access to the Federally managed crab fisheries.

The LLP allocated licenses are required to harvest Federal fisheries. LLP licenses were issued to vessel owners based on historic participation of a vessel in a particular Federal crab or groundfish fishery. A person that qualified for both a groundfish and crab LLP license was issued a license for each that were non-severable from each other (both had to be sold together) to limit capacity increases in the two fisheries.

Individual harvests levels were determined by the amount a person could harvest while the fishery was open since a license provided the privilege to fish but did not assign harvest privileges for a percentage of the available harvest of crab or groundfish species. While the purpose of the LLP is to limit entry into a fishery, the underlying intent of the program is to help resolve the competing and often conflicting needs of the fisheries that occurred under open access. The LLP license is a management tool intended to close the gap between fishing capacity and available fishery resources. However, the excess capacity in the fishery, even after requiring a valid license limited the number of vessels that could participate, restricted the effectiveness of the program.

Between implementation of the LLP in 2000 and implementation of the CR Program in 2005, an LLP license with the appropriate endorsements was required on any vessel engaged in directed fishing for crab species managed by the FMP.[8] A Crab LLP license is endorsed by area and species, maximum length overall (MLOA) for the vessel using the license, and operation type (catcher vessel or catcher-processor). Since the seasons for some BSAI crab fisheries did not conflict before the CR Program being implemented, participants were active in several fisheries. However, stock declines in BBR and BSS during this period led to seasons lasting only a few days or weeks. Consequently, equipment was often idle for several months of the year.

[7] Amendment 24 to the BSAI king and Tanner crab FMP, Final rule was published 73 FR 33925.

[8] As quota shares (QS) replaced the requirement for an LLP license in the CR Program fisheries, the LLP for crab was revised in September 2005 to reflect fisheries remaining under governance of the LLP program. This included: Eastern Aleutian Islands red king crab, Aleutian Islands snow crab and Tanner crab, Norton Sound red and blue king crab, and "minor species" including scarlet king crab and triangle and grooved Tanner crab. Amendment 24 was implemented in July 1998 and removed Aleutian Islands Tanner crab, Eastern Aleutian Islands red king crab, scarlet or deep-sea king crab, grooved Tanner crab, and triangle Tanner crab from the LLP regulations. These fisheries are managed by the State of Alaska.

2.3 Description of the BSAI CR Program

The CR Program is a "voluntary three pie cooperative" structure intended to protect the interests of the harvest sector, the processing sector, and defined regions and communities. Interests of the harvesting crew and processing plant workers are also considered under their respective harvesting and processing sectors.

Nine BSAI crab fisheries were rationalized under the program[9]:

BBR	Bristol Bay red king crab (*Paralithodes camtschaticus*)
BSS	Bering Sea snow crab (*Chionoecetes opilio)*
EBT	Eastern Bering Sea Tanner crab (*C. bairdi)* – East of 166º W
WBT	Western Bering Sea Tanner crab – West of 166º W
PIK	Pribilof Islands blue (*P. platypus*) and red king crab
SMB	Saint Matthew Island blue king crab
WAG	Western Aleutian Islands (Adak) golden king crab *(Lithodes aequispinus*) – West of 174º W
EAG	Eastern Aleutian Islands (Dutch Harbor) golden king crab – East of 174º W
WAI	Western Aleutian Islands (Petrol Bank District) red king crab – West of 179º W

The primary elements of the voluntary cooperative CR Program that allocated QS to vessel owners, crew members, and processor owners are:

- Total allowable catch
- Harvesting shares
- Processing shares
- Regional landing designations
- Right of first refusal (ROFR)
- C share allocation to protect captain and crew interests
- Catcher processor shares
- Binding arbitration system
- Cooperatives
- Community Development Quota (CDQ) and Adak community allocations
- Low interest loan program
- Annual economic data collection (Crab EDRs)

2.3.1 Total Allowable Catch

CR Program fisheries are managed with TACs that establish a specific catch limit for each fishery by fishing season (Table 2-2). Note that crab fishing seasons often cover parts of two calendar years and the TACs shown in the table represent the year the TAC was established but some or all the TAC could be

[9] Some crab fisheries are considered one unit stock for assessment purposes but are managed as more than one fishery. For example, Eastern and Western Aleutian Islands golden king crab are assessed as one stock but are managed as distinct fisheries with separate TACs.

fished in the next calendar year. Overharvest of an individual fishing quota (IFQ), Community Development Quota (CDQ), or Adak Community Allocation (ACA) is a violation. Penalties imposed are at the discretion of NOAA Office of Law Enforcement (OLE) and NOAA General Counsel (GC), but the Council has recommended that all overages be subject to forfeiture and that additional penalties be imposed only for overages exceeding 3 percent of a harvester's shares at the time of landing. The CR Program was amended in 2009 to allow post-delivery transfers of QS. That amendment was intended to improve flexibility of the fleet, reduce the number of violations for overages, reduce enforcement costs, and promote the full harvest of crab allocations.[10] Section 4.2 includes more information on TAC utilization.

Table 2-2 TACs for the Crab Rationalization Program Fisheries (excludes CDQ), 2005 through 2023

Year	BBR	BSS	EAG	EBT	SMB	WAG	WBT
2005	16,496,100	33,465,600	2,700,000		0	2,430,000	1,458,000
2006	13,974,300	32,909,400	2,700,000	1,687,500	0	2,430,000	984,600
2007	18,334,700	56,730,600	2,700,000	3,100,500	0	2,430,000	1,958,400
2008	18,327,600	52,695,000	2,835,000	2,486,700	0	2,551,500	1,383,300
2009	14,408,100	43,215,300	2,835,000	1,215,000	1,050,300	2,551,500	0
2010	13,355,100	48,852,900	2,835,000	0	1,440,000	2,551,500	0
2011	7,050,600	80,004,600	2,835,000	0	2,123,100	2,551,500	0
2012	7,067,700	59,715,000	2,979,000	0	1,467,000	2,682,000	0
2013	7,740,000	48,584,700	2,979,000	1,316,700	0	2,682,000	1,480,500
2014	8,987,400	61,155,000	2,979,000	7,632,000	589,500	2,682,000	5,962,500
2015	8,976,600	36,549,900	2,979,000	10,144,800	369,900	2,682,000	7,556,400
2016	7,622,100	19,413,000	2,979,000	0	0	2,011,500	0
2017	5,940,900	17,064,900	2,979,000	0	0	2,011,500	2,250,180
2018	3,877,200	24,822,900	3,470,400	0	0	2,250,000	2,195,100
2019	3,417,300	30,617,100	3,879,000	0	0	2,583,000	0
2020	2,383,200	40,500,000	3,285,000	0	0	2,664,000	2,113,200
2021	0	5,040,000	3,249,000	0	0	2,088,000	990,000
2022	0	0	2,988,000	1,046,700	0	1,557,000	765,000
2023	1,935,000	0	3,348,000	684,000	0	1,629,000	1,188,000

Source: AKFIN(CRAT_Figures(1_22_2024).xls
Notes: PIK and WAI TACs were set at 0 for each year during the period considered.
The BST fishery was sub-divided into the EBT and WBT fisheries starting in 2005/2006 but only the WBT was open.

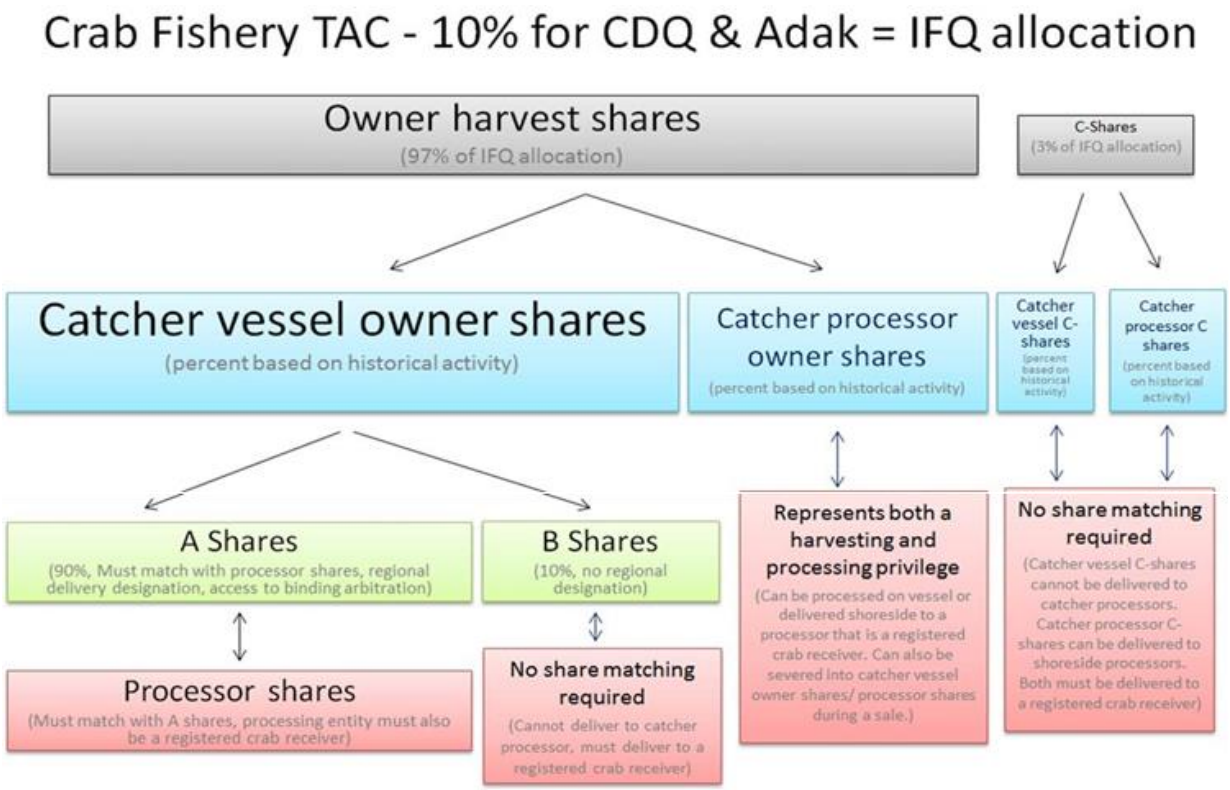
2.3.2 Harvesting Shares

Harvesting quota shares (QS) were issued for each CR Program fishery (Figure 2-1). QS are a revocable privilege (permit) that allow the holder to harvest a specific percentage of the annual fishery total allowable catch (TAC). The corresponding annual allocations, issued in pounds, are referred to as IFQ. The annual IFQ allocation is based on the percentage of the QS pool held by a person, multiplied by the annual IFQ TAC in the fishery. IFQ TACs do not include pounds set aside for the CDQ and ACA program which are deducted before determining the IFQ pool. All crab that is sold or kept for personal use, and all

[10] Amendment 28 to the BSAI king and Tanner crab FMP, Final rule published: 74 FR 41092.

deadloss is debited against the IFQ account of the allocation holder. Legal discards, however, are not counted against an IFQ holder's account.[11]

Figure 2-1 Diagram of BSAI Crab TAC allocations under CR Program



Source: 10-year review

QS are designated as either catcher vessel owner (CVO) QS or catcher processor owner (CPO) QS. Approximately 97 percent of the QS (referred to as "owner QS") in each program fishery were initially allocated to LLP license holders based on their catch histories in the fishery. The remaining 3 percent of the QS, referred to as "C shares" or "crew QS", were initially allocated to captains based on their catch histories in the fishery. Crew shares are designated as either catcher vessel crew (CVC) or catcher processor crew (CPC) QS.

Catcher vessel owner IFQ are issued in two classes, Class A IFQ and Class B IFQ. Crab harvested using Class A IFQ must be delivered to a processor holding unused individual processing quota (IPQ). In addition, Class A IFQ are subject to regional share designations, whereby harvests are required to be delivered within an identified region. The delivery restrictions of Class A IFQ are intended to add stability to the processing sector by protecting processor investment in program fisheries and to preserve the historic distribution of landings and processing between regions. Crab harvested using Class B or Class C IFQ can be delivered to any processor that is a registered crab receiver (RCR, except catcher processors, regardless of whether the processor holds unused IPQ. In addition, Class B IFQ are not regionally

[11] There is no prohibition against sorting crab at the rail, and it is common practice to discard females, unmarketable legal male crab, and sub-legal sized crab immediately after the pot is brought on board. While not debited from an individual account, discard mortality is estimated from observer data and factored into the total removals necessary for stock assessments.
[12] The EBT and WBT QS, and a portion of the WAG QS, are considered undesignated because they do not carry a regional landing designation.

designated. The intent of B shares was to provide harvesters with additional market leverage for negotiating ex-vessel prices. Any remaining IFQ held by that person will be issued as Class A and Class B IFQ in a ratio so that the total Class A and Class B IFQ issued in that crab QS fishery is issued as 90% Class A IFQ and 10% Class B IFQ. Consequently, Class B IFQ are allocated to a harvester only to the extent that the QS held by the harvester exceeds the amount of PQS held by that harvester and its affiliates.

If a CVO QS holder has no affiliation with PQS, they are issued Class A and Class B IFQ in a 90:10 ratio, respectively. The absence of an affiliation with a holder of processing shares is established by a QS holder filing an annual affidavit identifying any PQS holdings or affiliations with PQS holders.

Harvest QS, processing quota shares (PQS), IFQ, and IPQ are transferrable under the program, subject to limits on the amount of shares a person may own or use. Transferability of shares among eligible purchasers of QS and IFQ may promote production efficiency in the harvest sector and provides a means for compensated removal of excess harvesting capacity in the program fisheries. In addition, transferability may be used to avoid overages, in the event a harvester exceeds its available IFQ.

To be eligible to purchase owner QS or IFQ an individual is required to be a U.S. citizen and to have at least 150 days of sea time in US commercial fisheries in a harvesting capacity. Corporations and partnerships can also acquire these shares provided a U.S. citizen with at least 150 days of sea time in US commercial fisheries in a harvest capacity owns at least 20 percent of the corporation, and the corporation is at least 75 percent U.S. owned. Initial recipients of QS, CDQ groups, and Eligible Crab Community Organizations[12] are exempt from these eligibility criteria. Sea time requirements are intended to ensure that the harvest sector does not evolve into a fishery owned by persons with no fishing background.

Leasing of catcher vessel and catcher processor owner QS (or equivalently, the sale of owner IFQ) is prohibited, except by cooperatives, after the first 5 years of the program. Leasing is defined as the use of IFQ on a vessel in which the owner of the underlying QS holds less than a 10 percent ownership interest and on which the underlying QS holder is not present. The prohibition on leasing of QS (or sale of IFQ) by persons not in cooperatives is intended to create an incentive for cooperative membership. The 5-year period when leasing was not constrained was intended to allow a period of adjustment during which harvesters could coordinate fishing activities and build relationships necessary for cooperative membership.

Leasing of C share QS was prohibited after the first 3 years of the program. However, the CR Program was amended (effective on March 1, 2015) to require that C share QS (both catcher vessel and catcher processor C shares) may be held only by persons who either demonstrate active participation in a program fishery or are recipients of an initial allocation of C share QS who demonstrate active participation in State or Federal fisheries in or off Alaska.[13] That CR Program amendment also modified the eligibility requirements for the acquisition of C shares. The goal was to provide entry opportunities for long-time captains and crew displaced from the CR fishery after the program began and the number of total crew positions declined. The participation requirements apply to all holders of C shares so the Council determined that prohibitions on leasing C shares would no longer be necessary. A proposed amendment approved by the Council at its December 2023 meeting would change the active participation

[12] https://s3.amazonaws.com/media.fisheries.noaa.gov/dam-migration/application-to-become-eligable-crab-community-organization-ecco-akro-noaa-fisheries.pdf

[13] Amendment 31 to the BSAI king and Tanner crab FMP; Final rule published: 80 FR 15891.

requirements to hold C shares. The change was determined to be necessary because of low TACs in the crab fisheries that limit crew's ability to meet the required at-sea requirements in the crab fisheries.

2.3.2 Ownership and Use Caps

"Individual use caps" limit the use and holdings of harvest shares by any person to prevent excessive consolidation.[14] Different caps apply to owner share holdings and C share holdings. Individual use caps vary across program fisheries because of different fleet characteristics and the differences in historic dependency of participants on the different fisheries. In addition, any CR Program holdings by CDQ groups, who each represent the interests of one or more BSAI communities, are subject to higher caps (Table 2-3). Persons who received an initial allocation of QS over the cap were allowed to retain that quota but could not acquire more quota unless they had sold quota and would be under the cap after the quota purchase.

Use caps are applied individually and collectively. Under this approach, a person's direct QS holdings are counted against the cap. In addition, a person's indirect QS holdings are also counted against the cap in proportion to the person's ownership interest. For example, if a person owns a 20 percent interest in a company that holds 100,000 units of QS, that person is credited with holding 20,000 units of QS for purposes of determining compliance with the cap.

Table 2-3 QS use caps for CVO/ CPO, CVC/CPC, and CDQ groups

Fishery	CVO/CPO		CVC/CPC		CDQ holdings of CVO/CPO	
	As a % of the initial CVO/CPO QS pool	In QS units	As a % of the initial C share pool	In QS units	As a % of the initial CVO/CPO QS pool	In QS units
BBR	1%	3,880,000	2%	240,000	5%	19,400,000
BSS	1%	9,700,000	2%	600,000	5%	48,500,000
EBT	1%	1,940,000	2%	120,000	5%	9,700,000
WBT	1%	1,940,000	2%	120,000	5%	9,700,000
PIK	2%	582,000	4%	36,000	10%	2,910,000
SMB	2%	582,000	4%	36,000	10%	2,910,000
EAG	10%	970,000	20%	60,000	20%	1,940,000
WAG	10%	3,880,000	20%	240,000	20%	7,760,000
WAI	10%	5,820,000	20%	360,000	20%	11,640,000

Source: CFR 680.42(a); https://alaskafisheries.noaa.gov/sites/default/files/reports/1415ifqquotacaps.pdf

"Vessel use caps" limit the amount of owner IFQ that may be harvested by a vessel not in a cooperative in a given season.[15] Vessel use caps do not apply to vessels participating in a cooperative, thereby providing an additional incentive for cooperative participation.

[14] In other catch share programs (e.g. the halibut sablefish IFQ program) individual use caps are called "QS use caps". They are also sometimes referred to as "ownership caps".

[15] Vessel use caps are also referred to as Vessel IFQ caps in other catch share programs (e.g. the halibut sablefish IFQ program) because they apply to the IFQ harvested on one vessel on an annual basis.

Table 2-4 Vessel use caps as a percent of the respective fishery's quota share pool and resulting pounds of TAC 2023/24

Fishery	Vessel Use Cap % of Harvesting IFQ TAC	Harvesting IFQ TAC in Raw Crab Lbs	Vessel Use Cap in Raw Crab Lbs
BBR	2%	1,935,000	38,700
BSS	2%	Undetermined	Undetermined
EBT	2%	684,000	13,680
WBT	2%	1,188,000	23,760
PIK	4%	Undetermined	Undetermined
SMB	4%	Undetermined	Undetermined
EAG	20%	3,348,000	669,600
WAG	20%	1,629,000	325,800
WAI	20%	Undetermined	Undetermined

Source: CFR 680.42(c)
Note: Undetermined" means the TAC has not yet been announced by the State of Alaska or the fishery is not open; therefore, the cap cannot be computed at this time.

To protect independent vessel owners and processors that are not vertically integrated, processor harvest share holdings are also limited by caps on vertical integration. A PQS holder's harvest share holdings are limited to 5 percent of the share pool on a fishery basis. These caps are applied using a threshold rule for determining whether the shares are held by a processor, and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered a part of that processor.

A processing share cap prevents any person from holding in excess of 30% of the outstanding PQS in any program fishery unless that person received an initial allocation of PQS in excess of this limit. In addition to PQS holdings, regulations state a person may not use IPQ that, combined with that person's PQS holdings, exceeds 30% of the outstanding PQS in any program fishery. The "use of IPQ" had originally included any IPQ that was custom processed by a processing facility. A series of exemptions have been made throughout the history of the program to provide additional flexibility for custom processing above the use caps. In December 2023, the Council recommended that the PQS/IPQ use caps be further revised across all CR Program fisheries, so that IPQ crab that was custom processed would not count toward the PQS/IPQ use cap for the processing owner. This was intended to provide more market flexibility for harvesters, processors, and IPQ holders in addition to limiting operational disruptions. PQS/IPQ use caps and are discussed in more detail in the following section and in Section 7.7.

2.3.3 Processing Shares and Use Caps

PQS are a revocable privilege to receive deliveries of a fixed percentage of the annual TAC from a CR Program fishery. Annual allocations resulting from the PQS are referred to as IPQ. IPQ is issued for about 90 percent of the catcher vessel owner IFQ pool or equal to 100 percent of the Class A IFQ. PQS and IPQ are designated for processing by region.[16] Processing shares are intended to protect processor investment in program fisheries and preserve regional interests in the fisheries. Regional landing requirements do not apply to the IFQ issued as Class B shares. Processors received initial allocations of PQS based on

[16] Except for EBT and WBT PQS, and a portion of the WAG PQS, which do not carry a regional landing designation.

processing history during the CR Program's qualifying period for each fishery. Processing shares are transferable.

A ROFR was granted to community groups and CDQ groups from communities with significant crab processing history on the sale of any processing shares for use outside of the community of origin. The intention of the ROFR was to allow the community of origin the opportunity to keep PQS in a community under the same terms and conditions the seller of PQS would have offered another buyer. A CR Program amendment (effective February 12, 2016), is intended to improve the transparency and effectiveness of the right of first refusal program.[17]

A processing share cap prevents any person from holding more than 30 percent of the outstanding PQS in any program fishery unless that person received an initial allocation of PQS more than this limit. Table 2-5 shows the processor caps based on the 2023/2024 fishing year.

Table 2-5 Processor quota share use caps 2023/24

Crab Quota Fishery	Total PQS Units (Caps is 30% of total)	PQS Use Caps (PQS Units)	2023/2024 Annual IPQ Caps (Raw Lbs)
BBR	400,000,000	120,000,000	485,244
BSS	1,000,000,000	300,000,000	Undetermined
EBT	200,000,000	60,000,000	222,290
WBT	200,000,000	60,000,000	386,086
PIK	30,000,000	9,000,000	Undetermined
SMB	30,000,000	9,000,000	Undetermined
EAG	10,000,000	3,000,000	824,297
WAG	40,000,000	12,000,000	229,524
WAI	60,000,000	18,000,000	Undetermined

Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2324pqsquotacaps.htm

Exemptions to the IPQ use provisions that have been established through amendments to the program. The 2006 reauthorization of the Magnuson-Stevens Act included a provision to exempt custom processing in the North region of the BSS fishery from processing use caps established under the CR Program. In addition, no processor in the BSS fishery is permitted to use more than 60 percent of the IPQ issued in the North region.

Amendment 27, effective June 29, 2009, implemented this exemption for BSS in the north region and extended the exemption to several other fisheries. This suite of exemptions excludes custom processing from the calculation of the use caps in the PIK, the SMB, the WAI, the WAG when processed east of 174° W longitude, and the EAG. This exemption allows consolidation beyond the caps in fisheries and regions that pose economic challenges to processors.

Through Amendment 47 (effective January 19, 2017) the EBT and WBT fisheries were added to the list of fisheries that were exempt from custom processing counting towards IPQ use caps. The unforeseen exit of one processor from EBT/ WBT processing resulted in less than the minimum number of processing companies needed to process all the IPQ for these species without exceeding the IPQ use caps. Consolidation constrained the processors and created the potential for stranded Class A IFQ and IPQ. Based on these conditions, in December 2015 the Council voted to request that NMFS promulgate an

[17] Amendment 44 to the BSAI king and Tanner crab FMP, Final rule published in the Federal Register (FR): 81 FR 1557.

emergency rule to temporarily allow a custom processing exemption to the IPQ use caps for the 2015/2016 crab fishing year in the EBT/ WBT fisheries (effective January 26 through June 30, 2016). In recommending the emergency rule, the Council recognized that the processor consolidation that had occurred in the EBT/ WBT fisheries would likely continue to constrain processors operating in the EBT/ WBT fisheries after the emergency rule expires. To address this situation, at its June 2016 meeting, the Council took final action to exempt custom processing arrangements for EBT/ WBT from PQS/ IPQ use caps.

More recently, the Council recommended two actions at its December 2023 meeting to modify the processor use cap regulations. The first will remove a 60 percent facility use cap that exists on the processing of EAG and WAI (east of 174° W longitude). The second applies to BBR, south- region designated BSS, and WAG processed (east of 174° W longitude) from inclusion in the calculation of PQS or IPQ use caps if it is custom processed at a plant whom the IPQ holder does not have affiliation. In all other CR Program fisheries, if IPQ is custom processed at a shorebased or stationary floating processor that is located within community boundaries, it is not counted towards the use cap for the owner of that processing facility. This provision aligns the application of the PQS/ IPQ use caps across all CR Program fisheries.

The purpose of these amendments is to limit operational disruptions in the case of recent and possible future low crab catch limits to provide unaffiliated IPQ holders more processing market opportunities. Both proposed actions could allow for the redistribution of crab processing by existing crab processing facilities or allow for consolidation of IPQ into a smaller number of facilities for specific fisheries. However, regional delivery requirements would not be changed under the proposed action nor would the 30 percent cap on the amount of PQS and IPQ that could be held or leased. The proposed actions could increase crab processing flexibility and efficiency in the identified CR Program fisheries by permitting IPQ holders to utilize available facilities more efficiently. PQS/IPQ use caps are discussed in more detail in the following section and in Section 7.6.

2.3.4 Regional Share Designation

In most CR Program fisheries, a regional allocation designates all Class A (delivery restricted) harvest shares and all corresponding processing shares limits their use to a specific region (Table 2-6). In these CR Program fisheries, regionalized shares are either North or South, with North shares designated for delivery in areas on the Bering Sea north of 56º 20′ north latitude and South shares designated for any other area, including Kodiak and other areas on the Gulf of Alaska. In the WAG (Adak) fishery, the designation is based on an East/West line to accommodate a different distribution of activity in that fishery. Share designations are based on the historic location of the landings and processing that gave rise to the shares.

Table 2-6 Regional designations in CR Program Fisheries

Crab QS Fishery	North Region	South Region	West Region	Undesignated Region
EAG	x	x		
WAG			x	x
EBT				x
WBT				x
BSS	x	x		
BBR	x	x		
PIK	x			
SMB	x	x		
WAI		x		

Source: 50 CFR 680.40 (b)(2)(iii)

There have been amendments to allow for temporary exemptions from the regional delivery requirements. One amendment provides an exemption from the regional landing requirement in the West region of the WAG fishery. The exemption requires the agreement of all holders of more than 20 percent of the QS pool, all holders of more than 20 percent of the PQS pool, and the communities of Adak and Atka (effective June 20, 2011).[23] The amendment is intended to allow for the movement of deliveries if processing capacity is unavailable in the West region. Due to lack of processing capacity, this exemption has been employed each season since 2011.

Effective June 14, 2013, the Council also approved Amendment 41 which established a process whereby holders of regionally designated IFQ and IPQ in six CR Program fisheries may receive an exemption from regional delivery requirements in the North or South Region.[18] This regulatory action establishes a process that can mitigate disruptions in a CR Program fishery that prevent participants from complying with regional delivery requirements. For example, in the event of a strong ice pack around St. Paul Island, North designated harvested crab might be stranded if there is not flexibility to allow processing to occur elsewhere. A privately signed framework agreement stipulates the circumstances under which relief is granted from regional delivery requirements. This temporary exemption could apply to BBR, BSS, SMB, EAG, WAG, and PIK fisheries. Even though limited exemptions to the regional landing requirement have been implemented. Community representatives and other stakeholders in the CR Program recognize that the protections this provision provides are important and most stakeholders support the provisions.

2.3.5 Right of First Refusal

The ROFR was included in the CP Program to allow a representative of a community to match any offer for PQS or IPQ sales to maintain community benefits associated with the processing of those crabs. Section 3.4.4.1.2 of the Crab FMP describes the ROFR as applied to the CR Program. In summary, it states that:

- ROFR contract terms apply to sales of PQS and IPQs, if more than 20 percent of a PQS holder's community based IPQs (on a fishery-by-fishery basis) have been processed outside the community currently associated with the right by another company in 3 of the preceding 5 years.

[18] Amendment 41 to the BSAI king and Tanner crab FMP, Final Rule published: 78 FR 28523.

- All terms of any ROFR and contract related to the ROFR will be enforced through civil contract law.
- Any ROFR contract must be on the same terms and conditions of the underlying agreement and will include all processing shares and other goods included in that agreement, or to any subset of those assets, as otherwise agreed to by the PQS holder and the community entity.
- Intra-company transfers within a region are exempt from ROFR. To be exempt from the ROFR, IPQs must be used by the same company.
- Any sale of PQS for continued use in the community with which the PQS is associated will be exempt from the ROFR. A sale will be for use in the community associated with the PQS if the purchaser contracts with the community to
    - use at least 80 percent of the annual IPQ allocation in the community for 2 of the following 5 years (on a fishery-by-fishery basis), and
    - grant the community a ROFR on the PQS subject to the same terms and conditions required of the processor selling the PQS.
- A community group or CDQ group can waive any ROFR.
- The ROFR also includes a notice of the intent to exercise the provision and defines the required earnest money, performance requirements, and the due diligence; it also requires specific notices of transfer, and the PQS holder must provide the group that holds the ROFR with the location the IPQ, subject to the ROFR, were and if they were used by the PQS holder.

2.3.6 Catcher Processor Shares

Catcher processors participate in both the harvest and processing sectors and therefore have a unique position in the program. Catcher processors are allocated catcher processor QS and issued corresponding catcher processor IFQ. These shares carry both a harvest privilege and an accompanying onboard processing privilege. To be eligible for the initial allocation of catcher processor QS, a person must have been eligible for a harvest allocation by holding a permanent, fully transferable catcher processor LLP license. In addition, the catcher processor must have processed crab in either 1998 or 1999. These requirements parallel the harvester QS and processor PQS eligibility requirements, respectively. Persons meeting these eligibility requirements were allocated catcher processor QS in accordance with the allocation rules for harvest shares for all qualified catch that was processed onboard.

Since catcher processor IFQ provides both harvesting and on-board processing privileges, a person holding those shares may harvest and process crab onboard under the allocation. In addition, holders of catcher processor IFQ may choose not to process harvested crab, instead delivering their catch to any other processor. Use of catcher processor IFQ in this manner is like using Class B IFQ, which does not require the receiving processor to hold unused IPQ. Catcher processor shares do not have regional designations.

Holders of catcher processor QS may also sever the harvesting and processing privileges, thereby creating separate QS and PQS. These newly severed interests create a privilege to annual IFQ allocations and IPQ allocations, which can be held by different persons. When severed, the resulting QS and PQS must be designated for a region with both shares taking the same regional designation. The option to convert

shares allows a catcher processor shareholder to realize the maximum value of shares by being able to sell to another catcher processor or dividing the shares and selling to a harvester and a processor.

Some catcher processors historically accepted delivery of crab from catcher vessels for processing. PQS are allocated based on this activity to the extent that processing vessels met processor eligibility requirements and had qualifying processing history. In addition, catcher processors are permitted to purchase and use additional IPQ. All processing of deliveries by catcher processors is required to take place within three miles of shore in the applicable region. The requirement of processing within three miles of shore is intended to ensure that the regional benefits of processing activity occur. Catcher processors may not purchase and process crab harvested with Class B shares.

2.3.7 Crew Shares

To protect captains' historical interests in the program fisheries, 3 percent of the initial allocation of QS was issued to eligible captains. These "C shares" (or crew shares) are to be held only by active captains and crew and are intended to provide additional leverage to those captains and crew when negotiating contracts with vessel owners. The Council chose to exempt C shares from all IPQ and regional landing requirements, as it recognized the logistical complications that would likely arise under the program because of the interaction of active participation requirements, fleet contraction, and the IPQ and regional landing requirements.[19]

To ensure that C shares benefit active participants in the program fisheries, C share QS and IFQ may be acquired by transfer only by persons who are active fishermen. Under current regulations, individuals who hold C share IFQ are required to be on board the vessel harvesting those IFQ. C shareholders who choose to join a cooperative are effectively exempted from the 'owner on board' rule, since the IFQ are held by the cooperative and determining what IFQ is used on each trip would be challenging.

2.3.7.1 Allocations of C Shares

C shares were issued to individuals holding State of Alaska Commercial Fisheries Entry Commission Interim Use Permits, generally vessel captains, who met specific historical and recent participation requirements in CR Program fisheries. Regulations implemented as part of the original CR Program design and Amendment 31 (80 FR 15891, 03/26/2015), show that the Council intended individuals holding C shares be active in CR Program fisheries. Currently (pending implementation of the December 2023 Council action discussed later in this section that could change the requirements), to receive an annual allocation of C share IFQ, the regulations require the person to have either:

1. participated as crew in at least one delivery in a CR Program fishery in the three crab fishing years preceding the crab fishing year for which the holder is applying for IFQ; or

2. if the individual was an initial recipient of C shares, participated as crew in at least 30 days of fishing in a commercial fishery managed by the of State of Alaska or a U.S. commercial fishery in Federal waters off Alaska in the three crab fishing years preceding the crab fishing year for which the holder is applying for IFQ (§ 680.40(g)(2)).

To be eligible for the initial allocation of C share QS, a person was required to demonstrate both historical dependence on a program fishery and recent participation. Allocations were based on participation in

[19] The initial exemption from these requirements applied only for the first 3 years of the program. The Council extended this exemption indefinitely under an amendment to the program, which became effective through Amendment 26 to the BSAI king and Tanner crab FMP (published 73 FR 35084, effective July 21, 2008).

landings during the same qualifying years applicable to owner QS allocations. To ensure C shareholders are an integral part of the program, C shareholders are permitted to join cooperatives. IFQ attributable to C share QS of cooperative members are allocated directly to the cooperative and are harvested in accordance with the applicable cooperative agreement.

Individual C share holdings and use are capped at the same level as the vessel use caps applicable to owner IFQ (i.e., twice the owner QS cap level). A "grandfather" provision exempted initial allocations of Class C shares more than the cap. C share IFQ are not considered in determining a vessel's compliance with the vessel use caps applicable to owner IFQ.

Catcher processor captains are allocated catcher processor C share QS that include both a harvesting and onboard processing privilege. Harvests using catcher processor C share IFQ may be delivered to shoreside or stationary floating processors. Harvests using catcher vessel C share IFQ must be delivered to shoreside or stationary floating processors (i.e., they cannot be delivered to catcher processors).

2.3.7.2 Retaining Crew "C" Shares

Under Amendment 31, annual C share IFQ are issued only to C share QS holders who meet an active participation requirement of being on board a vessel for one landing of CR Program crab in the three years preceding the IFQ allocation.[20] In addition, C share QS is revoked from persons who do not meet this requirement in the last 4 consecutive years.[21] When this amendment was implemented the Council included a transition period prior to which any IFQ would be withheld or QS revoked. Under this transition period, no IFQ would be withheld until 3 years after implementation of the amendment and no QS would be revoked until 5 years after the implementation of the amendment. This amendment became effective May 1, 2015, thus the first year C share IFQ could be withheld was July 2018 and the first year C share QS could be revoked was July 2019.

To retain C shares, a QS holder of C shares has four seasons to meet these same requirements (§ 680.40(m)). The Council, at the time the program was developed, recommended revocation of C share QS if the QS holder continues to be inactive as an incentive for C share QS holders to divest so that the QS is not held inactive for extended periods of time and provides an opportunity for active crew to obtain those shares.

The combined impact of the COVID-19 pandemic from 2020 through 2023 and the recent and substantial decline in crab abundance and fishery closures have reduced crew participation opportunities, limiting the ability of C shareholders to meet the active participation requirements. Because of these concerns, NMFS issued an emergency rule suspending the crew participation requirements to hold C shares for the 2022/2023 fishing season (87 FR 42390). To provide a more permanent solution, the Council considered modifying the requirements for retaining C shares at its June 2023[22] and December[23] 2023 meetings. At the December meeting the Council selected a preferred alternative that would restart the calculation of the

[20] Amendment 31 to the BSAI king and Tanner crab FMP; Final rule published: 80 FR 15891.
[21] An alternative active participation requirement can be met by recipients of an initial allocation of C share QS. Initial recipients of C share QS allocations, who are active in a fishery in or off Alaska for a total of at least 30 days during 3 crab seasons preceding the annual IFQ allocation would receive that allocation (regardless of whether they are active in a crab fishery). In addition, C share QS would not be revoked from initial recipients who have at least 30 days of participation in a fishery in or off Alaska in the previous 4 crab seasons.
[22] https://meetings.npfmc.org/CommentReview/DownloadFile?p=bab0c358-862e-4891-a4d4-6f956c539aae.pdf&fileName=C3%20Crab%20Crew%20Shares%20Analysis.pdf

[23] https://meetings.npfmc.org/Meeting/Details/3019

recent participation requirement when the final rule is implemented and reissuing all CVC QS and CPC QS that was revoked from 2019 through the date that the final rule is implemented (if approved by the SOC).

The preferred alternative would also revise the eligibility requirements for CVC QS and CPC QS holders to receive annual IFQ and retain QS holdings to be the same for initial recipients and for those who have received C share by transfer after initial issuance. This allows non-initial C share recipients to qualify to hold C shares by having 30 days participation in any Alaska fishery (state or federal) to count as qualified evidence of active participation in addition to participation in the CR Program fisheries (including participation as crew on a tender vessel).

In addition to the above changes, the Council supported two regulatory amendments recommended by NMFS to clarify active participation requirements.

1) For the closed fishery exemptions, clarify that a person who holds CVC or CPC QS in more than one fishery is exempt from active participation requirements in years when all their CR crab fishery(ies) are closed. Currently, regulations only specify this exemption when a C shareholder only holds CVC or CPC QS in a single closed fishery and that CR crab fishery is closed.

2) Clarify that the phrase "participated as crew in at least one delivery of crab in any CR crab fishery" as used in crab regulations at 50 CFR 680.40(g)(2), and 50 CFR 680.40(m)(2) means participating as crew during at least one fishing trip where a delivery of crab is made in any CR fishery, and not only the delivery of crab.

2.3.8 Arbitration System

As directed by the 108th Congress, the Council recommended, and the Secretary approved the CR Program that includes a binding arbitration system to help resolve conflicts that may occur within a fishery/year between harvesters and processors. The Council has the authority to modify the Arbitration System (Consolidated Appropriations Act, 2004 Section 801(j)(3)). The arbitration system includes dissemination of market information to facilitate negotiations, the coordination of matching Class A IFQ held by harvesters to IPQ held by processors, and a binding arbitration process to resolve price negotiations, delivery terms, performance standards, and other disputes when IFQ and IPQ holders are unable to reach an agreement.

A "final-offer" arbitration structure (also called a "baseball" or "pendulum" arbitration structure) was selected. The term baseball arbitration will be used in this document, and it is often used by participants of the crab fishery. This arbitration requires that both parties provide evidence supporting the requested outcome. In addition to that evidence, both the IFQ holders and IPQ holders must each submit their proposed outcome. That outcome could be the ex-vessel price paid or other disputes (e.g., delivery terms). The arbitration procedure up to the presentation of evidence is very similar to the standard arbitration process, however, baseball arbitration imposes strict limits on the arbitrator's ability to select an outcome. The arbitrator is only empowered to take one of two actions: accept the IFQ holder's proposal or accept the IPQ holder's proposal. The arbitrator is not empowered to negotiate an agreement that differs from one of the outcomes requested by the two groups. The decision of the arbitrator is final and issued without explanation.

Because the arbitrator may only select one of the two proposals that are submitted, it is assumed that the baseball arbitration structure provides incentives for the two disputing parties to submit "reasonable" offers. The submission of reasonable offers to the arbitrator may result in more productive negotiations

and provide faster outcomes that are less expensive than standard arbitration where outcomes other than the two submitted could be selected.

A "market analyst" and a "formula arbitrator," jointly selected by the harvesting and processing sectors, develop a market report and non-binding price formula, which specifies an ex-vessel price as a portion of the first wholesale price, to be used by participants to guide their negotiations. The market report and the formula price are non-binding but are intended to provide information concerning the market and a reasonable price that might be generated by the arbitration system based on the historical distribution of the first wholesale price and ex-vessel price.

Matching Class A IFQ with IPQ is facilitated through a process of share commitments and dissemination of information concerning available shares. Once shares are matched, any parties unable to negotiate terms of delivery may use the arbitration system to resolve those terms.

To ensure predictability and fairness, the arbitration system sets standards to be followed by formula arbitrators and contract arbitrators. Although different standards apply to the formula arbitrator and the contract arbitrator, the differences between the standards are very limited and do not substantively change the general approach to be applied. The regulations state that both the non-binding price formula and contract arbitrator's decision must "(A) be based on the historical distribution of first wholesale revenues between fishermen and processors in the aggregate based on arm's length first wholesale prices and ex-vessel prices, taking into consideration the size of the harvest in each year; and (B) establish a price that preserves the historical division of revenues in the fishery while considering" several factors.[24] While arbitrators have the latitude to consider these factors, discussions with industry members indicate they tend to rely most heavily on established formula based on the historical division of first wholesale prices.

The system is also designed to minimize the potential for antitrust violations and includes a provision for open negotiations among IPQ and IFQ holders. Various other negotiation approaches are also included such as a share matching approach and a lengthy season approach where parties may postpone binding arbitration until an agreed upon point of the season.

Section 6.1.3 contains a more detailed description of the arbitration program and the performance of this system. Since program implementation, there have been two amendments that modified the timing and information available through the Arbitration System.

2.3.9 Low Interest Loan Program

The rationalization program includes a low interest loan program to assist eligible captains and crew in purchasing QS. Implementation of the loan program was delayed because of the absence of a Congressional appropriation to authorize loans, which was provided in early 2008. In February of 2008, the Council passed a motion recommending that loan funds be available exclusively to licensed crew who are U.S. citizens with at least 150 days sea time as part of a harvesting crew in any U.S. commercial fishery, and who have made at least one delivery in a fishery subject to the CR Program in 2 of the 3 years before application for the loan. Effective January 18, 2011, the previously established NOAA Fisheries Finance Program was expanded to include Federal loan opportunities for captains and crew actively

[24] Listed factors in both standards include current ex-vessel prices for all IFQ types, consumer and wholesale product prices, innovations and developments of both sectors, efficiency and productivity of both sectors, quality, the interest of maintaining financially healthy and stable harvesting and processing sectors, safety and expenditures for ensuring adequate safety, timing and location of deliveries, and cost of harvesting and processing less than the full IFQ or IPQ allocation (underages) to avoid penalties for overharvesting IFQ and reasonable deadloss.

engaged in CR Program fisheries and seeking to purchase or refinance debt from the purchase of QS. Additional information is provided in Section 6.9.4.

2.3.10 Cooperatives

The CR Program allows harvesters to form voluntary cooperatives associated with one or more processors holding PQS. Cooperatives receive the annual IFQ allocated to their members. The formation of cooperatives is intended to facilitate production efficiency by aiding harvesters in coordinating harvest activities among members and deliveries to processors. In addition, the cooperative relationship can facilitate the transfers of IFQ under prearranged terms and conditions. Transfers help harvesters consolidate allocations when a small portion of each vessel's allocation is remaining or when a QS holder's allocation is too small to efficiently harvest on their vessel. In addition, processors can benefit by associating with a cooperative; for example, coordinated deliveries can result in less down time for processing crews and equipment and decrease deadloss by reducing queuing of harvesters waiting to offload their catches. Scheduling of deliveries is especially important under the program because the allocation of harvest shares can result in the extension of fishing over a longer period.

A minimum membership of four unique QS holders is required for cooperative formation. Cooperatives must annually file a cooperative agreement with NOAA Fisheries. Once the filing is made, the cooperative receives the annual allocation of its members in the applicable program fisheries. Cooperative members are permitted to leave a cooperative at any time after a season retaining their QS and associated IFQ. Harvesters within a cooperative may transfer IFQ without approval from NOAA Fisheries since those IFQ are directly allocated to the cooperative and are counted against the cooperative's allocation. IFQ are also transferable between cooperatives, but these transfers require approval by NOAA Fisheries before they can be fished.

Section 6.1.5 describes the participation in cooperatives over the lifetime of the CR Program. That section also provides an expanded discussion of cooperative's role in facilitating IFQ leasing.

2.3.11 Community Development Quota and Adak Community Allocation

The CR Program changed BSAI crab Community Development Quota (CDQ) program allocations. The allocations in all crab fisheries covered by the CR Program were increased from 7.5 percent to 10 percent of the TAC. In addition, CDQ allocations were broadened through the development of the CR Program to include the EAG fishery and the WAI fishery. Changes in the CDQ allocations are intended to further facilitate fishing activity and economic development in rural Western Alaska communities, which is in line with the goals of the CDQ Program. The CDQ allocations are managed independently from the CR Program and are not subject to IPQ and regional landing requirements. However, CDQ groups are required to deliver at least 25 percent of the allocations to shoreside processors. Sea time eligibility requirements for the purchase of owner QS are waived for CDQ and community groups in eligible communities allowing those communities to build and maintain local interests in harvesting. CDQ and community groups are not permitted to purchase C shares. The program also created an allocation to the ACA from the WAG fishery in an amount equal to the unused resource during the qualifying period. The ACA allocation is capped at 10 percent of that fishery's total allocation. Current CDQ and ACA allocations and additional investments into the CR Program fisheries are described in Section 8.3.

2.3.12 Sideboards to Protect Participants in Other Fisheries

Sideboards in the CR Program discourage spillover activity by crab vessels and LLP license holders after the implementation of the program. Sideboards have been used in the North Pacific to protect historical participants of other fisheries from the greater harvesting flexibility provided by catch share programs. In

the development of the CR Program, the Council included sideboards to protect harvesters in Gulf of Alaska (GOA) groundfish fisheries from the potential increased effort by former participants in the BSS fisheries. The sideboard limits were applied to vessels based on the expectation that contraction in the number of vessels participating in the crab fisheries would occur and the desire to limit their ability to negatively impact groundfish vessels that were less dependent on the BSAI crab fisheries. Sideboard limits are also assigned to groundfish LLP licenses that are non-severable from crab LLP licenses. Those limits apply to participation in the GOA Pacific cod fisheries.

There have been two amendments to the CR Program related to the sideboards initially established. These amendments relax the provisions for a small number of vessels in specific circumstances.[25] Amendment 34 changed the sideboard limits for certain vessels participating in the GOA Pacific cod and pollock fisheries. Amendment 45 established, for a limited period, a process for NMFS to remove Pacific cod sideboards, applicable to certain hook-and-line catcher processors in the Central and Western GOA Regulatory Areas. This action authorized NMFS to remove these Pacific cod sideboard limits in the Central and/or Western GOA if each eligible participant in the hook-and-line catcher processor sector in a regulatory area sign and submits a request that NMFS remove the sideboard limit. Each eligible participant was required to submit the request to NMFS within one year of the date of publication of this final rule. This action was determined to be necessary to provide participants in the Central and Western GOA hook-and-line catcher processor sectors with an opportunity to cooperatively coordinate harvests of Pacific cod through private arrangement, removing the need for sideboard limits in these regulatory areas. The need for sideboards was removed because the cooperative was required to self-enforce harvest limits on its members through private contracts.

Section 12 provides further information on sideboards in greater detail.

2.3.13 Economic Data Collection

The BSAI Crab Economic Data Report (EDR) program is a mandatory census of detailed operational and financial information by owners and leaseholders of vessels and processing plants, and Registered Crab Receivers (RCRs), participating in CR Program fisheries. EDRs collect cost, revenue, ownership and employment data.

The EDR program was designed by the Council as a component of the CR Program to improve the ability to monitor and assess the achievement of social and economic objectives of management set forth in the FMP. Broadly speaking, the objectives of this reporting requirement are to monitor the economic performance of the CR Program in terms of changes in the efficiency and profitability of the fisheries, and economic stability for harvesters, processors, and coastal communities, including changes both pre and post implementation of the program. The EDR reporting requirement was implemented in 2005, but historical data submission was required retroactively for 1998, 2001, and 2004. Annual reports have been required for each calendar year of crab fishing and processing activities for 2005 through the present.

[25] Amendment 34 to the BSAI king and Tanner crab FMP revised the Crab Sideboards for the GOA Pacific Cod and Pollock Fishery to exempt some vessels that demonstrated historical participation in these non-crab fisheries (76 FR 35772). Amendment 45 to the BSAI king and Tanner crab creates, for a limited period, a regulatory process for NMFS to permanently remove Pacific cod sideboard limits, that are applicable to some participants in the Central GOA) and Western GOA hook-and-line catcher processor sectors. This amendment was necessary after the Pacific cod sector splits changed impact of the sideboards on the former crab vessels (80 FR 28540).

Revised EDR reporting requirements implemented under Amendment 42[26] went into effect during 2013 for 2012 and subsequent calendar year data. More recently Amendment 52 was implemented[27] which makes several changes to the EDRs, including the CR Program submissions. Specifically, this amendment changed the procedures for data aggregation and blind formatting for the crab EDR, to make those data aggregation and confidentiality protections comparable to the requirements under other data collection programs. In addition, the requirements for third-party data verification audits were removed and requested Alaska Fisheries Science Center staff consider other changes, such as those recommended by stakeholders in EDR workshops, that may not require regulatory amendments.

Participation in the data collection program is mandatory for participants in the CR Program fisheries, including catcher vessels, catcher processors, stationary floating crab processors and shoreside crab processors and, as of 2012, RCRs that hold IPQ and purchase crab from delivering vessels, but do not operate a crab processing plant. Should a CR Program participant fail to submit an annual EDR by the due date, NMFS is authorized to withhold issuance or transfer of QS, PQS, IFQ, and IPQ to that person. Persons submitting the data have an opportunity to correct errors before enforcement action is taken. These data are collected and held by the Pacific States Marine Fisheries Commission (PSMFC), the designated NMFS Data Collection Agent for the EDR program.

The elevated level of economic data for the crab fisheries allows for a greater understanding of economic trends relative to many fisheries in the North Pacific. EDR data are used in analyses of changes in the harvest and processing sectors, and communities to provide a baseline description of economic trends in the fisheries. EDR data are also used extensively in preparation of the annual Crab Economic SAFE, which is submitted to the Council each February as an appendix to the Crab SAFE[28].

Following presentation of the initial draft of the 10 Year Review document to the Council, one recommendation from the Council's Scientific and Statistical Committee stated:

"The document would be enhanced by a discussion of what was learned in the process of designing and implementing the data collection for monitoring and evaluating the crab rationalization program, and how it led to discontinuities that limit its current value."

A chapter in the 2021 Economic SAFE addresses this issue and provides an overview of the data collected in the EDR program to date, considering the original design and intent of the data collection, changes in reporting requirements made under Amendment 42 to the FMP, and data quality assessment efforts and findings to date. In addition, the development and implementation of Amendment 52 included substantial discussion around the evaluation of this data collection.

EDR data are used extensively throughout this program review.

[26] Amendment 42 to the BSAI king and Tanner crab FMP, Final Rule published 78 FR 36122.
[27] Amendment 52 to the BSAI king and Tanner crab FMP, Final Rule published 88 FR 7586.

[28] BSAI Crab Economic SAFE dashboard can be accessed here, which also links to the most recent BSAI crab Economic SAFE document: https://reports.psmfc.org/akfin/f?p=501:2002:16922524775047

2.3.14 Program Amendments and Changes Considered

2.3.14.1 Federal

A program review provides an opportunity for a detailed evaluation of the components of a catch share plan in a holistic way. However, the Council and its advisory bodies systematically evaluate impacts of the program and determine whether changes are warranted as part of their normal meeting cycle. Since Amendments 18 and 19 to the BSAI king and Tanner crab FMP which implemented the 3-pie voluntary cooperative CR Program, there have been several amendments to the crab FMP,[29] several Federal regulatory amendments that did not require FMP changes, and many discussion papers in which changes to the program were considered. When the Council and its advisory bodies determine a proposed action warrants evaluation, the traditional analytical process requires the consideration of a wide range of impacts and options to mitigate the problem.

Table 2-7 provides a summary of the amendments to the King and Tanner Crab (KTC) FMP and Federal regulations since CR Program implementation.[30] Table 2-8 provides a list of the information requests and actions considered but not implemented since the last CR Program review.

Table 2-7 Amendments to the BSAI king and Tanner crab FMP and Regulatory Amendments

KTC FMP amendment number	Topic	Effective
Action under consideration	Change the start date for the Aleutian Islands (AI) gold king crab fisheries	Not yet scheduled
Amendment 55	Revise crab processing facility and PQS/ IPQ use cap	Proposed Rule Published
Amendment 54	Revise crab C share recent participation requirement	Proposed Rule Published
Temporary rule	Emergency action: Suspend C Share recent participation requirement	July 15, 2022
Amendment 53	Eastern Bering Sea (EBS) snow crab rebuilding plan	Aug 31, 2023
Amendment 52	Revise regulations on Economic Data Reports requirements for groundfish and crab fisheries off Alaska	Mar 8, 2023
Amendment 51	Add to or modify language in the Crab FMP to more transparently reflect and align the FMPs with the way bycatch is currently reported	Sept 17, 2021
Regulatory amendment	Removing the Prohibition on Continuing to Fish After a Partial Offload for all CR Program fisheries	Dec 14, 2020
Amendment 50	St. Matthew blue king crab rebuilding plan	Oct 13, 2020
Amendment 49	Update the description and identification of essential fish habitat	May 31, 2018
Amendment 48	Determine limited access privileges held and used by CDQ groups	Dec 11, 2017
Amendment 47	Exempt custom processed EBS Tanner IPQ from being applied against the PQS/ IPQ use caps	Jan 19, 2017
Regulatory Amendment	Removing the Prohibition on Continuing to Fish After a Partial Offload for WAG	April 26, 2016
Temporary rule	Exempt custom processed EBS Tanner IPQ from being applied against the PQS/ IPQ use caps for the 2015/16 crab year	Jan 26, 2016;
Amendment 46	Correct the text around LLP vessel lengths in FMPs	Apr 27, 2015

[29] Amendment numbers were given to Amendment 22, Amendment 32, and Amendment 36 of the king and Tanner crab FMP; however, action was not taken by the Secretary.
[30] Not all these FMP amendments have directly impacted the management of the CR Program.

KTC FMP amendment number	Topic	Effective
Amendment 45	Modify freezer longline GOA Pacific cod sideboards	Jun 18, 2015
Amendment 44	Modify right of first refusal provisions with trailing amendment	Feb 12, 2016
Amendment 43	Revise PI blue king crab rebuilding plan with spatial closures for the groundfish fisheries	Jan 1, 2015
Amendment 42	Revise Economic Data Reports	Jul 17, 2013
Amendment 41	Create process for emergency exemption from regional delivery requirements	Jun 14, 2013
Amendment 40	Amend essential fish habitat (EFH) provisions	Oct 31, 2012
Amendment 39	Modify the snow crab rebuilding plan to define the stock as rebuilt the first year the stock biomass is above the level necessary to produce maximum sustainable yield	Aug 2, 2011
Amendment 38	Establish a mechanism to specify ACL and accountability measures for crab stocks	Aug 2, 2011
Amendment 37	Create process for Western AI golden king crab regional delivery requirement exemption	Jun 20, 2011
Amendment 36	Authorize collection of permit fees	Action dropped
Amendment 35	Crab FMP housekeeping	Oct 2011
Amendment 34	Revise crab sideboard exemptions for the Gulf of Alaska pacific cod and pollock fishery	Jun 20, 2011
Amendment 33	Reduce the amount of fees collected under the CR Program to the amount need to finance the Federal loan program	Aug 24, 2009
Amendment 32	Extending cooling off period for St. George and revise right of first refusal conditions for St. George	Action dropped
Amendment 31	Modification to temporarily expand C-Share transfer eligibility, increase C-share active participation requirements, remove prohibition on leasing of C-shares, and to establish an	May 1, 2015
Amendment 30	Modify procedures for producing and submitting documents under the arbitration system	Dec 5, 2011
Amendment 29	Joint amendment implementing the Arctic FMP	Dec 3, 2009
Amendment 28	Establish provision allowing post-delivery transfer of QS	Sept 14, 2009
Amendment 27	Exempt custom processing from use caps on processing shares in some CR fisheries	Jun 29, 2009
Amendment 26	Exempt C shares from processor share and regional landing requirements (they were already exempt from the first 3 years of the program)	Jul 21, 2008
Amendment 25	Allow conversion of North region CVO and PQS to CPO quota for eligible entity as required under MSA reauthorization and issue PQS to Blue Dutch, LLC under specific conditions, as required by the Coast Guard Act	Jun 23, 2008
Amendment 24	Specify the 5-tier system for determining stock status, and for setting over fishing limit (OFL). Remove 12 crab stocks from the FMP	Jun 6, 2008
Amendment 23	Revise the AI Habitat Conservation Area boundary to allow nonpelagic trawling in an area historically fished and prohibit nonpelagic trawling in an area of known coral and sponge occurrence	Mar 20, 2008
Amendment 22	Modify CDQ Eligibility for consistency between regulations and MSA	Superseded by MSA change
Amendment 21	Modify deadline to match harvesting and processing shares and the timing for initiating arbitration proceedings	Aug 14, 2006
Amendment 20	Split the Eastern Bering Sea Tanner crab stock be split into 2 fisheries with separate harvester and processor QS	Jul 7, 2006
Amendment 19	Amendments 18 and 19 implemented the voluntary 3-pie cooperative Crab rationalization program (with correction in Jun 8, 2005)	Apr 1, 2005
Amendment 18		

Source: https://www.npfmc.org/wp-content/PDFdocuments/Publications/Crab_Amendment_Summaries.pdf
Note: Regulatory amendments since the previous review are included in the table.

Table 2-8 Information requests and actions considered but not implemented

KTC FMP Amendment Considered	Topic	Status
Request for information	Council Request for Information on Bristol Bay Red King Crab and Eastern Bering Sea Snow Crab Mortality Mitigation Measures	FR published July 14, 2022
No action taken	Consideration of replacing paper Daily Fishing Logbooks with electronic logbooks	Discussion paper Feb 2019; Cost analysis Feb 2020
No action taken	Additional long-term solutions for Eastern BS Tanner crab PQS/ IPQ use caps for custom processed IPQ	Discussion paper April 2017
No action taken	Considering adding operational costs into the non-binding price formula for the arbitration system	Discussion paper April 2017

2.3.14.2 Board of Fisheries Proposals

The BOF receives proposals to modify its crab fishery regulations. A summary of the proposals is provided in Table 2-9 and the reader is referred to the BOF meeting website[31] for additional information. Information in the table indicates the BOF meeting the issue was discussed, proposal number, action requested, status of the action, and any additional comments.

Table 2-9 Board of Fish Crab Fishery Proposals and Actions

Proposal number	Proposal Description	Status	Comments
March 2005			
420	Require CDQ groups to hold sufficient quota to cover all harvest prior to delivery	No action	Pending federal action
421	Develop and modify regulations to implement BSAI crab rationalization	Passed	
422	Modify pot limits for CR fisheries in the Bering Sea	No action	Action taken on proposal 421
423	Modify pot limits for CR fisheries in the Aleutian Islands	No action	Action taken on proposal 421
424	Eliminate pot limits for CR fisheries	No Action	Action taken on proposal 421
425	Amend BBR season to October 15 through March 1	No Action	Action taken on proposal 421
426	Allow gear sharing in CR fisheries	No Action	Action taken on proposal 421
March 2006			
395	Repeal minimum TAC requirement for EBT fishery	Passed	
396	Change overage provision for CDQ crab fisheries	Passed	
March 2008			
368	Allow voluntary transfers of CDQ quota at the time of offload	Passed	
369	Amend observer coverage for BST to allow up to 100 percent coverage	Passed	
370	Amend pre-season registration requirements for CR fisheries	Passed	
371	Amend pre-season registration requirements for BST fishery	No action	Action taken on proposal 370

[31] https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.meetinginfo

Proposal number	Proposal Description	Status	Comments
372	Amend IFQ crab fisheries management plan to specify EBT/WBT and EAG/WAG fisheries	Passed	
373	Define directed and incidental BST and BSS fisheries	Passed	
374	Allow pot gear to be transferred and operated by another vessel	No action	Action taken on proposal 372
375	Clarify pot storage requirements for CR and CDQ fisheries	Passed	
376	Repeal BST and BSS pot limits and buoy tags	Passed	
377	Repeal BBR pot limits and buoy tags	Passed	
378	Allow 20 groundfish pots while fishing for BBR	Tabled	Action taken on proposal 377
379	Allow 20 groundfish pots while fishing for BBR	No action	Action taken on proposal 377
380	Develop Pribilof red king crab management plan	Failed	
381	Repeal minimum TAC requirement for SMB fishery	Failed	
382	Increase biodegradable cotton thread size for EAG and WAG	Failed	
383	Increase TAC level for EAG to 3.15 million pounds and WAG to 2.835 million pounds	Passed	
384	Increase time for EAG and WAG gear to be left unattended	Failed	
September 2009			
Emergency regulation	Repeal minimum TAC requirement for SMB fishery	Passed	
March 2010			
196	Repeal minimum TAC requirement for BSS fishery	Passed	
197	Reduce minimum size for BST	Tabled	Moved to March 2011
198	Repeal minimum TAC requirement for SMB fishery	Passed	
March 2011			
299	Extend EAG and WAG seasons past May 15	Failed	
300	Increase biodegradable cotton thread size for EAG and WAG from 30-thread to 60-thread	Passed	
301	Change BST boundary line	Failed	
302	Amend onboard observer standards regarding behavioral conduct	Passed	
303	Amend onboard observer standards to clarify prohibition on harassment	Passed	
305	Change fishing season for SMB	No action	Proposer withdrew support
307	Reduce minimum size for BST crab to ≥4.8 inches for EBT and ≥4.4 inches for WBT	Passed	
March 2012			
382	Increase TAC level for EAG to 3.31 million pounds and WAG to 2.98 million pounds	Passed	
384	Repeal minimum TAC for BBR fishery	Passed	
March 2014			
348	Increase TAC level for EAG and WAG	Failed	
349	Modify EAG and WAG season dates from Aug. 15 - May 15 to August 1 - April 30	Passed	
358	Revise SMB harvest strategy	Passed	
359	Allow groundfish pots in the SMB fishery	Passed	

Proposal number	Proposal Description	Status	Comments
360	Eliminate pot marking requirements for Bering Sea Registration Area	No action	Action taken on proposal 359
361	Modify gear marking requirements for longline pots in the Bering Sea golden king crab fishery	Passed	
362	Specify vertical placement of escape rings on BST and BSS pots	Passed	
363	Clarify vessel check-out provisions for CR fisheries	Passed	
364	Clarify when a trainee observer permit expires	Passed	
365	Clarify observer definitions for briefing, debriefing, and trainee	Passed	
366	Clarify observer briefing and debriefing instructions	Passed	
367	Update regulations for independent contracting agents	Passed	
March 2015			
268	Reduce exploitable legal male EBT from 5.5 inches to 5.0 inches	Passed	
March 2017			
250	Allow retention of BSS up to 35% of the weight of WBT when directed fishing for WBT	Passed	
251	Change WBT season closure date from March 31 to April 15	Failed	
252	Allow observed vessels to rig, bait, and set gear for a new crab fishery once they have checked out of their previous crab fishery	Passed	
253	Allow CR vessels to rig, bait, and set gear for a new crab fishery once they have checked out of their previous crab fishery	Passed	
254	Amend the description of a hybrid Tanner crab so it is dependent upon the target Tanner crab fishery for which the vessel is registered	No action	Proposer withdrew support
255	Allow full retention of incidentally taken BSS when WBT fishing	No action	Action taken on proposal 250
256	Allow full retention of incidentally taken EBT when BBR fishing	Failed	
257	Extend the Bering Sea District eastern boundary for retention of BSS from 166W to 165W	Passed	
258	Extend the Bering Sea District eastern boundary for retention of BST from 163W to 162W	No action	Proposer withdrew support
259	Specify vertical placement of escape rings on SMB pots	Passed	
261	Allow BSS retention up to 5% of the EBT crab weight when directed fishing for EBT	No action	Action taken on proposal 250
263	Reduce observer coverage for EAG and WAG	No action	Proposer withdrew support
May 2017			
281	Update the BST crab harvest strategy	Passed	
March 2018			
229	Allow EAG and WAG TAC based on assessment model biomass	Passed	
March 2019			
179	Adopt new EAG and WAG harvest strategy	Passed	
March 2020			
261	Update the BST crab harvest strategy based on results of management strategy evaluation	Passed	
262	Modify BSS harvest strategy definition of "exploitable legal males"	No action	Proposer withdrew support
263	Allow retention of incidentally harvested WBT crab during directed BSS fishing	No action	Proposer withdrew support

Proposal number	Proposal Description	Status	Comments
265	Update Bering Sea and Aleutian Islands crab registration regulations to waive inspections and complete registrations by email	Passed	
266	Change season dates for EAG and WAG to March 1 - October 31	No action	Proposer withdrew support
268	Allow gear transfer authorization by email	Passed	
269	Amend observer trainee permit revocation regulation	Passed	
270	Specify briefing and debriefing requirements for trainee and certified observers	Passed	
271	Specify marine safety requirements for observed vessels	Passed	
272	Amend observer trainee minimum qualifications	Passed	

Source: ADF&G staff

3 ISSUES OUTSIDE THE CR PROGRAM

The CR Program fisheries and their participants are impacted by factors that cannot be controlled by CR Program regulations. This section provides a brief description of some factors that have had the greatest impact.

3.1 Fishery Closures and TACs

As described in Section 4, recent years have seen a stark decline in key commercial BSAI crab species. The BBR fishery has seen an 87% decline in TAC since the 2007/08 season when it was set at a CR Program peak of 20.38 million lb. The BBR fishery has not been declared to be overfished, however, ADF&G closed the fishery for the 2021/22 and 2022/23 seasons It was opened for the 2023/24 season at a TAC of 2.15 million lb. The largest volume of crab is traditionally harvested in the BSS fishery. As a result of the 2021 stock assessment, the Council declared the BSS crab stock overfished and it opened for the 2021/22 season with a sharply reduced TAC. The BSS fishery TAC declined 88% from the 2020/21 season (45 million lb) to 5.6 million lb in the following 2021/22 season. The stock further declined in 2022 and the fishery was subsequently closed by ADF&G for the 2022/23 and 2023/24 season. The Eastern Bering Sea Tanner crab stock has been far more cyclical and has gone through cycles of being declared overfished and rebuilt, with fishery closures in 1997 to 2005 and then again between 2010 and 2012. The WAG and EAG TACs have been relatively stable over time.

It is expected that the management structure of the CR Program has had a limited influence on the stock status of CR Program fisheries. The impact it does have is likely to be positive through longer soak times to reduce handling mortality, less discards due to the number of pots used more closely matching a person's available quota so it is less likely pots need to be dumped at the end of a season, and less ghost fishing by lost or abandoned gear.

3.2 World Markets

The BSAI crab fishery participants compete in the world crab market. Many of the same or similar species of king, Tanner, and snow crab are harvested in large quantities in other countries. Both Russia and Canada have recently had much higher levels of production of snow crab than the U.S.32. While Russian imports into the U.S. are limited by trade restrictions, it was generally accepted that substantial quantities of its production enter the U.S. during 2022 and 2023 after transiting through other countries33. Executive Order 14068 through its amendment on December 22, 2023, addresses that loophole and is intended to prevent Russian seafood products from entering the U.S. market through other countries34. As a result of these factors before 2024, even with low U.S. production, the markets have recently been weak for U.S. supply because global snow crab inventories have been high.

Russian exports of crab declined by almost 14 percent in 2022. However, all the largest importers of Russian crab showed increasing imports with China up by 26 percent to 21,047 mt, the Republic of Korea up by 24 percent to 16,678 mt, and Japan up by 24 percent to 13,002 mt. The Western ban on trade with

[32] https://us19.campaign-archive.com/?u=6ba7da976e04a02c8e2e763c6&id=db80b69a83

[33] https://www.pbs.org/newshour/economy/how-leaks-in-a-u-s-ban-on-russian-seafood-is-undermining-efforts-to-stop-putins-war-machine

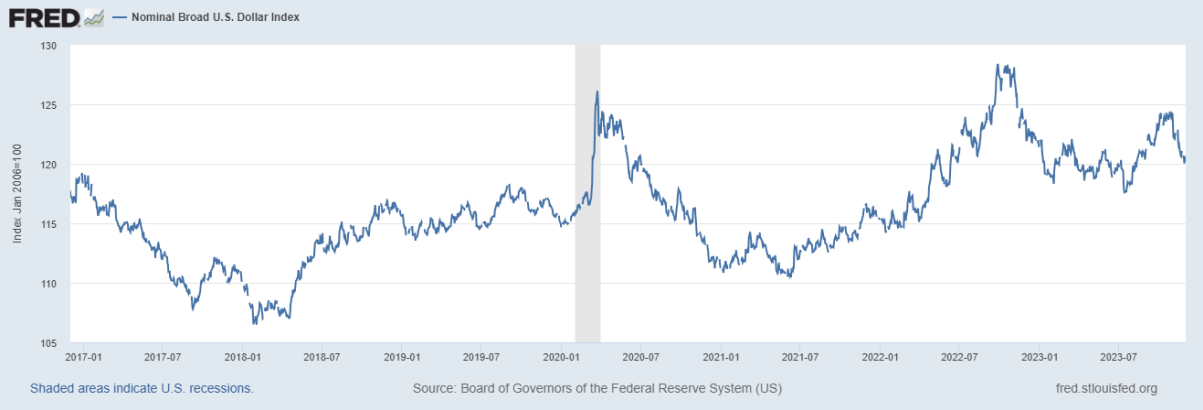
[34] https://www.whitehouse.gov/briefing-room/presidential-actions/2023/12/22/executive-order-on-taking-additional-steps-with-respect-to-the-russian-federations-harmful-activities/

the Russian Federation has caused Russian exporters to look for new markets. Those exporters are increasingly targeting Asia and the Near East for their crab exports.

3.2.1 Strong U.S. Dollar

A strong U.S. dollar (Figure 3-1) tends to advantage U.S. consumers that purchase imported goods and disadvantages producers that sell products into foreign markets or compete against cheaper imports. The Nominal Broad-Dollar Index is a measure of the dollar's value relative to the currencies most commonly used for U.S. imports and exports. The index reached an all-time high of 128.32 in September 2022. Goods produced abroad and imported to the United States will be cheaper if the manufacturer's currency falls in value compared to the dollar. If the dollar continues to be relatively strong, import prices will likely remain low. Companies based in the United States that conduct a substantial portion of their business outside the U.S. will be negatively impacted as the income they earn from foreign sales decreases in value.

Figure 3-1 Nominal broad U.S. dollar index



Source: Board of Governors of the Federal Reserve System (US), Nominal Broad U.S. Dollar Index [DTWEXBGS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DTWEXBGS, December 6, 2023.

3.2.2 Supply and Demand

A Food and Agriculture Organization (FAO) report[35] showed that global snow crab quotas for the 2023 season totaled 160,000 mt. The 2023 quotas for Canadian snow crab, Russia and Norway rose, despite the Alaska snow crab fishery being closed for the 2022/2023 fishing year. However, consumer demand appeared to be weaker, keeping prices low. The combined global snow crab quotas for 2023 are the highest since 2012. Canada's Department of Fisheries and Oceans (DFO) increased the Southern Gulf of Lawrence quota by 8.3 percent, to 35,216 mt, and an 8.4 percent increase in the quota for Newfoundland and Labrador, to 54,727 mt. Combined with other smaller snow crab fisheries, Canada's total quota will amount to 103,000 mt. In addition, the Russian Federation has set the quota for 2023 at 47,825 mt and Norway has increased its snow crab quota by 15 percent to 7,790 mt.

It was reported that not all Canadian crab processors are in favor of the quota increase due to excess supply. Some have asked to forego the increases because of the abundance of frozen inventory left over from 2022 and depressed prices in the wholesale market. The FAO report also noted that snow crab prices in the US fell from $19.00 per pound in January 2022 to $7.50 per pound in January 2023, and sales were

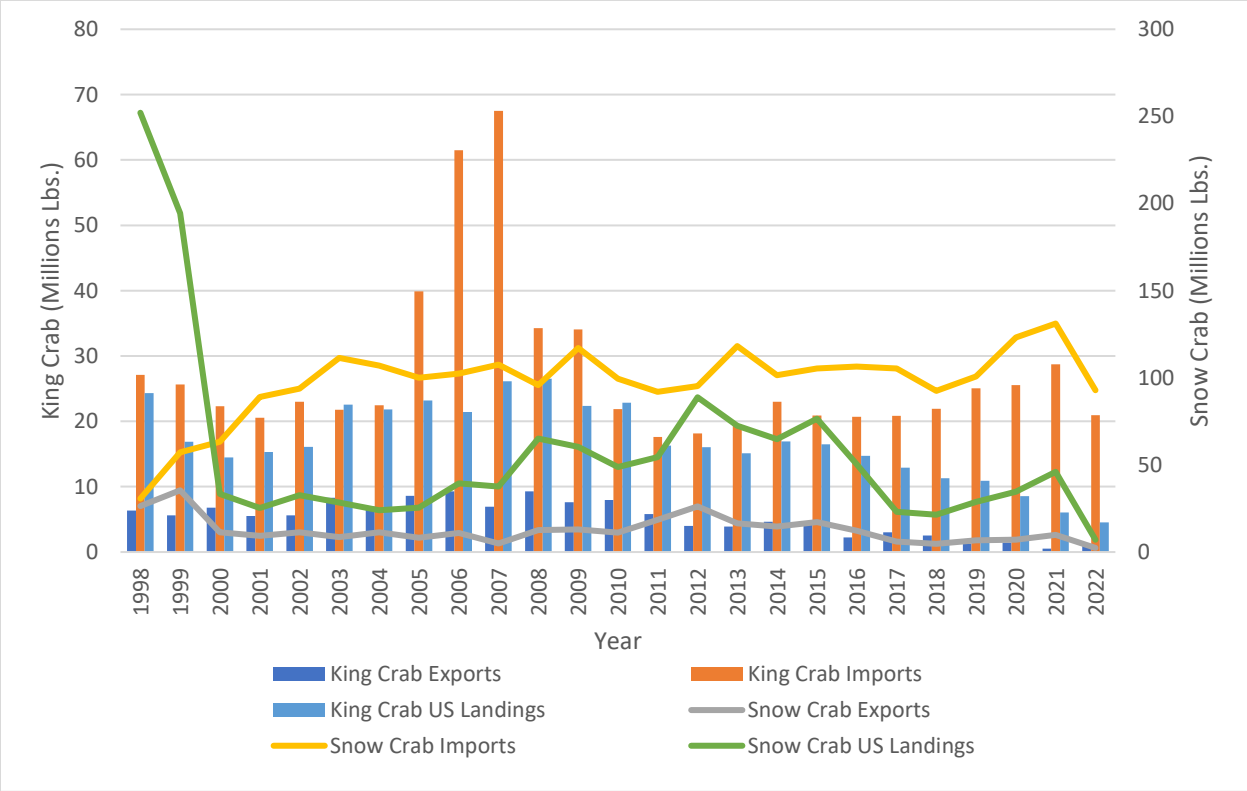
[35] https://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1637995/

slow through mid-year 2023. In general, the market for Canadian snow crab was unstable and there were reported price disputes between harvesters and processors.

3.2.3 International Trade

A summary of the king crab and snow crab BSAI harvest, US imports, and US exports are presented in Figure 3-2. Snow crab imports increased, associated with the sharp decline in harvest, in the years before implementation of the CR Program and was somewhat stable from2001 through 2019. From 2019 through 2021 (the most recent year of available data in the report), harvest, exports, and imports all increased, with import increases outpacing the growth of both exports and harvests. Harvest, exports, and imports all fell in 2022. In terms of king crab, imports have tended to range from 40 million to 60 million lbs., with the years just after implementation of the CR Program being outliers. Those three years imports ranged from under 80 million lbs. to over 120 million lbs. Domestic king crab harvest declines in recent years have yielded corresponding increases in imports, except 2022, and decreases in exports to meet U.S. consumer demand.

Figure 3-2 King and snow crab reported BSAI landings, US imports, and US exports 1998 through 2022 (Million lbs.)



Source: NOAA Fisheries Supply data at https://www.fisheries.noaa.gov/foss/f?p=215:23:9617302741638:::::
Notes: Imports were converted to round (live) weight by multiplying fresh and frozen by 1.50; meat, 4.50; and canned, 5.00. Exports were converted to round (live) weight by multiplying frozen weight by 2.13 (believed to be mostly sections); meat,4.50; and canned, 5.33.

Other data for 2022 indicates that global imports of all crab species declined by 11.2 percent in 2022 compared to 2021, from 419,425 mt to 372,312 mt. The largest importer, the U.S., saw a 23.8 percent decline, while China, the second largest importer, registered a very small increase (0.7 percent). The U.S.

decline in imports may be linked to excess supply on the market and the impacts of COVID-19 on the world seafood market.

The largest supplier of crab to the U.S. was Canada, which accounted for over 47 percent of the total, followed by Indonesia with 15 percent of the total. In 2022, the U.S. imported a total of 45,996 tons of snow crab. Most of this came from Canada: 85 percent by volume and 87 percent by value. Imports from the Russian Federation dropped from 18,823 mt in 2021 to just 2,498 mt in 2022. The third largest supplier, Norway, also saw a decline in shipments to the US market, from 3,282 mt in 2021 to 1,474 mt in 2022.

4 STOCK STATUS AND BIOLOGICAL INDICATORS

4.1 Stock Status

There are 10 crab stock assessments conducted for the BSAI crab fisheries managed under the FMP. The FMP considers some crab stocks as one unit for stock assessment purposes but manages the stock as two fisheries. For example, EAG and WAG are assessed as one stock and have historically been managed as distinct fisheries east and west of 174° W longitude with separate TACs. Under the CR Program, the EBT stock was split into two distinct fisheries through Amendment 20. Conversely, PIK are managed as one fishery, with one TAC, but are assessed as separate stocks. Additionally, three of the stocks managed under the FMP are not part of the nine fisheries identified in the CR Program (as listed in Section 2.3). The 10 Federal crab stocks assessed are:

- Eastern Bering Sea snow crab
- Bristol Bay red king crab
- Saint Matthew Island blue king crab
- Eastern Bering Sea Tanner crab*, managed as two rationalized fisheries*
- Aleutian Islands golden king crab*, managed as two rationalized fisheries*
- Pribilof Islands red king crab, *managed with PI blue king crab in rationalized fishery*
- Pribilof Islands blue king crab*, managed with PI red king crab in rationalized fishery*
- Western Aleutian Islands red king crab*, rationalized west of 179° W longitude*
- Pribilof Islands golden king crab*, not rationalized*
- Norton Sound red king crab*, not rationalized*

This section provides a brief overview of the status of the nine CR Program crab fisheries relative to these stock assessments and TACs. More detailed information on BSAI crab stock status can be found in the annual SAFE report (NPFMC 2023).

The domestic red king crab fishery in Bristol Bay began to expand in the late 1960s and peaked in 1980 with a directed pot catch of 129.9 million pounds. The catch and abundance declined dramatically in the early 1980s, resulting in a fishery closure two years later. Abundance remained at moderate to low levels during the last four decades and ADF&G closed the fishery during the 2021/2022 and 2022/2023 crab seasons. The BBR stock assessment uses the General model for assessing crustacean stocks (GMACS)[36] framework which implements a size and sex structured stock assessment model that is updated annually with data from the NMFS eastern Bering Sea trawl survey, landings of commercial catch, at-sea observers, and dockside samplers. This assessment continues to be among the most data-rich crab assessments[37] for the federally managed BSAI crab stocks.

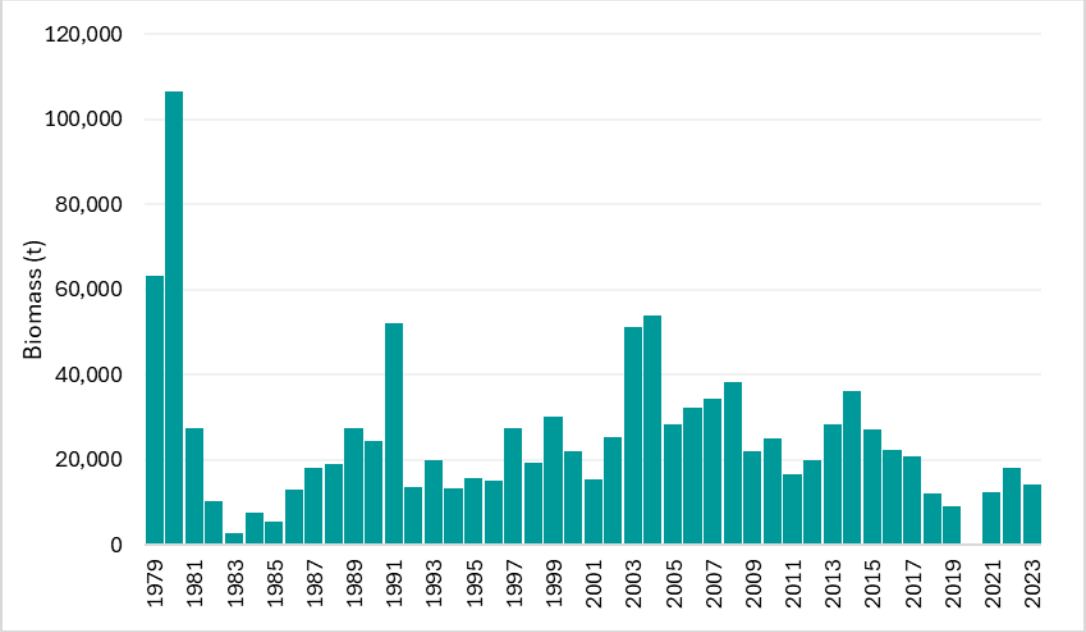
The total survey biomass increased from 1975 to a high in 1980, fell to a low in 1985, generally increased through 2008, and has generally declined since. The legal male surveyed biomass follows a similar trend (Figure 4-1). Estimated recruitment was high during the 1970s and early 1980s and has been low since 1985, with extremely poor recruitment since 2013. The near-term outlook for this stock is a continued

[36] Generalized model originally designed for Alaska crab stocks. GMACS is a generalized modelling framework for developing size-structured stock assessment models. It is an open source program developed using AD Model Builder (ADMB). https://seacode.github.io/gmacs/

[37] Bristol Bay red king crab has been determined by the SSC to be in Tier 3 of the BSAI Crab Tier System, indicating that reliable estimates of *B (biomass)*, F_{MSY} (a harvest strategy which, if implemented, would be expected to result in a long-term average catch approximating maximum sustainable yield (MSY)), and B_{MSY} (the biomass that results from fishing at constant F_{MSY} and is the minimum standard for a rebuilding target when a rebuilding plan is required) or their respective proxy values, are available.

gradual declining trend that is likely to result in more closed seasons unless recruitment increases. ADF&G closed the fishery in 2021/2022 and 2022/2023 due to the stock not meeting the State's harvest strategy threshold for a fishery and opened the fishery with a small TAC in 2023/2024. The stock assessment estimated mature male biomass at 95 percent of the target biomass value for Maximum Sustainable Yield (BMSY) in 2022/2023.

Figure 4-1 Annual Bristol Bay red king crab legal male biomass from the eastern Bering Sea trawl survey, 1979-2023.

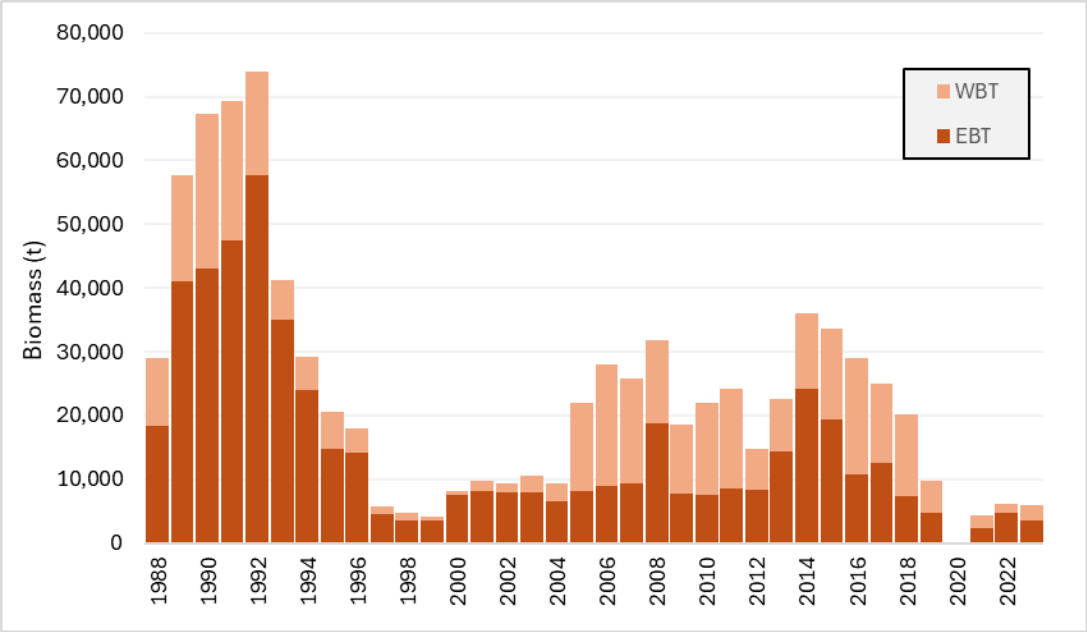


Source: Zacher, et al., 2024.

The BST stock is considered a single stock and since 2005/2006, has been managed as two fisheries with separate TACs, east and west of 166° W longitude. NMFS declared the stock overfished in 1999 and 2012, due to low abundance which resulted in fishery closures. ADF&G closed the EBT and WBT fisheries from 1997 to 2005, EBT was closed in 2005/2006 and the WBT fishery was open that year, WBT was closed in 2009/2010, and both fisheries were closed from 2010/2011 to 2012/2013. Both fisheries were again closed during the 2016/2017 and 2019/2020 crab seasons with the EBT closed from 2016/2017 to 2021/2022. These fishery closures generally follow the trends in biomass estimates from the eastern Bering Sea trawl survey with low abundance in both areas from 1997 to 2004, 2009 to 2013, and relatively low abundance since 2016 (Figure 4-2).

TACs in the EBT and WBT fisheries are set based on an industry preferred size which is slightly larger than the legal size in regulation. Setting TACs based on the industry preferred size prevents the overexploitation of larger males that could occur if TACs were based on legal male biomass. Since 2012, an annually updated size and sex specific stock assessment model has been used to estimate stock size. The stock is currently considered to be in a healthy condition and estimated to be well above B_{MSY}. Nevertheless, estimates of recruitment since 1999 have been generally low relative to the peaks estimated for the period before 1990 and estimates of recruitment in the last ten years are below the 1982 through 2022 average.

Figure 4-2 Annual male biomass estimates for Eastern and Western Bering Sea Tanner crab from the eastern Bering Sea trawl survey, 1988-2023.

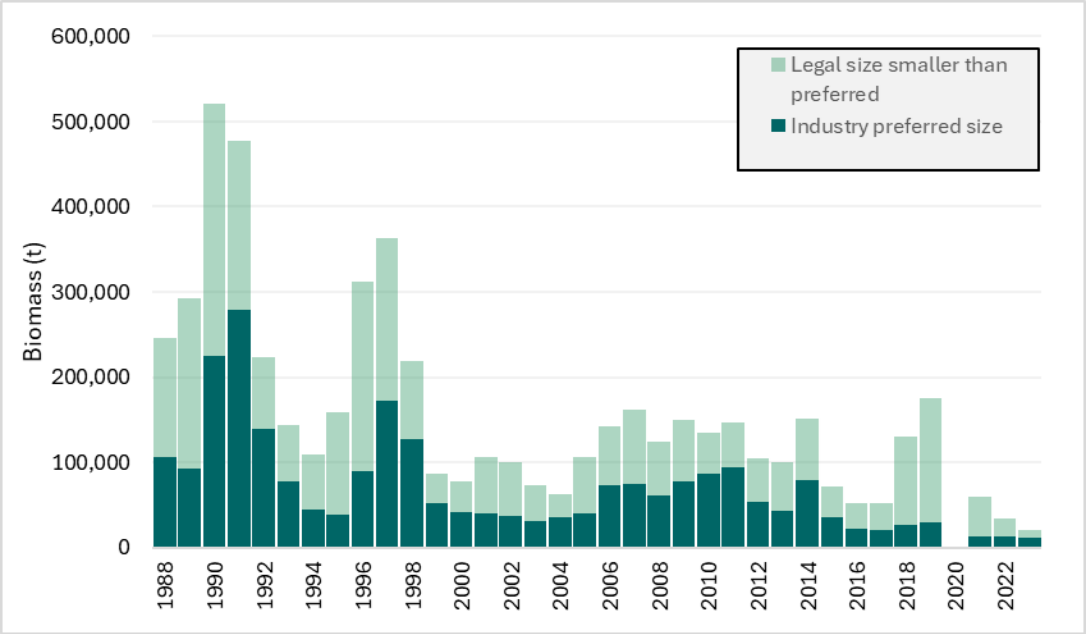


Source: Zacher, et al., 2024

The BSS fishery historically harvested the largest volume of crab of all the BSAI crab fisheries. This stock is also one of the more information rich BSAI crab stocks and uses a size and sex structured GMACS model that is annually updated with commercial catch data, survey data, bycatch data, and size composition data. Similar to Bering Sea Tanner crab, the legal size for snow crab is smaller than the industry preferred size, so TACs are based on the biomass of industry preferred size crab and not the legal-size biomass. As shown in Figure 4-3, the estimated legal-size biomass can make up a significant proportion of the total male biomass compared to the biomass of industry-preferred size crabs.

Stock status for BSS has fluctuated over the years and NMFS first declared the stock overfished in 1999. Mature male biomass slowly increased after 1999, resulting in the stock being rebuilt in 2011. Observed mature male biomass declined to a low in 2016 then increased until 2020 when the stock collapsed and NMFS again declared the stock overfished in 2021. This stock collapse resulted in a very small TAC for the 2021/2022 season and the closure of the directed fishery beginning with the 2022/2023 season. Scientists have linked the stock collapse to a marine heatwave in the eastern Bering Sea during 2018 and 2019, which increased the caloric needs of snow crab while reducing available food. This period coincided with very high snow crab abundance and the crab effectively starved (Szulwalski et al., 2023). The mature male biomass in 2023 was estimated to be the lowest in the time series and at 59 percent of B_{MSY}. While no longer in an overfished status, the stock remains under a rebuilding plan.

Figure 4-3 Annual snow crab industry preferred size and legal male biomass from the eastern Bering Sea trawl survey, 1988-2023.

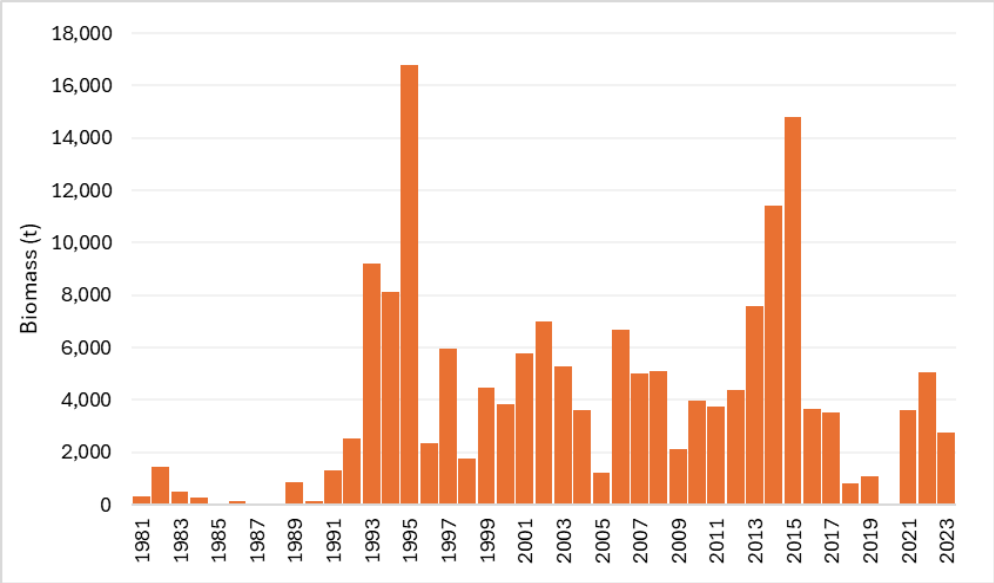


Source: Zacher, et al., 2024

Pribilof Islands red king crab and blue king crab are separate species and stocks but are managed as one fishery under the CR Program. Beginning in 1995, a combined red and blue king crab GHL was established by the Board of Fisheries. Poor fishery performance when the fishery was last open from 1996 through 1998 resulted in annual harvest below the GHL and the fishery has been closed since 1999. The fishery has remained closed due to uncertainty in estimated red king crab abundance and concerns for bycatch mortality of blue king crab, which is overfished and severely depressed. The red king crab stock has very rarely produced an abundant fishery in the Pribilof Islands area. The Pribilof Islands blue king crab stock was declared overfished in 2002, overfishing was also declared on this stock in the 2015/16 crab year, and since that time has failed to demonstrate progress toward rebuilding (see Section 4.4).

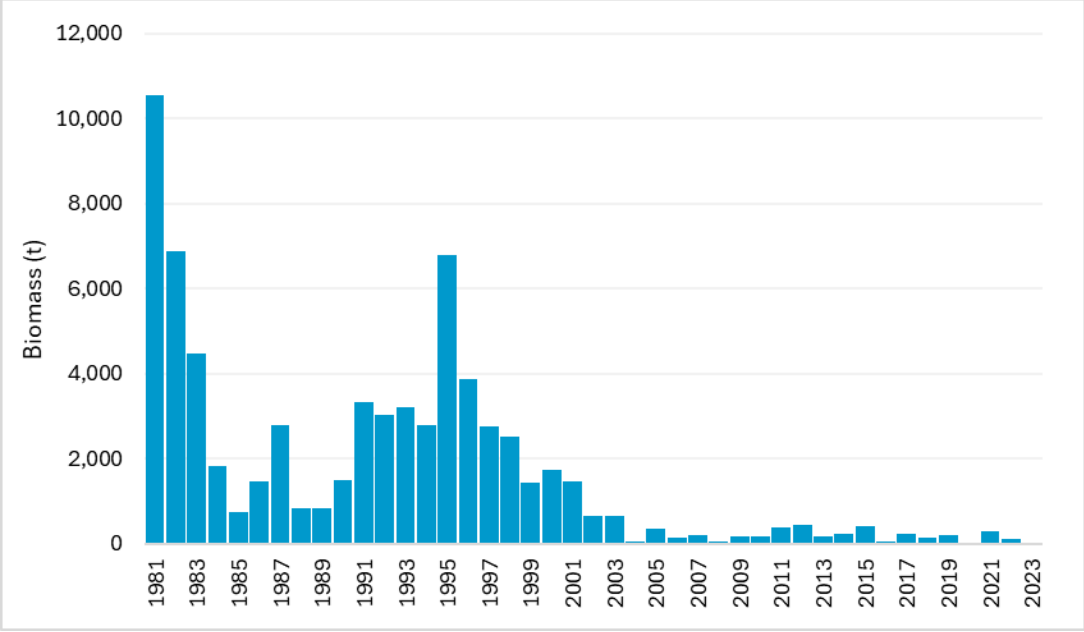
The Pribilof Islands red king crab stock is assessed with a GMACS model which is updated triennially while the Pribilof Islands blue king crab stock is assessed biennially using a random effects model applied to survey data from the annual Eastern Bering Sea trawl survey. The Pribilof Island red king crab stock trawl survey abundance estimates have fluctuated dramatically leading to concerns regarding the uncertainty in trawl survey estimates for this stock while the Pribilof Islands blue king crab stock abundance continues to be depressed with limited signs of recruitment (Figure 4-4 and Figure 4-5).

Figure 4-4 Annual Pribilof Islands red king crab legal male biomass from the eastern Bering Sea trawl survey, 1981-2023.



Source: Zacher, et al., 2024

Figure 4-5 Annual Pribilof Islands blue king crab legal male biomass from the eastern Bering Sea trawl survey, 1981-2023.

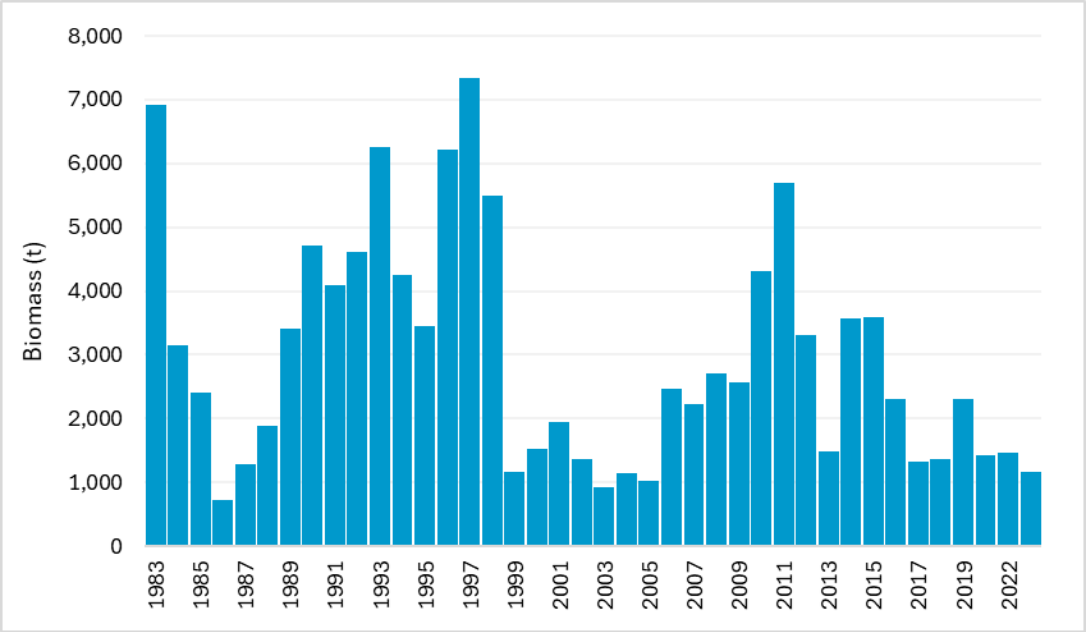


Source: Zacher, et al., 2024

NMFS first declared the SMB stock overfished in 1999. After a 10-year fishery closure the stock was declared rebuilt in 2009 and the fishery was opened from 2009/2010 to 2012/2013, and again in 2014/2015 and 2015/2016 (see Section 4.4). The stock was again determined to be overfished in 2018 and currently remains in an overfished status at 40 percent of B_{MSY}. The Council adopted a rebuilding plan in June 2020. Overall, the biomass has been variable throughout the time series, and low recruitment seems

to be limiting rebuilding (Figure 4-6). Directed fishing has not occurred since 2015/2016 and bycatch in other fisheries is minimal. The stock is assessed biennially using a GMACS model updated with commercial catch data, survey data, bycatch data, and size composition data.

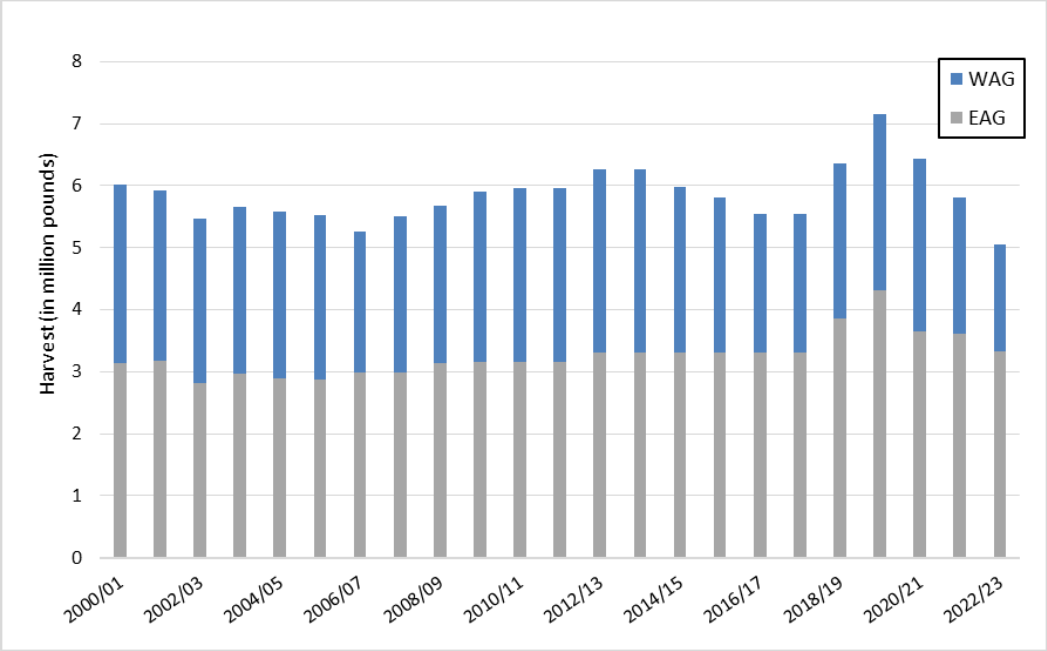
Figure 4-6 Annual Saint Matthew Island blue king biomass from the eastern Bering Sea trawl survey, 1983-2023.



Source: Zacher, et al., 2024

The AIG stock is modeled separately east and west of 174° west longitude using GMACS implementing a male only size structured model based only on fishery dependent data. Since the last program review, a reliable estimate of the biomass has been developed and in 2016, the SSC moved the stock from Tier 5, with no reliable estimates of biomass, to Tier 3. Before the development of a stock assessment model, TACs for the EAG and WAG fisheries were set based on the previous five-year average catch which resulted in relatively stable TACs over time (Figure 4-7). Estimates of mature male biomass in the EAG have generally been increasing since the 1990s while estimates of mature male biomass in the WAG have been more variable. The stock is currently estimated to be at 117 percent of B_{MSY}.

Figure 4-7 Annual WAG and EAG harvest, 2000/2001-2022/2023.



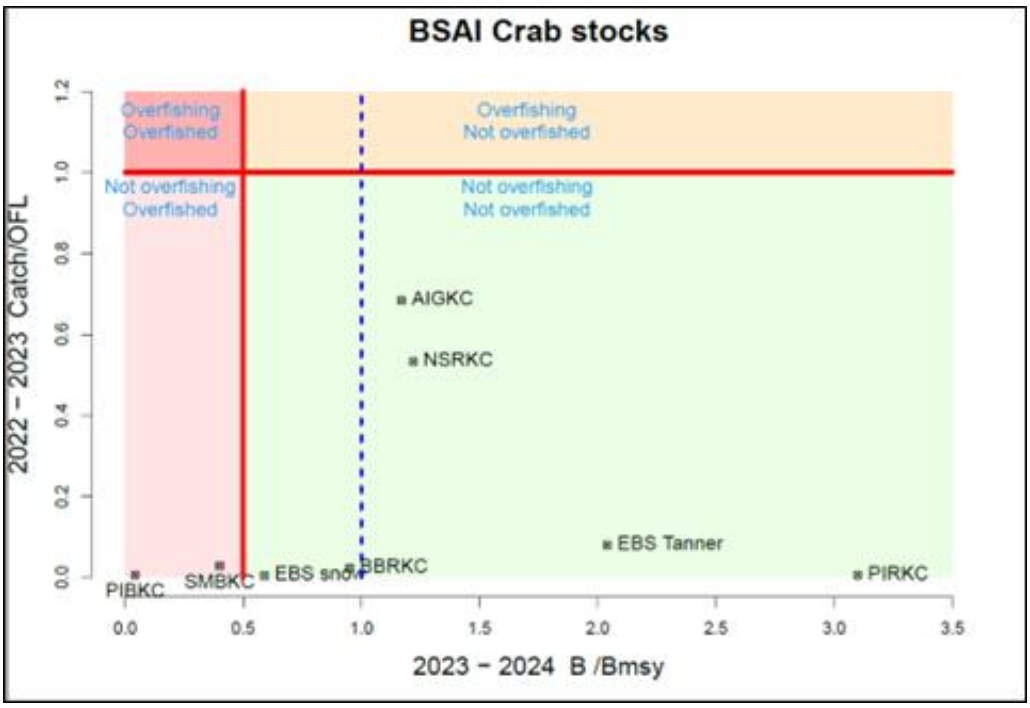
Source: ADF&G Fish ticket database.

The Western Aleutian Islands red king crab stock is a Tier 5 stock, with no reliable biomass estimate or approved model-based stock assessment. The western stock, west of 171° W longitude, is in the FMP. There are two western Aleutian Islands red king crab fisheries; the Petrel District, west of 179° W longitude, is part of the CR Program and the Adak District between 171° W and 179° W longitude is not rationalized.

Retention of red king crab in the western Aleutian Islands has been permitted only sporadically since 1995 and the entire western Aleutian Islands has been closed to fishing for red king crab since the 2004/2005 season. ADF&G conducted pot surveys on Petrel Bank in 2001, 2006, and 2009, with limited crab encountered in these surveys. An exploratory survey conducted in 2015 also encountered limited crab in the area. In 2022/2023 an estimated 88 pounds were caught as bycatch in other fisheries. Since there is no reliable biomass estimate for this stock, the stock status is unknown and harvest specifications are set based on a historical average.

Figure 4-8 visually represents each stock in relation to the stock status determination criteria for eight of the nine CR Program stocks. In 2023/2024, overfishing did not occur for any BSAI crab stocks; however, SMB and Pribilof Islands blue king crab are currently overfished and BSS, while no longer in an overfished status, continues to rebuild. Under the rebuilding plans for these three stocks, the stock is considered rebuilt when the biomass equals B_{MSY}. Overfished status for Western Aleutian Islands red king crab is unknown because there is no reliable estimate of biomass.

Figure 4-8 Status of eight Bering Sea crab stocks in relation to status determination criteria (BMSY, MSST, overfishing) for the 2023/2024 season.



4.2 Harvest Above the Catch Limits and TAC Utilization

Catches exceeding harvest targets were difficult to prevent in the derby-style fisheries that predated the CR Program. Even with good in-season assessment and catch reporting, a large efficient fleet can quickly surpass a harvest target when they locate high concentrations of crab. Between 2000 and 2005, the GHL for BBR was exceeded in two out of five years; the GHL for BSS was exceeded in five out of six years; and the GHL for AIG was exceeded in two out of five years. Since the implementation of the CR Program beginning with the 2005/2006 season, the TACs for these fisheries have never been exceeded (Table 4-1).

There have been instances since the implementation of the CR Program when the fleet did not fully harvest the TAC. Vessels harvested less than half of the Bering Sea Tanner crab TAC during the first five years of the CR Program, likely due to several factors including season overlap with the more valuable BSS crab fishery. In the AIG and SMB fisheries, the TAC has been underutilized in some years due to lower-than-expected catch rates combined with higher participation costs when traveling to the western Aleutian Islands and Saint Matthew Island areas.

Table 4-1 GHL or TAC, and harvest for IFQ crab fisheries, 2000 through 2023/2024 in millions of pounds.

Season	BBR		BSS		AIG		BST		SMB	
	GHL/TAC	Harvest	GHL/TAC	Harvest	GHL/TAC	Harvest	GHL/TAC	Harvest	GHL/TAC	Harvest
2000	7.7	7.5	26.4	30.8	5.7	6.0	Closed		Closed	
2001	6.6	7.8	25.3	23.4	5.7	5.9				
2002	8.6	8.9	28.5	30.2	5.7	5.5				
2003	14.5	14.5	23.7	26.2	5.7	5.7				
2004	14.3	14.1	19.3	22.2	5.7	5.6				
2005	no season		19.4	23.0	no season					
2005/2006	16.5	16.5	33.5	33.3	5.1	5.0	1.5	0.8		
2006/2007	13.9	13.9	32.9	32.7	5.1	4.7	2.7	1.9		
2007/2008	18.3	18.3	56.7	56.7	5.1	4.9	5.1	1.9		
2008/2009	18.4	18.3	52.7	52.7	5.4	5.1	3.9	1.7		
2009/2010	14.4	14.3	43.2	43.2	5.4	5.3	1.2	1.2	1.1	0.1
2010/2011	13.4	13.3	48.9	48.9	5.4	5.4	Closed		1.4	1.1
2011/2012	7.1	7.1	80.0	79.9	5.4	5.4			2.1	1.7
2012/2013	7.1	7.1	59.7	59.6	5.7	5.6			1.5	1.5
2013/2014	7.7	7.7	48.6	48.6	5.7	5.6	2.8	2.5	Closed	
2014/2015	9.0	9.0	61.2	61.1	5.7	5.4	13.6	12.1	0.6	0.3
2015/2016	9.0	9.0	36.6	36.6	5.7	5.2	17.7	17.5	0.4	0.1
2016/2017	7.6	7.6	19.4	19.4	5.0	5.0	Closed		Closed	
2017/2018	5.9	5.9	17.1	17.1	5.0	5.0	2.3	2.2		
2018/2019	3.9	3.9	24.8	24.8	5.7	5.7	2.2	2.2		
2019/2020	3.4	3.4	30.6	30.6	6.5	6.4	Closed			
2020/2021	2.4	2.4	40.5	40.3	5.9	5.8	2.1	1.3		
2021/2022	Closed		5.0	4.9	5.3	5.2	1.0	1.0		
2022/2023			Closed		4.5	4.5	1.8	1.8		
2023/2024	1.9	1.9			5.0	5.0	1.9	1.9		

Source: ADF&G fish ticket database 2024
Table notes: For seasons before 2005/2006, seasons are designated by the year in which they opened before the CR Program. All GHL/TACs and harvests are for the IFQ fishery and exclude CDQ.

4.3 Improvements in Data Quality

4.3.1 Data Collection

New recordkeeping and reporting regulations implemented with the CR Program have improved in-season fishery data collection. All vessels are required to complete daily fishing logbooks.[1] This has increased the consistency of reporting among participants and improved summaries of catch and effort data by fishing location collected by observers and dockside samplers at the time of landing. Federal regulations also require Registered Crab Receivers to use eLandings, an interagency electronic reporting system, for crab landing reports. The system has built-in error checking, such that users can only enter valid values. In this way, most processor entry errors are caught immediately.

The slower pace of the crab fisheries also contributes to data improvements. Sampling paperwork is completed, entered, and edited more promptly. Longer seasons provide additional in-season opportunities to instruct dockside staff and vessel-based observers, which also contributes to higher quality data. The slower fishery pace has contributed to efficiencies in observer data collection which frees up capacity for observers to participate in data collection for special projects. Some of these special projects have included short-term mortality holding experiments to improve estimates of discard and handling mortality, recording male chela height to help inform size at maturity information used in stock

assessments, mature female, and egg clutch collections for use in assessing reproductive potential, and collection of crab hemolymph i.e., blood, to assess bitter crab disease.

4.3.2 Fishery Foundations

Progress towards developing collaborative research programs between the crab industry and management agencies was slow before the CR Program. Along with the CR Program came the formation of industry-funded research foundations starting with the Bering Sea Fisheries Research Foundation (BSFRF) in 2003. Crab industry leaders formed BSFRF to support collaborative research projects aimed at improving the management of Bering Sea crab fisheries.

Voluntary contributions from Bering Sea and Aleutian Island crab industry members have historically provided the majority of funding for BSFRF and these contributions have been severely impacted by the recent collapse of the snow crab fishery and closure of the Bristol Bay red king crab fishery. Other important funds for BSFRF research have come from North Pacific Research Board grants, Alaska community support funds, and marine trade support industries. BSFRF has worked with managers from NMFS and ADF&G, as well as researchers at the University of Alaska Fairbanks and the University of Washington to advance the scientific information used in the annual assessments of Bering Sea crab stocks. Recent research projects include crab surveys, crab movement, bycatch, habitat, recruitment limitation, and predation. Tagging and movement research is a multi-year effort that is currently focused on Bristol Bay red king crab. The first year of the cooperative BSFRF, ADF&G, and NOAA pot sampling project (CPS1) occurred in March/April of 2023, followed by CPS2 in March/April 2024. CPS2 included a trawl sampling component, parallel to the pot survey, to better understand biases in sex ratios and potential for pot shyness.

Other recent research collaborations have included:

- Growth rate of Tanner and snow crab. This study looks at how much crabs grow between molts to improve upon the limited samples of growth per molt that are available from Bering Sea crabs. Fishing vessels were chartered for sampling on the Bering Sea shelf during the spring to collect pre-molt snow and Tanner crab for live holding in both Dutch Harbor and Kodiak. The growth per molt has proven to be a critical population parameter that informs the annual status estimates of these crab stocks. Improving the understanding of growth for snow and Tanner crab is expected to improve the stock assessments, management, and sustainability of these commercially important stocks over time.

- One of BSFRF's most well-integrated projects was the completion of a multi-year management strategy evaluation of Tanner crab. BSFRF supported the research of a master's student at the University of Washington in the development of a Management Strategy Evaluation (MSE) of *bairdi* Tanner crab. A critical component of this research included several meetings with a diverse stakeholder working group (ad hoc Bairdi Committee). The ad hoc Committee received updates and provided input to the MSE. The Committee also verified whether the harvest and economic considerations from the MSE results met expectations of potential outcomes for management consideration. The Tanner crab MSE was published in a peer reviewed journal and ADF&G and the Board of Fisheries used this work to revise the harvest control rules in the State's Bering Sea Tanner crab Harvest Strategy.

- BSFRF supported the research of a doctoral student in the College of Fisheries and Ocean Sciences at the University of Alaska Fairbanks, who transcribed crab vessel logbook data from 2005 through 2016 for analysis and mapping purposes. Results from this work found that areas of

higher abundance of BBR shifted seasonally and were different in the logbook data collected during fall harvest season than in the summer trawl data collected by NOAA annually. Temperature was found to be an important predictor for fall crab distribution and these results support the assumption that trawl closure areas are protecting red king crab. Logbook data from the most recent open seasons has been included in ongoing review and analyses.

In 2012, quota shareholders in the AIG fishery formed the Aleutian King Crab Research Foundation (AKCRF). Many of these individuals also hold quota shares for the Aleutian Islands red king crab fishery. The goal of the Foundation is to promote scientific research activities essential for the management and conservation of Aleutian Islands king crab. The structure of the CR Program has promoted the development of a fishery-based cooperative survey for the AIG stock. Pilot surveys for golden king crab began in the EAG and WAG in 2014. In August 2015, a fully developed stratified random survey design was successfully implemented in the EAG fishery. This approach was extended to the WAG fishery with pilot surveys beginning in 2016 and a more fully developed survey in 2018. Vessels did not conduct the cooperative survey during the 2020/2021 season due to COVID-19, but the survey was resumed in 2021/2022.

In 2015, AKCRF collaborated with ADF&G and the Adak Community Development Corporation on a "reconnaissance" survey for red king crab in the waters of the Adak District. Exploratory red king crab survey work in the Petrel District was conducted in 2016. Both pot surveys resulted in very low catches of legal male red king crab indicating the stock remains at a low level.

Relatively little information exists on the stock status and basic life history of these animals, especially golden king crab. To help gain biological information essential to understanding these crabs, AKCRF has provided several small shipments of live golden king crab to the NOAA Fisheries lab in Kodiak for a variety of research, including handling mortality, ocean acidification impacts, and growth studies.

4.4 Abundance of Overfished Stocks

Section 304(e)(3)(A) of the Magnuson-Stevens Act requires the Council to implement a plan to rebuild stocks that are determined by NMFS to be overfished to a level that can support maximum sustainable yield. The Council was managing the BSS, Bering Sea Tanner crab, Pribilof Islands blue king crab, and SMB stocks under rebuilding plans when the CR Program was implemented. As of 2023, the Bering Sea Tanner crab stock has been rebuilt and the Pribilof Islands blue king crab stock remains overfished. Both the SMB and BSS stocks were rebuilt and after several years were again declared by NMFS to be overfished.

NMFS declared Bering Sea Tanner crab stock overfished on March 3, 1999, because the spawning biomass estimated from the NMFS trawl survey was below the minimum stock size threshold of 94.8 million pounds specified in the FMP. The Council developed a rebuilding plan in October 1999 that contained three components to improve the status of the Tanner crab stock: a harvest strategy, bycatch control measures, and habitat protection measures. In 2007, NMFS determined that the stock was rebuilt. In early 2012, NMFS declared the stock overfished because the estimated mature male biomass fell below the minimum stock size threshold, which was based on a Tier 4 harvest control rule. Later in 2012, NMFS determined that the stock was no longer overfished based on a new Tier 3 assessment model. Since then, the stock has remained above its Tier 3 minimum stock size threshold and has not been considered overfished by federal standards.

NMFS declared BSS overfished on September 24, 1999, because the spawning biomass estimated from the NMFS trawl survey was below the minimum stock size threshold of 460.8 million pounds specified in the FMP. The Council developed and implemented a rebuilding plan in 2000, Amendment 14, and the stock was determined by NMFS to be rebuilt in 2011. In 2021, NMFS declared the stock overfished for a second time following an extreme mortality event caused by a marine heatwave in the Bering Sea from 2018 through 2020. The Council adopted a rebuilding plan, Amendment 53, in 2023. ADF&G has not reopened the fishery since the 2020/2021 season because the estimated spawning biomass has been below the State's regulatory threshold for opening the fishery. As of 2024, the stock is no longer overfished but has not yet rebuilt to B_{MSY} and is still under a rebuilding plan.

NMFS declared SMB overfished on September 24, 1999, because the spawning biomass estimated from the NMFS trawl survey was below the minimum stock size threshold of 11 million pounds specified the FMP. The Council's rebuilding plan was implemented in 2000 under Amendment 15. The rebuilding plan included a regulatory harvest strategy established in Alaska Administrative Code (AAC) regulation by the Alaska Board of Fisheries (5 AAC 34.917), area closures, and gear modifications. NMFS determined the stock was rebuilt in 2009. NMFS declared the stock overfished for a second time in 2018 and the Council adopted a rebuilding plan in 2020 under Amendment 50. ADF&G has not opened the fishery since the 2015/2016 season because the survey estimate of mature male abundance has been below the State's regulatory threshold for opening the fishery.

NMFS declared Pribilof Islands blue king crab stock overfished on September 23, 2002, because the spawning biomass estimated from the NMFS trawl survey was below the minimum stock size threshold. The Council adopted a rebuilding plan in 2003 under Amendment 17. ADF&G developed a rebuilding harvest strategy as part of the comprehensive rebuilding plan, which included closing the directed fishery until the stock was rebuilt. In 2009, NMFS determined the stock would not meet its 10-year rebuilding horizon of 2014 and the Council adopted a revised rebuilding plan under Amendment 43. This amendment modified the prior rebuilding plan to incorporate new information on the likely rebuilding timeframe for the stock, taking into account environmental conditions and the status and population biology. Amendment 103 to the BSAI Groundfish FMP closes the Pribilof Islands Habitat Conservation Zone (PIHCZ) to pot fishing for Pacific cod to promote bycatch reduction on the stock. The Council adopted these amendments in 2012 and the Secretary of Commerce approved the amendments in early 2015. NMFS has closed the PIHCZ to trawling since 1995. ADF&G has taken commensurate measures and closed the area around the Pribilof Islands to directed BSS and BST fishing to avoid incidental catch of blue king crab in those directed crab fisheries.

4.5 Deadloss

Deadloss is the amount of dead crab landed at the dock. Deadloss also includes any illegal crab that cannot be processed or sold, such as illegal species, females, and undersized male crabs. All deadloss is discarded because it cannot be sold. If all deadloss is landed, it is an economic problem rather than a biological problem, because deadloss is deducted from the TAC and quota allocations[38]. Deadloss is exacerbated when vessels are not able to offload quickly, due to longer trips or extended wait times at the dock, as mortality of crab in the tank increases over time. Since deadloss is counted against quota allocations, this deadloss presents no biological risk. When compared to the period immediately preceding implementation of the CR Program, the rate of deadloss in the BSS crab fishery is slightly

[38] Unless it is a species not open to directed fishing. For example: if BSS is closed while fishing for EBT is open, the deadloss BSS does not have a TAC where it can be deducted.

lower post rationalization (Table 4-2). In the other CR Program fisheries, there has not been a significant change in the rate of deadloss pre and post rationalization.

Table 4-2 Deadloss in the CR Program fisheries, 2000 through 2022/2023.

Fishery	Season	Live catch (pounds)	Deadloss (pounds)	Deadloss per pound of catch
AIG	2000/01	5,909,604	109,157	0.018
	2001/02	5,825,157	93,549	0.016
	2002/03	5,374,929	87,526	0.016
	2003/04	5,540,501	125,327	0.022
	2004/05	5,487,915	87,136	0.016
	2005/06	5,462,483	57,835	0.01
	2006/07	5,205,404	56,938	0.011
	2007/08	5,461,672	46,428	0.008
	2008/09	5,629,267	50,817	0.009
	2009/10	5,838,692	73,595	0.012
	2010/11	5,857,603	111,246	0.019
	2011/12	5,901,085	63,331	0.011
	2012/13	6,132,698	135,061	0.022
	2013/14	6,149,663	122,912	0.02
	2014/15	5,893,792	95,877	0.016
	2015/16	5,689,234	124,945	0.021
	2016/17	5,389,678	154,135	0.028
	2017/18	5,430,578	112,330	0.02
	2018/19	6,252,610	102,839	0.016
	2019/20	7,039,536	108,137	0.015
	2020/21	6,348,920	94,170	0.015
	2021/22	5,724,176	79,622	0.014
	2022/23	4,983,754	66,521	0.013
BBR	2000	8,117,543	36,883	0.005
	2001	8,343,225	59,835	0.007
	2002	9,535,638	34,761	0.004
	2003	15,465,319	230,467	0.015
	2004	15,082,339	163,112	0.011
	2005/06	18,223,047	86,288	0.005
	2006/07	15,498,589	118,227	0.008
	2007/08	20,225,681	140,384	0.007
	2008/09	20,156,239	173,163	0.009
	2009/10	15,810,447	122,207	0.008
	2010/11	14,726,955	106,874	0.007
	2011/12	7,801,526	32,068	0.004
	2012/13	7,819,785	30,050	0.004
	2013/14	8,537,727	62,749	0.007
	2014/15	9,885,767	101,242	0.01
	2015/16	9,787,131	182,833	0.018
	2016/17	8,425,581	41,120	0.005
	2017/18	6,576,042	24,880	0.004
	2018/19	4,280,371	27,575	0.006
	2019/20	3,782,695	8,874	0.002
	2020/21	2,642,969	3,905	0.001
	2021/22	Closed		
	2022/23	Closed		

Fishery	Season	Live catch (pounds)	Deadloss (pounds)	Deadloss per pound of catch
BSS	2000	32,938,219	353,125	0.011
	2001	24,803,603	452,781	0.018
	2002	31,974,754	658,456	0.02
	2003	27,636,136	680,787	0.024
	2004	23,693,797	248,576	0.01
	2005	24,656,649	235,479	0.009
	2005/06	36,616,690	357,200	0.01
	2006/07	35,941,906	413,743	0.011
	2007/08	62,476,607	551,429	0.009
	2008/09	58,113,227	434,622	0.007
	2009/10	47,477,401	536,688	0.011
	2010/11	53,910,812	352,388	0.006
	2011/12	88,193,220	637,432	0.007
	2012/13	65,789,006	465,522	0.007
	2013/14	53,578,157	405,129	0.008
	2014/15	67,344,946	596,641	0.009
	2015/16	40,232,279	379,167	0.009
	2016/17	21,320,441	250,474	0.012
	2017/18	18,790,904	172,569	0.009
	2018/19	27,310,040	268,204	0.01
	2019/20	33,607,478	417,075	0.012
	2020/21	44,137,564	863,626	0.019
	2021/22	5,476,893	71,345	0.013
	2022/23	Closed		
BST	2000-2005 Closed			
	2005/06	937,713	15,174	0.016
	2006/07	2,093,637	28,952	0.014
	2007/08	2,085,861	20,793	0.01
	2008/09	1,922,303	17,280	0.009
	2009/10	1,316,202	8,376	0.006
	2010/11-2012/13 Closed			
	2013/14	2,758,045	28,800	0.01
	2014/15	13,547,718	156,709	0.011
	2015/16	19,469,645	172,733	0.009
	2016/17	Closed		
	2017/18	2,480,522	16,212	0.006
	2018/19	2,400,751	40,450	0.017
	2019/20	Closed		
	2020/21	1,424,209	25,334	0.017
	2021/22	1,078,311	11,396	0.01
	2022/23	1,994,657	18,841	0.009
SMB	2000-2008 Closed			
	2009/10	450,375	10,484	0.023
	2010/11	1,253,776	10,206	0.008
	2011/12	1,854,734	26,588	0.014
	2012/13	1,595,002	21,052	0.013
	2013/14	Closed		
	2014/15	303,030	5,552	0.018
	2015/16	105,010	1,439	0.014
	2016/17-2022/23 Closed			

Source: ADF&G fish ticket database 2024 Table notes: For seasons before the CR Program, seasons are designated by the year in which they opened. Data includes both IFQ and CDQ harvests.

4.6 High-grading and Discards

High-grading is the sorting of legal-size male crab to retain only the most valuable, typically the largest and/or cleanest crab and discarding the remaining legal crab to ensure that only the highest-priced portion of the catch is landed and counted against the IFQ. Because some of the legal to retain but discarded crab dies, high-grading can lead to additional fishing mortality of legal males that are not counted against IFQ allocations. High-grading may also affect the numbers of female and sublegal crab killed if discarding legal males requires more pot lifts to catch the IFQ. High-grading is generally driven by market preferences for clean shelled crab, as processors may pay less for or refuse to accept dirty, old shell crab although differential pricing has not been common since the last CR Program review.

New shell condition is particularly important in the Bering Sea Tanner crab and BSS fisheries. In these fisheries, processors prefer to purchase crab that are larger than legal size which is referred to as the 'industry preferred size'. The industry preferred size is driven by market conditions as larger crab have historically been more valuable and the markets are built around this size. In both these fisheries, the TAC is set based on the industry preferred size although there are no restrictions on retaining smaller crab that are legal size. Since the closure of the BSS fishery in 2022, processors have been more flexible with the preferred size of Bering Sea Tanner crab and have allowed some vessels to retain smaller legal crab compared to the industry preferred size.

It is difficult to estimate high-grading because there is limited observer data on the size of male discards. In the BBR fishery, the overall discard rate has declined slightly from a rate of 1.7 crab discarded for every crab retained before the CR Program to 1.5 crab discarded for every crab retained after the CR Program was implemented but this rate is variable (Table 4-3). The percentage of female crab discarded in the BBR fishery has declined from an average of 28 percent pre-CR Program to an average of 19 percent after implementation of the CR Program.

Table 4-3 Annual discards in the Bristol Bay red king crab fishery, 1990-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1990	3,135,382	4,347,676	1.4	39%	61%
1991	2,630,446	1,878,824	0.7	84%	16%
1992	1,201,129	4,509,104	3.8	49%	51%
1993	2,254,989	5,276,840	2.3	47%	53%
1994	Closed				
1995	Closed				
1996	1,266,048	375,594	0.3	97%	3%
1997	1,340,591	473,267	0.4	70%	30%
1998	2,241,489	8,012,851	3.6	69%	31%
1999	1,927,105	2,727,893	1.4	99%	1%
2000	1,272,382	2,619,653	2.1	69%	31%
2001	1,305,396	1,933,824	1.5	71%	29%
2002	1,498,574	1,775,954	1.2	96%	4%
2003	2,524,506	5,273,901	2.1	67%	33%
2004	2,272,184	3,550,358	1.6	76%	24%
2005	2,763,147	4,863,056	1.8	65%	35%
2006	2,507,242	2,607,389	1.0	90%	10%
2007	3,170,117	4,681,208	1.5	83%	17%
2008	3,087,182	5,337,295	1.7	86%	14%
2009	2,563,396	3,972,795	1.5	90%	10%
2010	2,409,958	2,820,963	1.2	83%	17%
2011	1,298,023	1,459,007	1.1	92%	8%
2012	1,175,756	685,990	0.6	93%	7%
2013	1,278,115	1,868,583	1.5	73%	27%
2014	1,529,272	2,894,163	1.9	88%	12%
2015	1,528,360	2,533,548	1.7	63%	37%
2016	1,281,227	1,750,756	1.4	72%	28%
2017	997,239	1,116,338	1.1	77%	23%
2018	629,925	1,773,716	2.8	62%	38%
2019	548,516	965,653	1.8	84%	16%
2020	455,263	763,024	1.7	91%	9%
2021	Closed				
2022	Closed				
Average pre-program	1,913,094	3,288,903	1.7	72%	28%
Average post-program	1,701,421	2,505,843	1.5	81%	19%

The overall discard rate of BSS has been relatively stable since implementation of the CR Program but beginning in 2015, the discard rate increased slightly in all years except 2020 (Table 4-4). The percent of BSS discards that are female are low and averaged 2 percent pre-CR Program and 3 percent post-CR Program.

Table 4-4 Annual discards in the Eastern Bering Sea snow crab fishery, 1990-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1990	265,124,637	139,144,254	0.5	87%	13%
1991	227,376,582	45,349,309	0.2	96%	4%
1992	169,531,168	63,872,828	0.4	96%	4%
1993	114,810,186	63,436,242	0.6	98%	2%
1994	Closed				
1995	Closed				
1996	100,013,816	74,475,109	0.7	99%	1%
1997	193,618,550	44,395,248	0.2	97%	3%
1998	151,183,798	21,945,814	0.1	100%	0%
1999	25,081,681	9,428,225	0.4	99%	1%
2000	18,612,605	8,685,779	0.5	100%	0%
2001	25,155,221	13,670,841	0.5	98%	2%
2002	23,252,904	16,486,397	0.7	100%	0%
2003	18,669,591	1,347,529	0.1	99%	1%
2004	17,985,745	8,215,433	0.5	100%	0%
2005	24,551,986	6,294,225	0.3	99%	1%
2006	29,620,685	15,389,961	0.5	100%	0%
2007	50,327,591	20,871,158	0.4	99%	1%
2008	45,945,092	16,147,962	0.4	99%	1%
2009	35,289,022	11,431,713	0.3	99%	1%
2010	37,758,496	9,382,519	0.2	99%	1%
2011	60,555,105	13,793,218	0.2	81%	19%
2012	47,455,883	17,428,153	0.4	97%	3%
2013	41,926,542	34,814,926	0.8	97%	3%
2014	55,029,818	39,169,180	0.7	93%	7%
2015	29,614,529	32,754,892	1.1	97%	3%
2016	16,412,386	11,652,516	0.7	98%	2%
2017	15,695,007	18,388,093	1.2	98%	2%
2018	22,470,884	31,991,331	1.4	99%	1%
2019	28,626,114	49,507,298	1.7	100%	0%
2020	37,492,237	22,537,274	0.6	100%	0%
2021	4,594,948	4,792,969	1.0	100%	0%
2022	Closed				
Average pre-program	98,212,034	36,910,517	0.4	98%	2%
Average post-program	34,925,896	21,878,323	0.7	97%	3%

Due to closures in both the WBT and EBT fisheries, it is difficult to compare discard rates pre and post CR Program implementation but in both fisheries the average discard rate and percentage of female crab that are discarded has been lower post CR Program implementation (Table 4-5 and Table 4-6).

Table 4-5 Annual discards in the Eastern District Tanner crab fishery, 1991-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1991	7,891,651	23,229,100	2.9	76%	24%
1992	11,047,718	34,672,936	3.1	84%	16%
1993	6,641,097	10,225,978	1.5	66%	34%
1994	3,041,714	9,141,829	3.0	64%	36%
1995	1,593,940	8,547,761	5.4	53%	47%
1996	714,240	NA	NA	NA	NA
1997-2005	Closed				
2006	581,024	1,109,861	1.9	83%	17%
2007	677,661	2,125,222	3.1	94%	6%
2008	758,002	648,011	0.9	96%	4%
2009	476,668	154,388	0.3	95%	5%
2010-2012	Closed				
2013	704,201	238,043	0.3	82%	18%
2014	4,378,199	3,227,413	0.7	99%	1%
2015	5,998,876	3,894,018	0.6	97%	3%
2016-2021	Closed				
2022	683,223	675,757	1.0	94%	6%
Average pre-program	5,155,060	17,163,521	3.2	69%	31%
Average post-program	1,782,232	1,509,089	1.1	92%	8%

Table 4-6 Annual discards in the Western District Tanner crab fishery, 1991-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1991	5,032,451	5,179,263	1.0	61%	39%
1992	4,218,147	8,836,359	2.1	69%	31%
1993	594,957	2,385,690	4.0	73%	27%
1994	309,925	924,431	3.0	39%	61%
1995	283,363	1,493,800	5.3	54%	46%
1996	20,056	86,857	4.3	94%	6%
1997-2004	Closed				
2005	255,859	860,561	3.4	87%	13%
2006	164,719	1,028,762	6.2	66%	34%
2007	151,525	980,025	6.5	93%	7%
2008	48,171	127,059	2.6	94%	6%
2009-2012	Closed				
2013	722,469	671,551	0.9	92%	8%
2014	3,121,442	2,052,062	0.7	93%	7%
2015	4,817,144	3,529,697	0.7	96%	4%
2016	Closed				
2017	1,322,542	929,394	0.7	80%	20%
2018	1,376,977	1,518,281	1.1	87%	13%
2019	Closed				
2020	870,634	1,229,681	1.4	82%	18%
2021	782,983	875,293	1.1	91%	9%
2022	587,079	672,829	1.1	96%	4%
Average pre-program	1,743,150	3,151,067	3.3	65%	35%
Average post-program	1,269,608	1,237,694	2.1	88%	12%

In the AIG fisheries, the discard rate began declining before 2006 (Table 4-7 and Table 4-8). Since implementation of the CR Program, discards in both the WAG and EAG fisheries have been stable ranging from 0.6 to 1.1 crab discarded for every crab retained.

Table 4-7 Annual discards in the Eastern Aleutian Islands golden king crab fishery, 1996-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1996	731,909	1,920,808	2.6	46%	54%
1997	780,610	2,388,741	3.1	48%	52%
1998	740,011	2,386,088	3.2	57%	43%
1999	709,332	1,671,483	2.4	55%	45%
2000	704,702	2,034,596	2.9	55%	45%
2001	730,030	1,261,744	1.7	54%	46%
2002	643,886	1,074,742	1.7	50%	50%
2003	643,074	959,168	1.5	52%	48%
2004	637,536	635,569	1.0	55%	45%
2005	623,966	375,352	0.6	68%	32%
2006	650,588	414,103	0.6	52%	48%
2007	633,253	389,628	0.6	67%	33%
2008	666,947	391,118	0.6	66%	34%
2009	679,886	450,670	0.7	61%	39%
2010	670,981	474,942	0.7	53%	47%
2011	668,828	436,791	0.7	64%	36%
2012	687,666	513,215	0.7	58%	42%
2013	720,220	482,773	0.7	54%	46%
2014	719,064	525,021	0.7	57%	43%
2015	763,604	637,876	0.8	64%	36%
2016	793,983	818,392	1.0	57%	43%
2017	802,610	843,988	1.1	69%	31%
2018	940,336	954,082	1.0	73%	27%
2019	1,057,464	1,047,237	1.0	67%	33%
2020	902,121	956,665	1.1	66%	34%
2021	863,269	613,129	0.7	71%	29%
2022	811,282	449,869	0.6	69%	31%
pre-program	694,506	1,470,829	2.1	54%	46%
post-program	766,594	611,735	0.8	63%	37%

Table 4-8 Annual discards in the Western Aleutian Islands golden king crab fishery, 1996-2022.

Year	Retained crab	Total discarded crab	Discard rate	% Male discards	% Female discards
1996	602,968	2,031,521	3.4	42%	58%
1997	569,550	1,617,950	2.8	43%	57%
1998	410,018	1,154,215	2.8	49%	51%
1999	676,558	1,917,127	2.8	44%	56%
2000	705,613	2,146,294	3.0	45%	55%
2001	686,738	1,822,879	2.7	48%	52%
2002	664,823	1,416,363	2.1	49%	51%
2003	676,633	1,093,541	1.6	46%	54%
2004	685,465	1,131,176	1.7	51%	49%
2005	639,370	638,254	1.0	57%	43%
2006	527,737	571,885	1.1	49%	51%
2007	600,595	772,178	1.3	46%	54%
2008	587,661	744,980	1.3	54%	46%
2009	628,332	478,036	0.8	56%	44%
2010	626,246	493,079	0.8	47%	53%
2011	616,118	437,111	0.7	47%	53%
2012	672,916	584,895	0.9	52%	48%
2013	686,883	615,920	0.9	55%	45%
2014	635,312	652,566	1.0	46%	54%
2015	615,355	605,035	1.0	47%	53%
2016	543,796	594,480	1.1	57%	43%
2017	519,051	485,595	0.9	52%	48%
2018	578,221	487,280	0.8	64%	36%
2019	649,832	454,372	0.7	55%	45%
2020	682,107	541,722	0.8	60%	40%
2021	538,064	665,319	1.2	61%	39%
2022	427,696	423,524	1.0	57%	43%
pre-program	631,774	1,496,932	2.4	47%	53%
post-program	596,231	565,175	1.0	53%	47%

ADF&G has not opened the SMB fishery since the last program review so information on discards is not included in this review.

4.7 Rail Dumping

Rail dumping is the practice of emptying pots at the rail before they are brought on deck. Because harvesters are not sorting the catch on deck, it is not possible to enumerate the contents of rail dumped pots. Before the CR Program, rail dumping occurred when vessels had baited gear on the fishing grounds after the season had ended, which was permitted if less than 24-hour notice of closure was provided. Short notice during the pre-rationalized seasons occurred occasionally in the BBR fishery. ADF&G did not track the number of rail-dumped pots before the CR Program. Rail dumping in the CR Program occurs when vessels have reached their quota or, on rare occasions, to reduce sorting time when most of the catch is female or otherwise undesirable catch. Under the CR Program, vessels may form gear cooperatives which allows for gear sharing among vessels. This can reduce the overall amount of rail-dumping and helps vessels reach their quotas more efficiently.

Rail dumping has occurred in all CR Program crab fisheries. Discards associated with rail dumped pots are estimated using average catch per unit effort (CPUE or crab per pot lift) and crab weight applied to each rail-dumped pot. Mortality associated with rail dumps is not currently considered in the stock

assessment or TAC setting process. The proportion of rail dumped pots, as compared to total harvested pot lifts, ranges from 0 percent to 5.3 percent and is variable by season within each fishery (Table 4-9).

Table 4-9 Estimated number of rail-dumped pots in the crab fisheries, 2005/2006 through 2022/2023.

Fishery	Season	Rail dumped pots	Rail dumped pots as a percent of total effort	Average Weight (pounds)	Estimate of legal males rail dumped
BBR	2005/06	NA	NA	6.7	NA
	2006/07	1,745	2.4%	6.4	11,098
	2007/08	901	0.8%	6.5	5,847
	2008/09	424	0.3%	6.6	2,811
	2009/10	591	0.5%	6.3	3,711
	2010/11	1,042	0.8%	6.2	6,440
	2011/12	1,068	2.4%	6.1	6,536
	2012/13	1,110	2.9%	6.8	7,526
	2013/14	744	1.6%	6.9	5,148
	2014/15	760	1.3%	6.7	5,062
	2015/16	776	1.6%	6.7	5,168
	2016/17	631	1.9%	6.8	4,259
	2017/18	823	1.7%	6.8	5,629
	2018/19	1,273	4.1%	7.1	9,038
	2019/20	389	1.1%	7.1	2,777
	2020/21	427	2.1%	6.1	2,609
	2021/22	Closed			
	2022/23	Closed			
BSS	2005/06	NA	NA	1.5	NA
	2006/07	1,581	1.8%	1.2	1,945
	2007/08	1,237	0.9%	1.3	1,546
	2008/09	1,381	0.8%	1.3	1,754
	2009/10	1,283	0.9%	1.4	1,745
	2010/11	1,060	0.7%	1.4	1,526
	2011/12	976	0.4%	1.5	1,435
	2012/13	848	0.4%	1.4	1,187
	2013/14	1,155	0.5%	1.3	1,490
	2014/15	684	0.2%	1.2	841
	2015/16	951	0.4%	1.4	1,303
	2016/17	1,167	1.0%	1.3	1,529
	2017/18	727	0.6%	1.2	880
	2018/19	1,332	1.0%	1.2	1,638
	2019/20	884	0.5%	1.2	1,052
	2020/21	1,887	1.1%	1.2	2,264
	2021/22	234	0.6%	1.2	283
	2022/23	Closed			
SMB	2005-2008	Closed			
	2009/10	22	0.2%	4.5	98
	2010/11	0	0.0%	4.2	0
	2011/12	0	0.0%	4.3	0
	2012/13	69	0.2%	4.3	294
	2013/14	Closed			
	2014/15	23	0.2%	4.5	103
	2015/16	10	0.2%	4.4	44
	2016/17-2022/23	Closed			

Fishery	Season	Rail dumped pots	Rail dumped pots as a percent of total effort	Average Weight (pounds)	Estimate of legal males rail dumped
EAG	2005/06	NA	NA	4.6	NA
	2006/07	1,193	4.6%	4.6	5,488
	2007/08	734	3.2%	4.7	3,464
	2008/09	741	3.0%	4.7	3,490
	2009/10	445	1.7%	4.6	2,060
	2010/11	454	1.8%	4.7	2,129
	2011/12	233	1.3%	4.7	1,097
	2012/13	399	1.9%	4.8	1,923
	2013/14	310	1.5%	4.7	1,463
	2014/15	742	4.5%	4.8	3,539
	2015/16	247	1.3%	4.6	1,136
	2016/17	696	3.0%	4.4	3,055
	2017/18	285	1.2%	4.3	1,228
	2018/19	5	0.0%	4.3	22
	2019/20	30	0.1%	4.2	127
	2020/21	79	0.3%	4.2	334
	2021/22	250	0.8%	4.4	1,090
	2022/23	746	3.7%	4.3	3,208
WAG	2005/06	NA	NA	4.2	NA
	2006/07	1,193	4.6%	4.3	5,130
	2007/08	734	2.5%	4.2	3,075
	2008/09	741	2.8%	4.3	3,194
	2009/10	445	1.7%	4.4	1,958
	2010/11	454	1.5%	4.5	2,043
	2011/12	233	0.9%	4.6	1,065
	2012/13	399	1.2%	4.4	1,752
	2013/14	310	0.7%	4.3	1,339
	2014/15	742	1.8%	4.2	3,131
	2015/16	247	0.6%	4.1	1,008
	2016/17	696	1.8%	4.1	2,861
	2017/18	285	0.9%	4.3	1,228
	2018/19	5	0.0%	4.3	22
	2019/20	30	0.1%	4.4	131
	2020/21	79	0.2%	4.1	323
	2021/22	250	0.5%	4.1	1,018
	2022/23	746	2.3%	4.0	3,014
EBT	2005/06	Closed			
	2006/07	216	0.7%	2.4	516
	2007/08	69	0.2%	2.3	159
	2008/09	89	0.2%	2.4	209
	2009/10	308	1.8%	2.7	844
	2010/11-2012/13	Closed			
	2013/14	372	1.4%	2.1	763
	2014/15	436	0.5%	1.9	841
	2015/16	499	0.4%	1.9	938
	2016/17-2021/22	Closed			
	2022/23	113	0.6%	1.7	193
WBT	2005/06	NA	NA	2.2	NA
	2006/07	0	0.0%	2.1	0
	2007/08	73	0.3%	2.2	158
	2008/09	95	0.3%	2.1	202
	2009/10-2012/13	Closed			
	2013/14	64	0.0%	1.8	116
	2014/15	210	0.1%	1.7	351
	2015/16	497	0.3%	1.7	860
	2016/17	Closed			0
	2017/18	597	2.0%	1.9	1,110
	2018/19	332	0.8%	1.8	588
	2019/20	Closed			0
	2020/21	146	0.3%	1.7	242
	2021/22	253	1.1%	1.4	352
	2022/23	175	1.0%	1.5	254

4.8 Handling Mortality

Crab discarded during fishing operations contributes to mortality in addition to the retained catch. Increased handling mortality may reduce future recruitment to the fishery by reducing both survival of pre-recruits and effective spawning biomass (NMFS 2004). The time of year when crabs are harvested can also affect survival rates. Directed crab fishing seasons are designed to close during molting and mating to reduce mortality during these biologically sensitive periods. Additionally, evidence indicates that crabs captured in extremely cold and windy weather suffer higher rates of handling mortality (NMFS 2004). Estimates of total catch for overfishing determinations include a calculation for mortality of crab that are brought on deck, sorted, and then discarded. The mortality calculations are informed by experimental studies of crab survival. Bycatch mortality for king crab is set at 20 percent during directed king crab fishing operations and at 25 percent during directed Tanner crab fishing operations. Improved understanding of handling mortality in Bering Sea snow and Tanner crab (Chilton et al., 2011) led to new calculations of handling mortality for stock assessments. Where a 50 percent mortality rate had been applied to the snow and Tanner crab fishery discards, the Tanner crab stock assessment has applied a handling mortality rate of 32.1 percent since 2014, and the snow crab stock assessment has applied a handling mortality rate of 30 percent since 2013. These estimates are likely conservative and account for both short-term mortality and long-term effects that are not well understood.

Under the CR Program, the season length has extended, thereby slowing the pace of fishing and allowing fishermen to improve fishing methods, including sorting on deck. Many vessels have conveyors and chutes that discard bycatch without the need for additional handling. Under the CR Program, fishermen have more flexibility regarding when to fish, and for safety reasons are more likely to choose not to fish in the extreme weather conditions that may have been necessary before rationalization. It is possible that some of these considerations may have affected handling mortality.

4.9 Soak Times, CPUE, and Gear Selectivity

Studies have shown that longer soak times, in conjunction with required pot escape mechanisms, are likely to increase the proportion of legal versus non-legal crab caught in a fishery (Barnard & Pengilly 2006). In addition to soak time, the proportion of legal versus non-legal crab in pots is dependent on many factors including the size/sex distribution of the crab population, where fishing is conducted relative to the spatial distribution of non-legal and legal crab, and the sorting of legal crab for retention or non-retention (see Section 4.6). While data may suggest a correlation between extended soak times and legal male catch for some stocks, Table 4-3 through Table 4-8 indicate that discard rates under the program remain within the range of historic levels for most stocks. The CPUE is influenced by a variety of factors including soak times, pot location, the distribution of the legal male crab biomass, and fishing gear. Higher CPUEs mean that fishing is more efficient for vessels and less resources are needed to catch the same number of crabs.

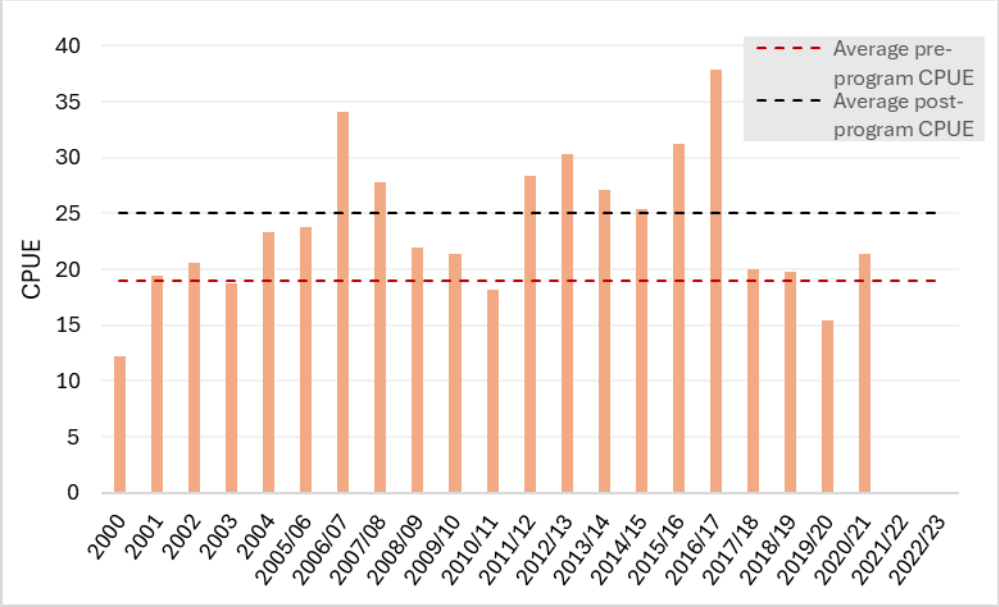
Average soak times in the BBR fishery have lengthened since the program was implemented from an average of 25 hours in the five years preceding the program to an average of 58 hours in the most recent five years the fishery was open (Table 4-10). CPUE in the BBR fishery increased from an average of 19 crab in the five years preceding the program to an average of 25 crab since implementation, although the CPUE has been variable with the second lowest CPUE in the time series occurring in 2019/2020 (Figure 4-9).

Table 4-10 Seasonal soak times, in hours, in the CR Program fisheries, 2000-2022/2023.

Season	BBR	BSS	BST		AIG		SMB
			EBT	WBT	EAG	WAG	
2000	22	NA	Closed	Closed	NA	NA	Closed
2001	23	45	Closed	Closed	106	230	Closed
2002	19	38	Closed	Closed	97	291	Closed
2003	31	28	Closed	Closed	97	322	Closed
2004	29	21	Closed	Closed	88	279	Closed
2005	no season	21	Closed	Closed	no season	no season	Closed
2005/06	58	65	Closed	94	340	560	Closed
2006/07	50	65	67	54	277	456	Closed
2007/08	53	74	73	47	413	534	Closed
2008/09	55	57	47	43	359	577	Closed
2009/10	57	55	49	Closed	381	670	33
2010/11	62	61	Closed	Closed	359	550	36
2011/12	76	56	Closed	Closed	406	671	45
2012/13	68	55	Closed	Closed	418	632	40
2013/14	63	61	37	36	342	574	Closed
2014/15	60	75	67	72	355	579	53
2015/16	62	62	77	71	315	589	52
2016/17	71	68	Closed	Closed	386	573	Closed
2017/18	68	72	Closed	55	423	608	Closed
2018/19	50	76	Closed	65	452	545	Closed
2019/20	44	74	Closed	Closed	425	526	Closed
2020/21	58	76	Closed	70	548	994	Closed
2021/22	Closed	45	Closed	53	438	604	Closed
2022/23	Closed	Closed	75	78	610	629	Closed
Average 2000-2005	25	31	NA	NA	97	281	NA
Average of most recent 5-years fishery was open	58	69	61	64	495	660	45

Source: ADF&G shellfish observer program database, 2024.

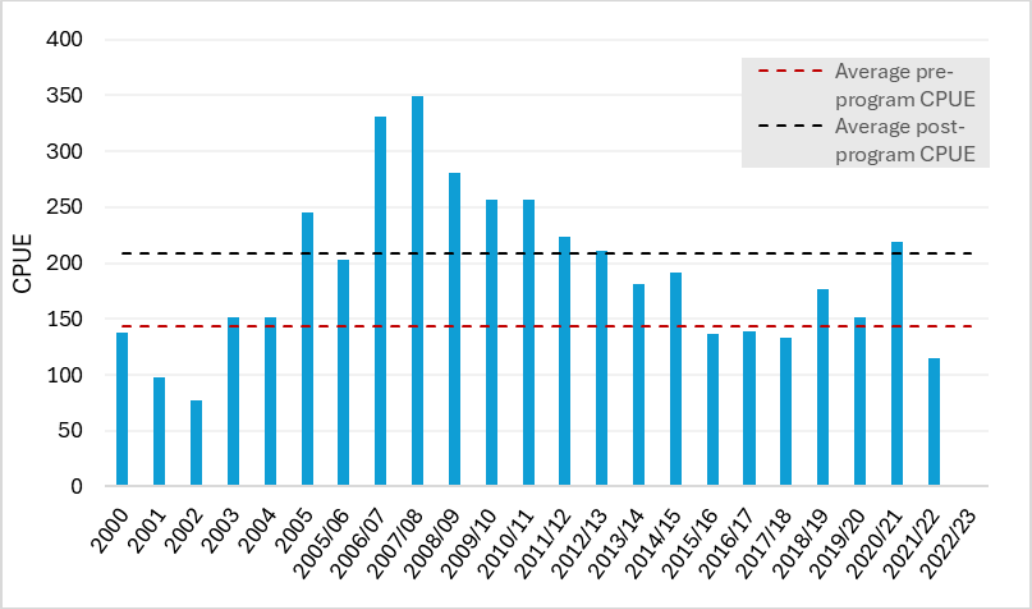
Figure 4-9 Catch per unit effort in the Bristol Bay red king crab fishery, 2000-2022/23.



In the BSS fishery, the average soak time in the five years preceding the program was 31 hours and in the most recent five seasons the fishery was open, the average soak time was 69 hours (Table 4-10). The CPUE for snow crab has been variable and has generally increased since implementation of the program.

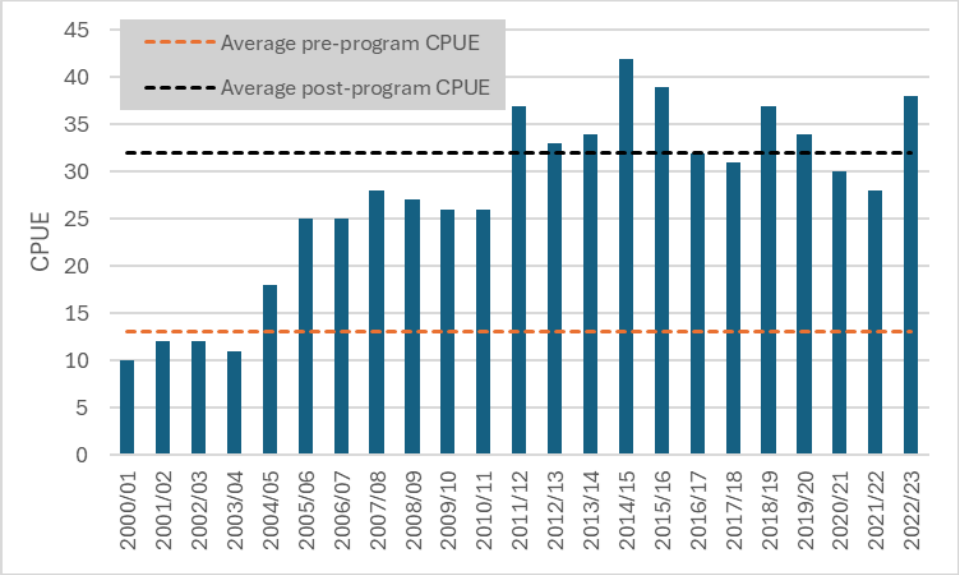
CPUE averaged 143 legal male crab per pot lift in the years before implementation of the CR Program and after implementation, the average CPUE is 209 (Figure 4-10). Post program implementation, the CPUE increased to a high of 349 in 2007/2008, declined to 133 in 2017/2018 and has fluctuated with a recent low of 115 in 2021/2022, the last year the fishery was open. Anecdotal reports note that snow crab CPUE has likely been affected by the extent of sea ice which can keep fishermen off the most productive grounds. The low CPUE in 2021/2022 is likely related to the steep decline in biomass.

Figure 4-10 Catch per unit effort in the Bering Sea snow crab fishery, 2000-2022/2023.



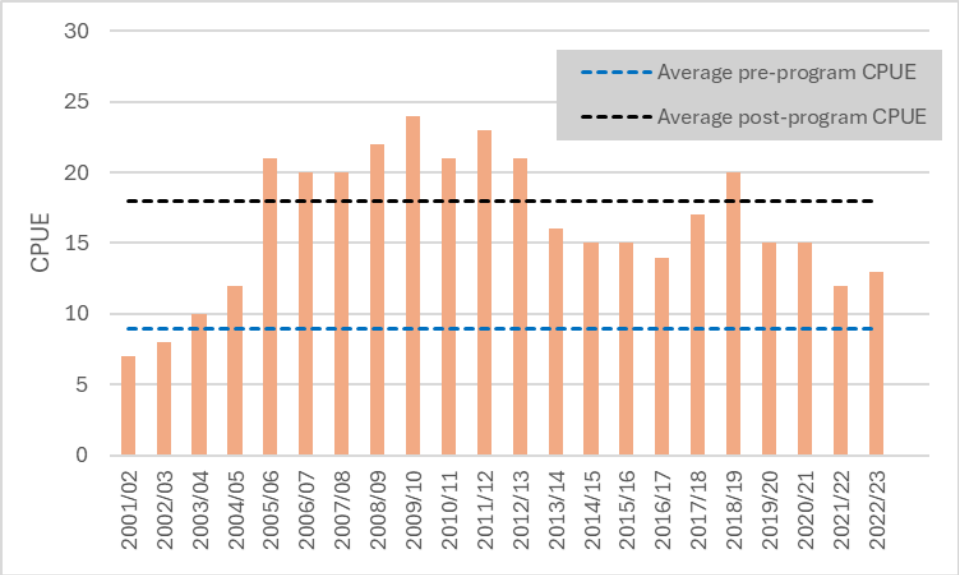
Both soak time and CPUE increased after implementation of the program in the EAG and WAG fisheries. Average soak time in the EAG fishery was just over four days or 97 hours pre-program and increased to an average of more than 20 days or 495 hours in the most recent five years (Table 4-10). Average CPUE in the EAG fishery increased from 13 crab per pot pre-program to 32 crab per pot since implementation of the program (Figure 4-11).

Figure 4-11 Catch per unit effort in the Eastern Aleutian Island golden king crab fishery, 2000/2021-2022/2023.



Soak times in the WAG fishery increased from an average of 12 days or 281 hours pre-program to 27 days or 660 hours in the most recent five years under the program (Table 4-10). Average CPUE in the WAG fishery increased from nine to 18 crab per pot after implementation of the program (Figure 4-12).

Figure 4-12 Catch per unit effort in the Western Aleutian Island golden crab fishery, 2000/2021-2022/2023.



4.10 Lost Pots and Ghost Fishing

Mortality can occur when lost crab pots continue to capture animals, resulting in ghost fishing. Crab mortality caused by ghost fishing is difficult to estimate given existing information, but studies have shown that lost crab pots continue to catch crabs, and pots are subject to rebaiting due to capture of other fish and crab. The impact of ghost fishing on crab stocks remains unknown. Pre-rationalization, it was estimated that 10 percent to 20 percent of crab pots were lost each year (Kruse & Kimker 1993). All pots

currently fished in Bering Sea crab fisheries are required to contain biodegradable escape mechanisms that allow the pot to open after an extended period in the water, which reduces ghost fishing.

Although pot limits have been removed under the program, in practice, the average number of pots fished per vessel remains less than what was allowed pre-rationalization (NPFMC 2010a). Since the CR Program was implemented, there have been fewer vessels participating in the crab fisheries and less gear on the fishing grounds.

Estimates of lost pots in the post-rationalized seasons range from 1 percent to 6 percent of registered pots; however, estimates of lost pots are imprecise (Table 4-11). In the BSS fishery, sea ice is a major factor in crab pot losses caused by sea ice moving crab pots or breaking crab pot buoy lines. In the AIG fishery, steep bottom topography of the inter-island passes necessitates the use of longline pot gear, which is the only legal gear type. ADF&G records of lost pots represent 2 percent or less of the total registered pots annually in the AIG fishery. Longer soak times in the AIG fishery post-rationalization led the Board of Fisheries to adopt regulations for larger biodegradable escapement twine, which may increase the amount of time that lost pots can continue ghost fishing in this fishery.

Table 4-11 Estimated number of pots annually lost in the CR Program fisheries, 2006/07-2022/2023.

Season	BBR	BSS	BST		AIG		SMB
			EBT	WBT	EAG	WAG	
2006/07	154	228	85	3	135		Closed
2007/08	175	636	102	78	44		Closed
2008/09	198	391	8	3	62		Closed
2009/10	151	229	2	Closed	12	56	15
2010/11	148	319	Closed	Closed	25	14	27
2011/12	65	766	Closed	Closed	0	23	49
2012/13	65	339	Closed	Closed	31	38	33
2013/14	66	278	10	6	2	50	Closed
2014/15	60	399	63	22	78	30	6
2015/16	53	165	291	33	60	21	9
2016/17	45	137	Closed	Closed	16	20	Closed
2017/18	44	187	Closed	12	29	157	Closed
2018/19	28	270	Closed	46	10	66	Closed
2019/20	46	339	Closed	Closed	18	124	Closed
2020/21	17	750	Closed	72	22	116	Closed
2021/22	Closed	76	Closed	24	39	60	Closed
2022/23	Closed	Closed	53	25	66	16	Closed

4.11 Season Length, Temporal and Spatial Dispersion

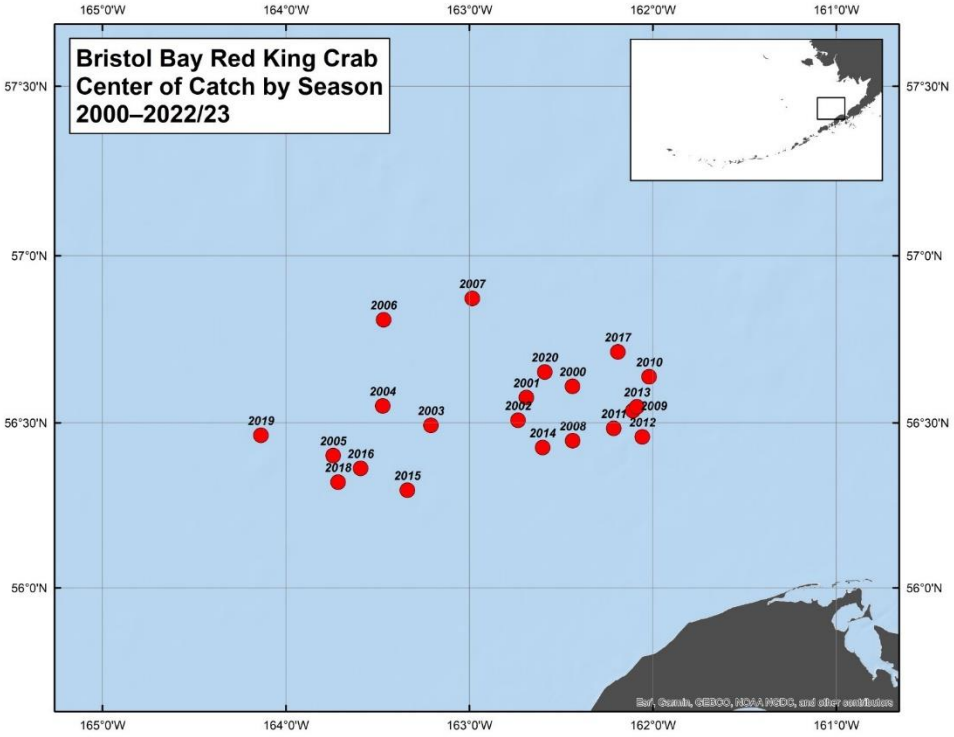
Under the program, fishery seasons have lengthened considerably (see Table 4.46 of the 2022 Crab Economic SAFE). Longer seasons may benefit the crab stocks by reducing the pressure associated with derby-style fishing and allowing time for improving handling methods and sorting of crab at sea which may improve the survivability of discarded crab. Overall, while the temporal distribution of catches has increased under the program, this expansion has been limited.

In the years leading up to the implementation of the CR Program, the BBR fishery lasted three to four days and opened annually on October 15. Under the program, the fishery opens on the same date, but closes on January 15. Despite the extended season, most of the harvest in the fishery is completed within the first month based on market considerations. Spatial distribution of catch in the BBR fishery has diversified under the CR Program. During the five years before program implementation, vessels harvested crab from a total of 24 statistical areas, with 91 percent of the harvest coming from six

statistical areas. Since implementation of the program, a total of 37 statistical areas have been fished, with 91 percent of the harvest coming from 11 statistical areas.

The center of fishing effort, by season, is shown in Figure 4-13. Generally fishing effort has been centered between 162° W and 164° W longitude and between 56° N and 57° N latitude, with no discernable trend pre- or post-rationalization.

Figure 4-13 Seasonal centroid of the Bristol Bay red king crab fishery, 2000-2022/2023.



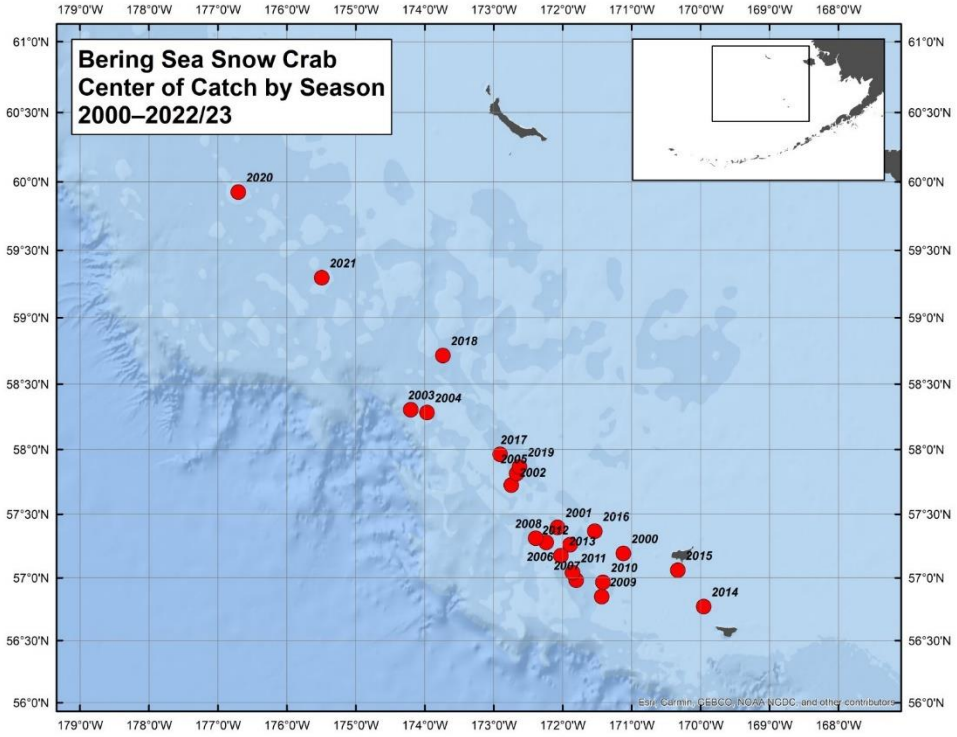
Source: ADF&G 2024

The BSS fishery, which before rationalization frequently lasted less than one month, is now open for seven months, from October 15 until May 31. Most BSS harvests still occur during the traditional period of the fishery, from January to March; however, some effort typically begins in December and often persists until May. The timing of BSS harvest is based on market constraints related to meat-fill, the amount of crab meat relative to shell size, and shell hardness. Extensive sea ice during the 2011/2012 season resulted in ADF&G extending the season until June 15. Before rationalization, most of the BSS fishery harvest occurred in the southern portion of the snow crab range, possibly due to ice cover and proximity to port. In 2003 and 2004, two-thirds or more of the catch occurred south of 58° 30' N latitude. However, in both of those years the ice edge was farther north than in past years, allowing some fishing to occur as far north as 60-61° N latitude.

Figure 4-14 shows that from implementation of the program through 2017, catch distribution was similar to years before the program with most catch made south of 58° N latitude and west of the Pribilof Islands between about 171° W and 173° W longitude. However, during the 2008/2009 season, more than six million pounds were harvested east and south of the Pribilof Islands between 168° W and 167° W longitude and 55° 30' N and 56° 36' N latitude. This southerly distribution of catch raised concern from the SSC and Crab Plan Team, which noted that these southern catches could increase pressure on the northward migration of the stock. Harvest was again concentrated southeast of the Pribilof Islands in 2014

and 2015, primarily due to poor catches in the western area of the fishery. Beginning in 2017, the center of catch moved north and west along the shelf edge due to lower CPUEs in historical fishing areas. This was likely due to abnormally warm temperatures in the Bering Sea.

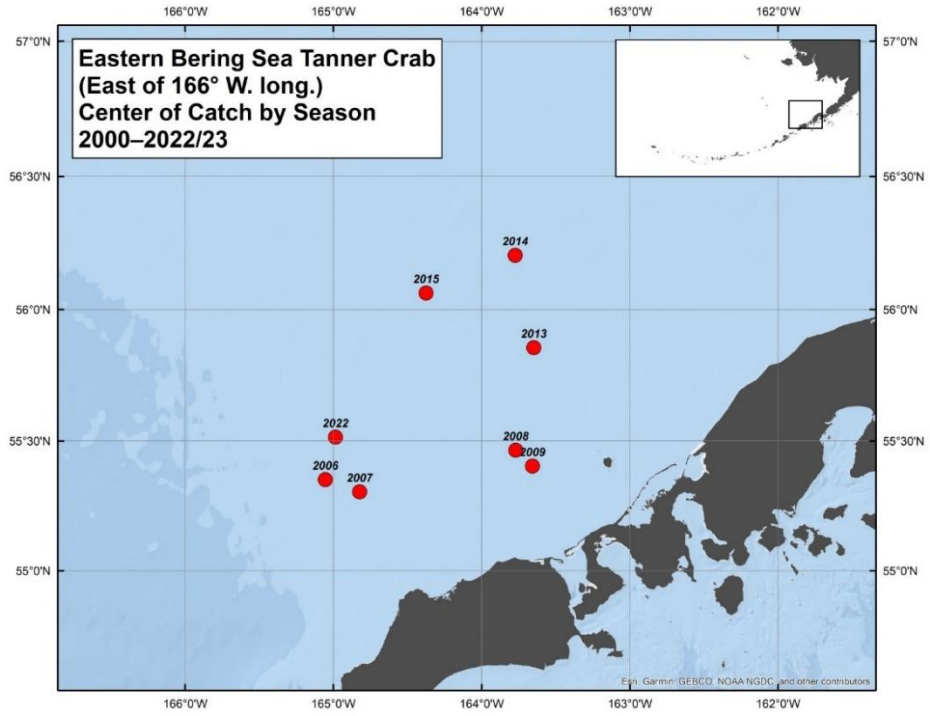
Figure 4-14 Seasonal centroid of the Bering Sea snow crab fishery, 2000-2022/2023.



Source: ADF&G 2024

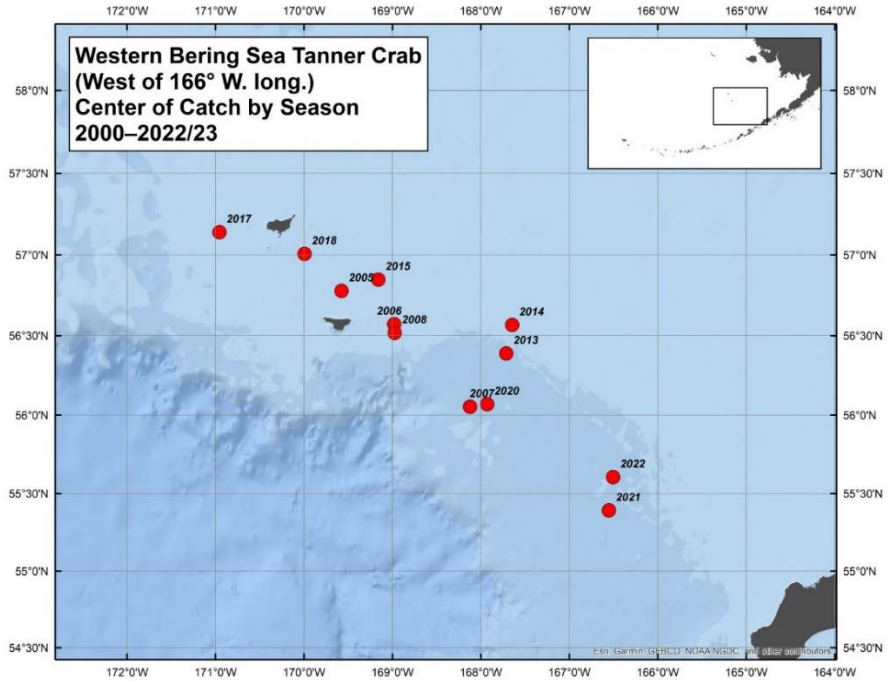
The Bering Sea Tanner crab fishery was closed in the years before implementation of the CR Program but the current fishery timing is similar to the historical temporal distribution, with EBT primarily harvested in October and November, and WBT crab primarily harvested in January through March. Spatial distribution of Bering Sea Tanner harvest pre and post rationalization is more difficult to compare because of area closures, changes in management, and directed fishery closures. The EBT fishery has been restricted to waters west of 163° W longitude since the mid-1990s to protect BBR (Figure 4-15). The WBT fishery has been restricted in recent years from areas of historically high Tanner crab fishing effort in between St. Paul and St. George Islands due to closures to protect the Pribilof Islands blue king crab stock (Figure 4-16).

Figure 4-15 Seasonal centroid of the Bering Sea Tanner crab fishery east of 166° W. longitude, 2000-2022/2023.



Source: ADF&G 2024

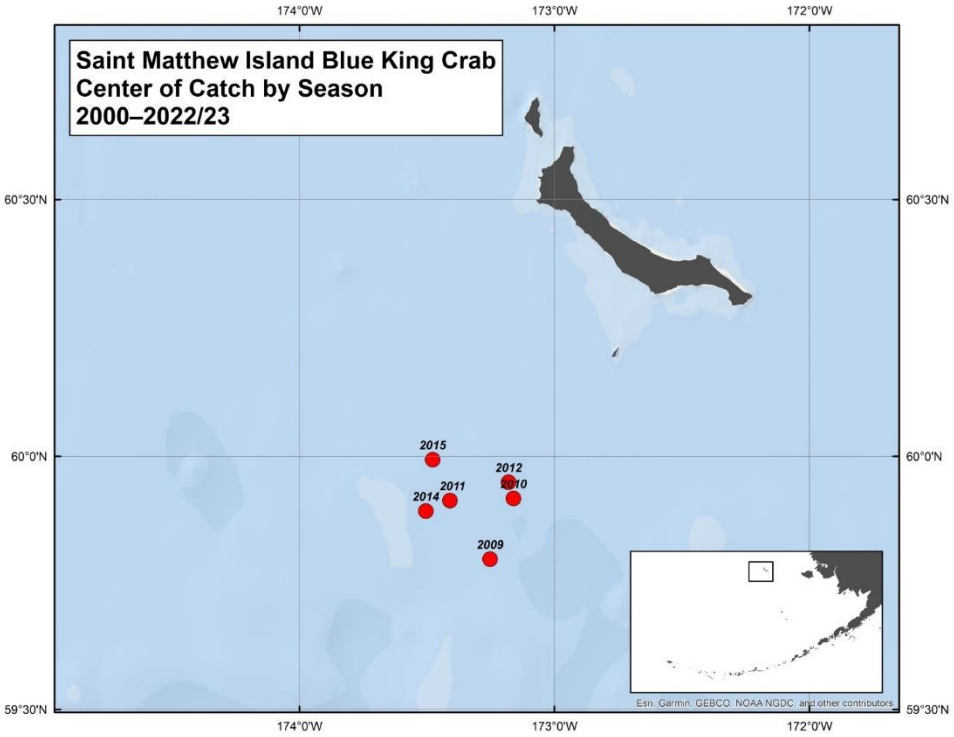
Figure 4-16 Seasonal centroid of the Bering Sea Tanner crab fishery west of 166° W. longitude, 2000-2022/2023.



Source: ADF&G 2024

The SMB fishery was not open in the years leading up to implementation of the CR Program. Before the fishery closure in 1998, the SMB season opened in September. After the CR Program was implemented the season for SMB was set from October 15 until February 1; however, fishery effort typically ended before December due to weather. Before 1999, harvest was concentrated nearshore, just outside state waters near St. Matthew Island. State waters around the island are closed to fishing. In the six years the fishery has been open under the CR Program, catches shifted further offshore to the southwest (Figure 4-17). During these years, effort was made by the fleet to locate blue king crab in historical fishing locations but higher CPUEs were found to the southwest. The shift in the spatial distribution of blue king crab harvest may have been due to the later season opening date or further declines in stock abundance.

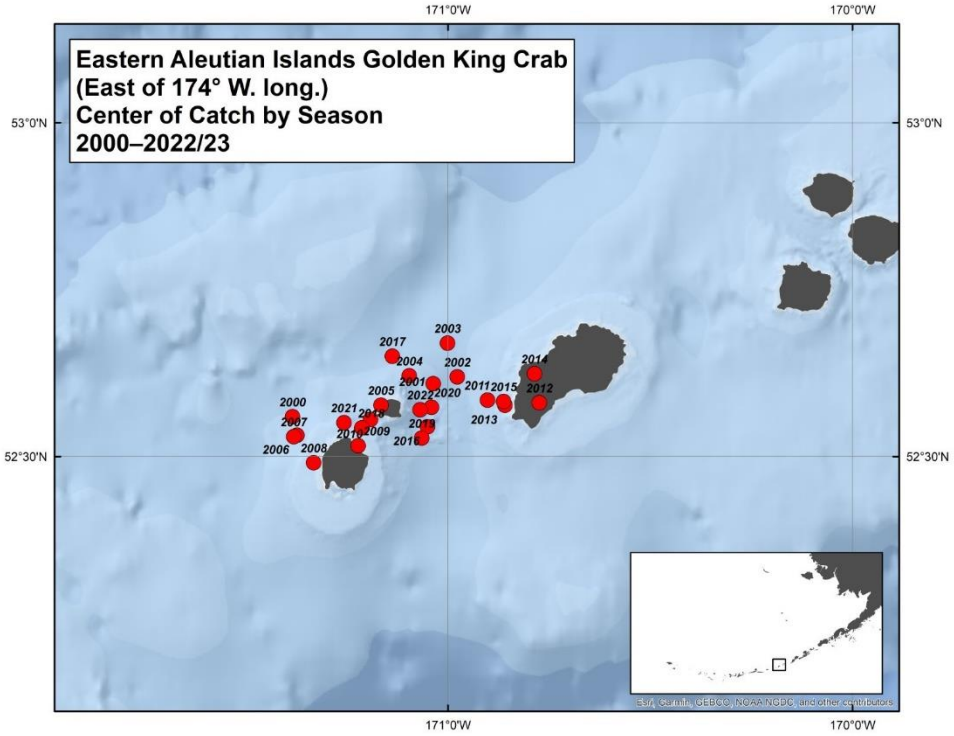
Figure 4-17 Seasonal centroid of the Saint Matthew Island blue king crab fishery, 2000-2022/2023.



Source: ADF&G 2024

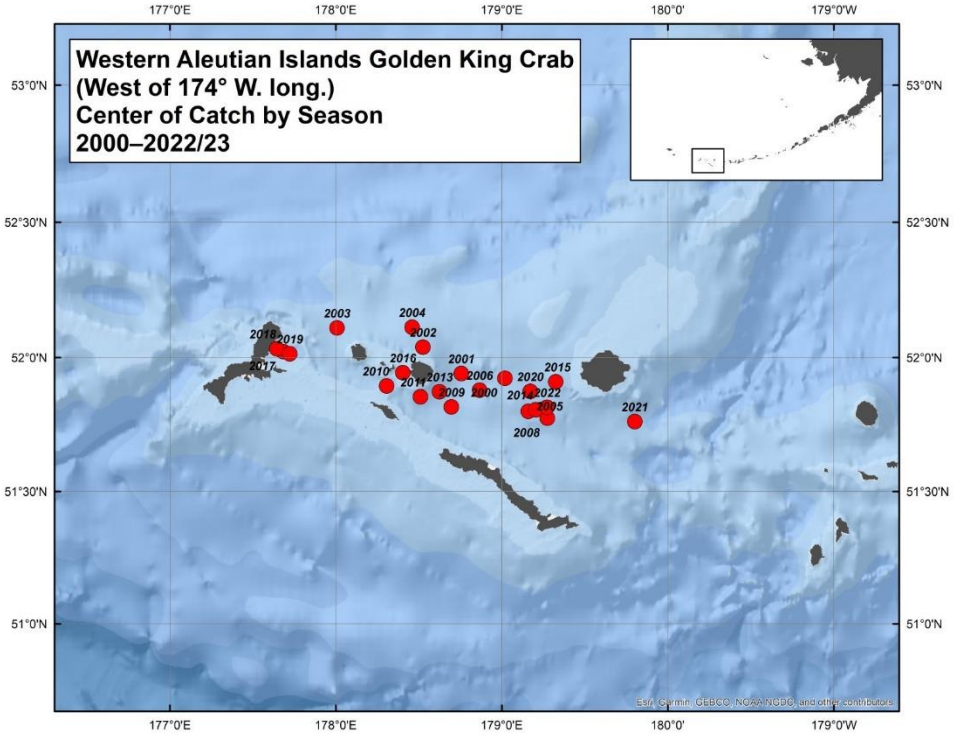
The EAG fishery is primarily harvested between August and November, while WAG is typically harvested through the entire season. Beginning in 2015/2016 the season dates for EAG and WAG changed from August 15 through May 15 to August 1 through April 30. Fishing effort in the EAG fishery is focused primarily around Amukta Pass, the Islands of Four Mountains, and Seguam Pass. The WAG fishery is prosecuted around Amchitka Pass, the Delarof Islands, Rat Islands, and Petrel Bank. The centers of distribution for the fisheries have remained similar pre and post implementation of the CR Program (Figure 4-18 and Figure 4-19)

Figure 4-18 Seasonal centroid of the Eastern Aleutian Islands golden king crab fishery, 2000-2022/2023.



Source: ADF&G 2024

Figure 4-19 Seasonal centroid of the Western Aleutian Islands golden king crab fishery, 2000-2022/2023.



Source: ADF&G 2024

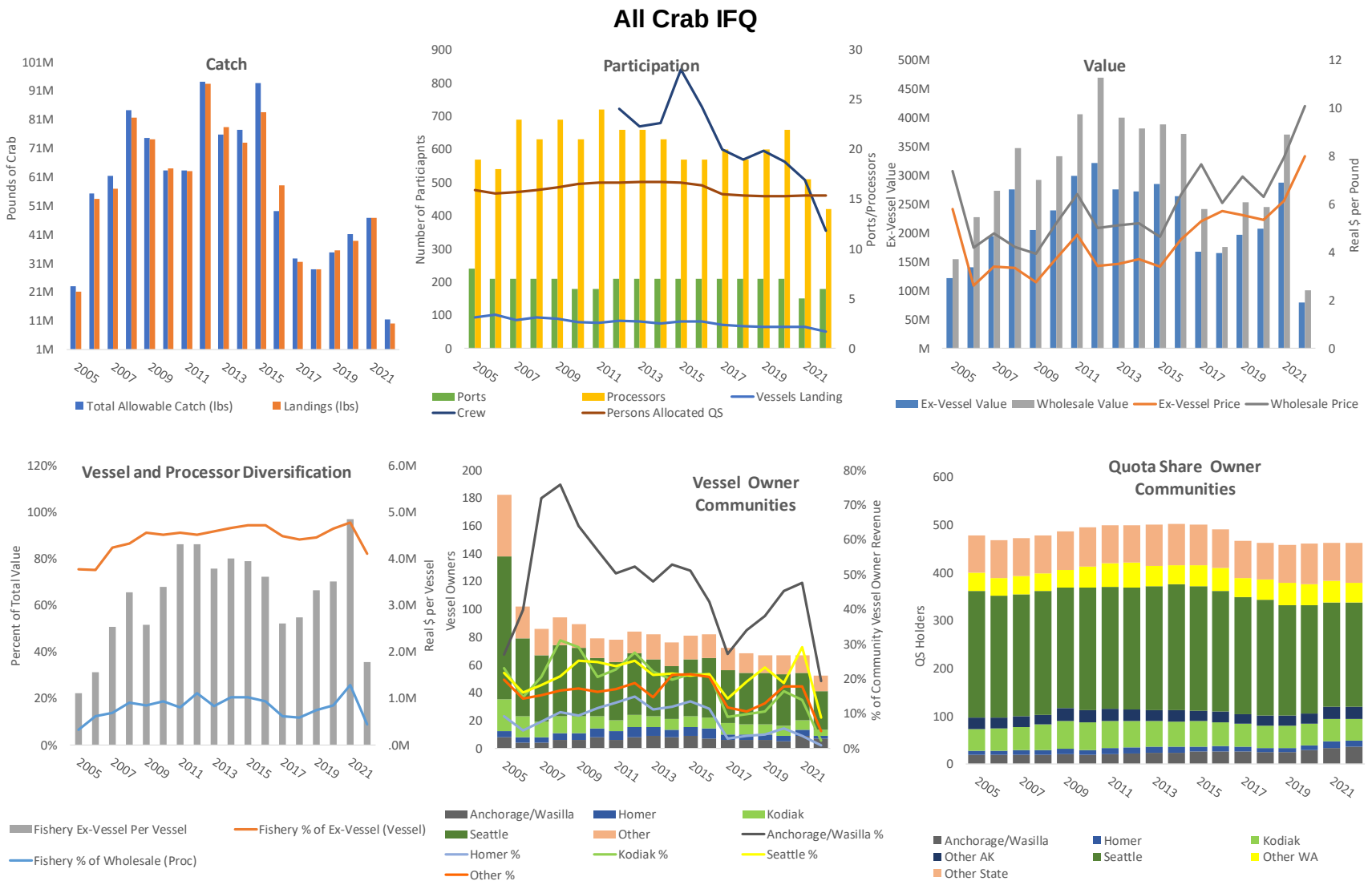
5 DASHBOARDS BY FISHERY

Dashboards summarizing data relevant to harvester, processor, crew, and community related variables for the CR Program IFQ fisheries are provided in this section. The data are presented for 2005 through 2022 (the most recent year for which complete data are available). Dashboards for all CR Program IFQ fisheries, BBR, BSS, and AIG fisheries are presented as a general overview of some of the key information that is contained in the following harvester and harvester crew, processors and processing labor, and social and community sections. CDQ catch and production data are excluded.

Six figures are presented for each fishery or fishery group, and they report information on catch, participation, value, diversification, vessel owner communities, and catcher vessel and catcher processor shareholder communities (excludes processor shares). Information is presented for the calendar years 2005 through 2022, covering the CR Program period up to the most recent year that complete data is available. Data for 2005 should be used with caution as it was the first year of the CR Program. The issues with calendar year data versus crab fishing year, which occurs July 1 – June 30, data also tend to confuse certain data in all years, but especially in the transition year of 2005 when both pre-rationalization and post-rationalization fishing occurred. EDR surveys were modified starting with the collection of 2012 data, with that change impacting comparability of crew information. As a result, crew data are only reported for the years 2012 through 2022. Finally, counts of processors include IPQ holders that used custom processors, so the counts are greater than the number of plants that processed crab.

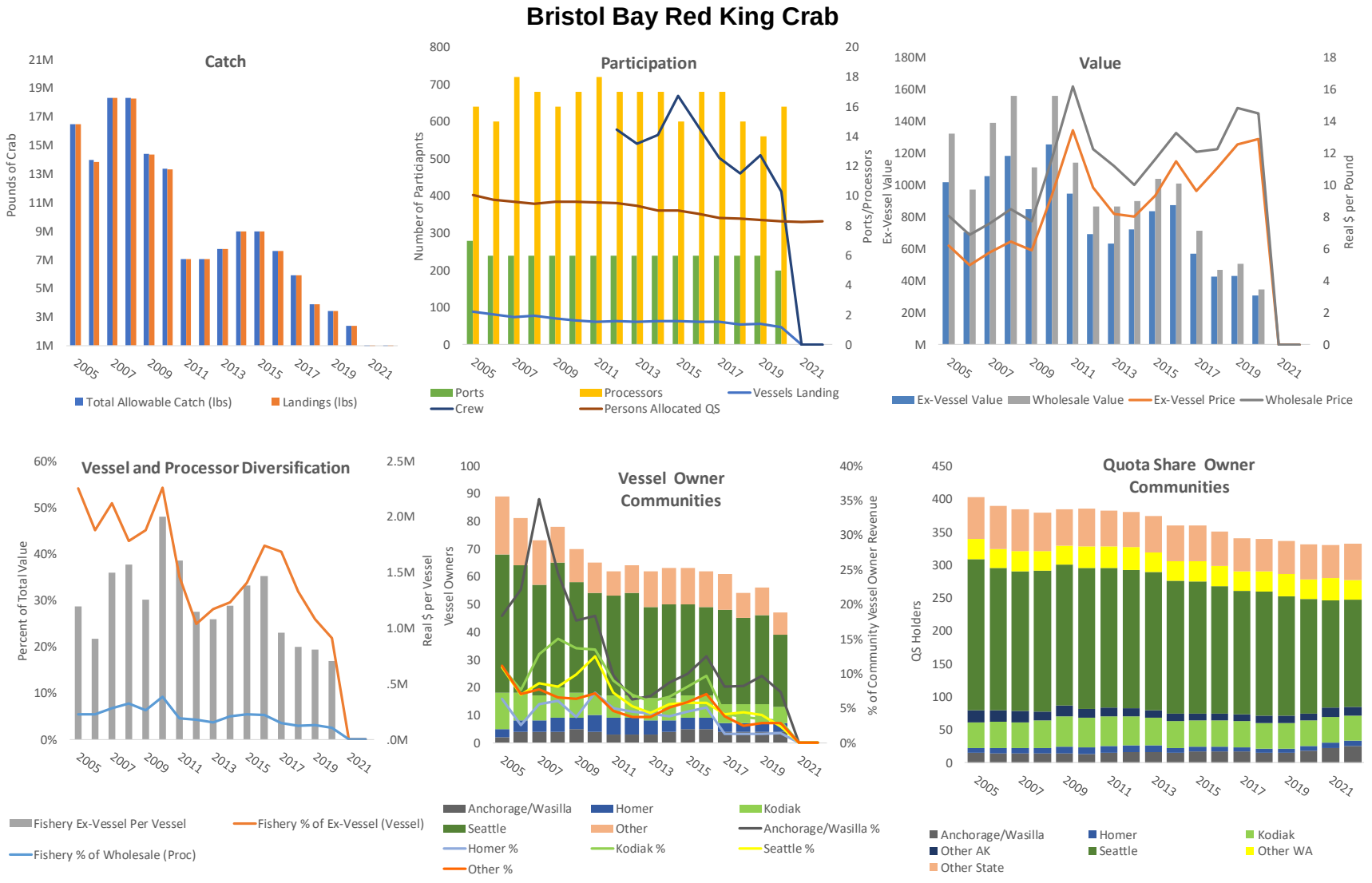
Other sections of the document present similar information to that provided for some of the dashboards in more detail. This section is presented as graphics to provide a high-level overview of the CR Program fisheries.

Figure 5-1 Summary of all CR Program IFQ fisheries combined, 2005-2022



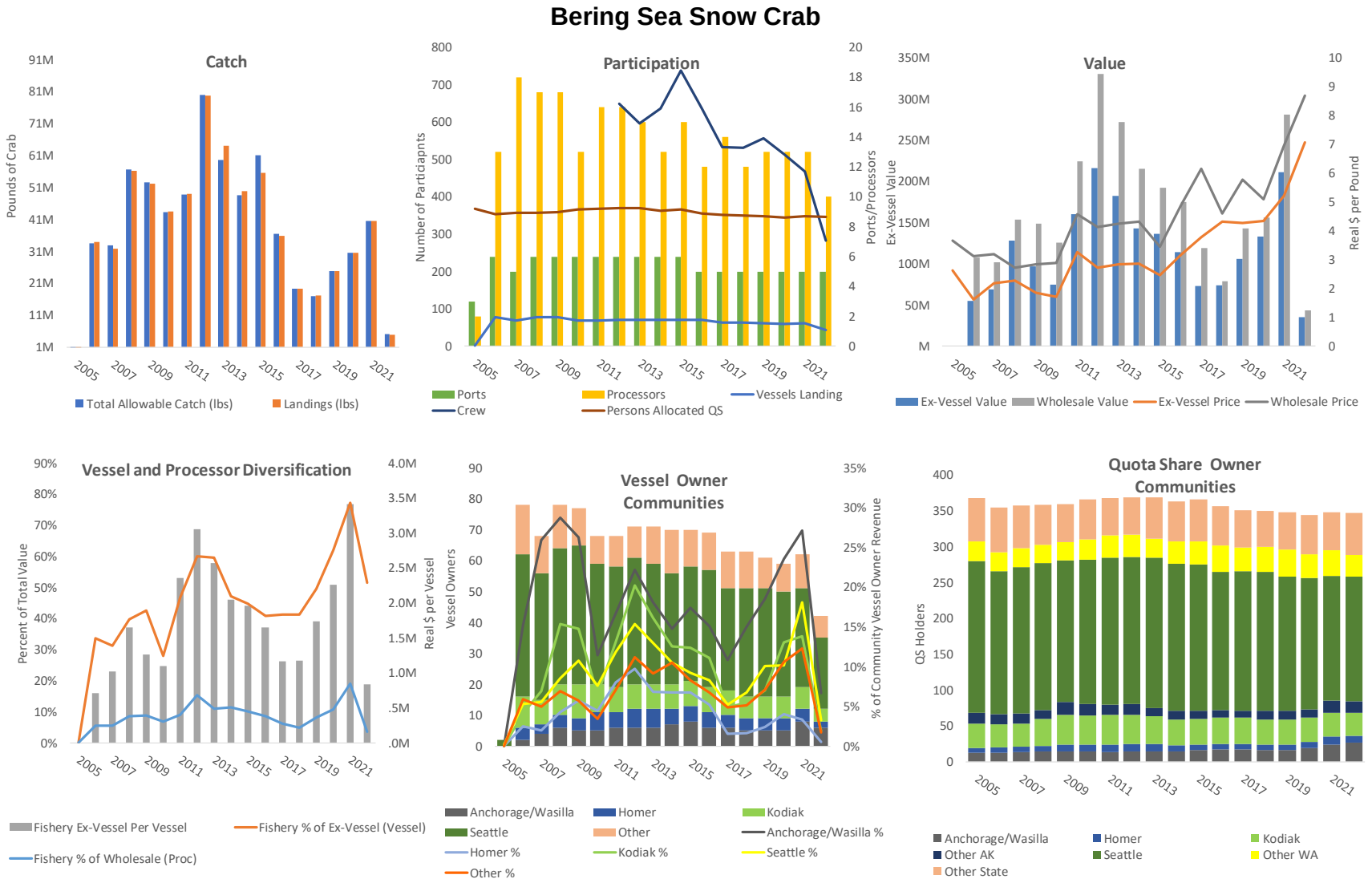
Source: Alaska Fisheries Information Network (AKFIN) summary as provided in Crab Figures (2_2_24).xls

Figure 5-2 Summary of Bristol Bay Red King Crab CR Program IFQ fishery, 2005-2022



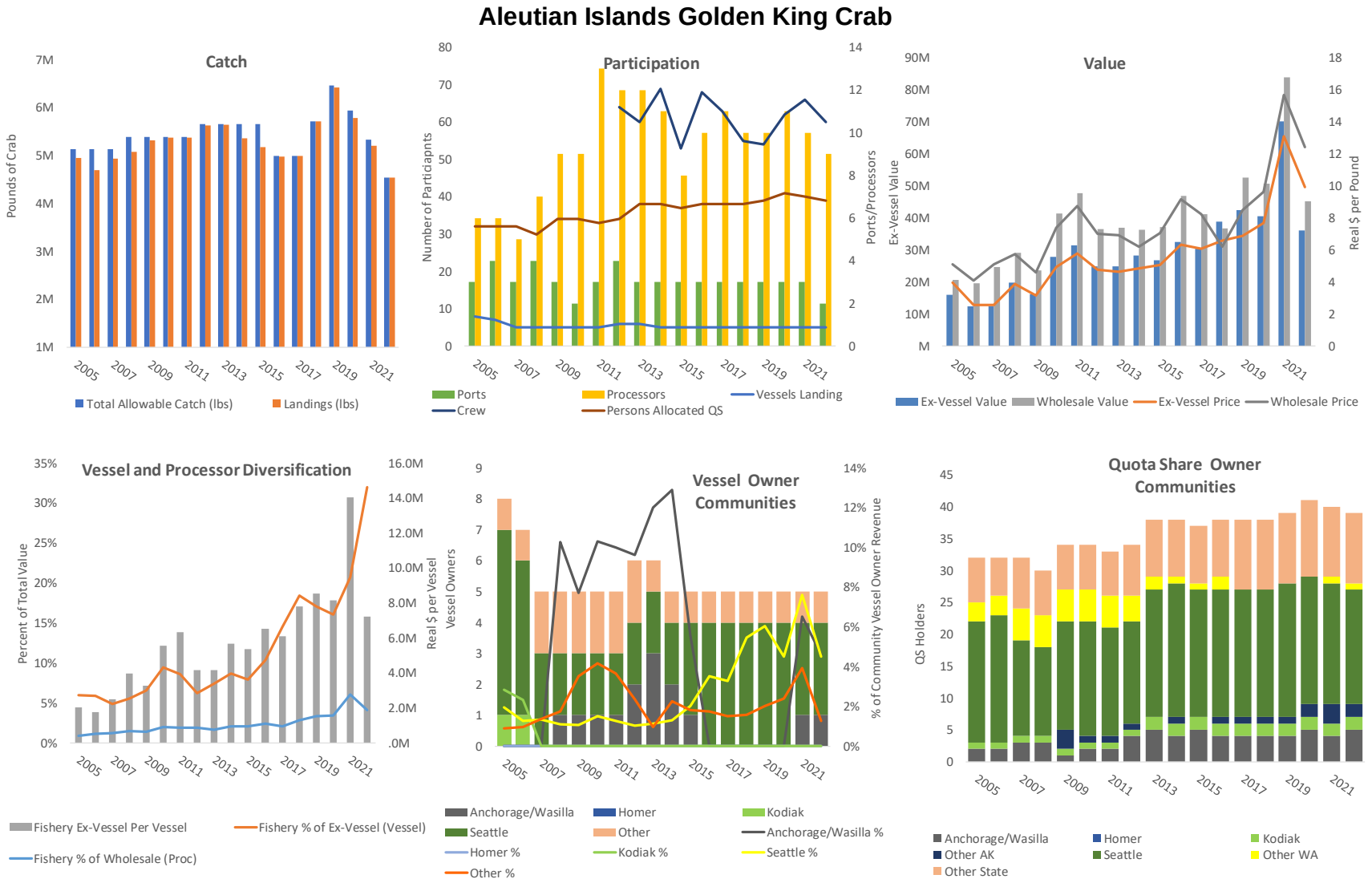
Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

Figure 5-3 Summary of Bering Sea Snow Crab CR Program IFQ fishery, 2005-2022



Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

Figure 5-4 Summary of Aleutian Islands Golden King Crab CR Program IFQ fishery, 2005-2022



Source: AKFIN summary as provided in Crab Figures (2_2_24).xls

6 HARVESTERS AND HARVEST CREW

6.1 Primary Program Elements Impacting the Harvest Sector

This section describes the quota types issued to harvesters under the CR Program, including crew shares. The arbitration system that is used to facilitate the negotiation of prices and delivery terms between independent catcher vessel operators and the processors that buy their catch. The cooperative management structure developed. Economic Data Reports (EDRs) that collect certain business, economic, and employment data from participants in the CR Program. Finally, a summary of LLP licenses that underpin the program.

6.1.1 Allocation of Quota Shares

The allocation of quota shares allowed persons to harvest their annual allotment of each crab species during the years of low TACs. Without the individual allocations, harvesters would have continued to race to catch the available crab. Management of a large fleet with excessive harvest capacity would not have been possible under some of the low TACs that were established in recent years. Because of the CR Program management structure, agencies were able to open directed fishing and provide the fleet an opportunity to fish. Under the LLP, those fisheries would have remained closed during the low TAC years. Benefits of the CR Program were that participants in the open fisheries could generate some revenue, allowed the cooperative structure to be used to harvest the allocation more efficiently, and provided opportunities for crew and processing employment that would not have been available before implementation of the CR Program.

6.1.2 Allocation of Quota Types

The CR Program allocates certain crab fisheries harvesters, processors, and coastal communities (Figure 2-1). NMFS initially allocated four types of harvest QS to persons based on their qualifying harvest histories in qualifying BSAI crab fisheries. The four types of harvest QS are CVO, CPO, CVC, and CPC. CVC and CPC QS are also known as “crew shares” or “C shares.” At the beginning of the CR Program, NMFS issued 97 percent of the harvest QS as owner QS, either CVO or CPO, and issued the remaining three percent as C shares, either CVC or CPC.

NMFS also issued PQS to processors based on their processing history during the qualification period. PQS must be matched with CVO A shares for delivery and represents 90 percent of the harvest IFQ that is issued annually. These shares also have regional based on the crab species allocated.

6.1.3 Share Matching

Share matching regulations are established at 50 CFR 680.20(h)(3)(iv). Share matching requires that Class A CVO IFQ shares may only be delivered to a processor with available IPQ. Equal amounts of Class A CVO and IPQ are issued each year for each CR Program crab fishery. Within five days after NMFS issues IFQ and IPQ for a fishery, harvesters and processors may match uncommitted IFQ shares with uncommitted IPQ shares. The holder of uncommitted IFQ that is not a Fishermen’s Collective Marketing Act of 1934 (FCMA; 15 U.S.C. § 521 et seq.) cooperative must offer at least 50 percent of the IFQ holder's total uncommitted CVO A shares or an amount equal to the total amount of uncommitted IPQ available from that processor, whichever is less. If the Class A shareholder is an FCMA cooperative, it must commit at least 25 percent of the holder's total uncommitted Class A IFQ, or an amount of equal to the processor’s uncommitted IPQ, whichever is less. After five days, any holder of uncommitted IPQ must accept all commitments to deliver Class A CVO shares, up to the amount of its uncommitted IPQ.

The share match is established upon receipt of notice from the IFQ holder. During this period Class A CVO shareholders have sole discretion of who they will match shares with for delivery.

After matching shares, the IFQ holder and IPQ holder may decide to enter mediation to reach agreement on contract terms. The IFQ holder and IPQ holder may request a Contract Arbitrator to act as a mediator. If the mediation proves unsuccessful, or if mediation is not selected, the IFQ holder may initiate Binding Arbitration. Arbitration may begin immediately with the same Contract Arbitrator. If the Contract Arbitrator serves as a mediator in an unsuccessful mediation, the IFQ holder may request another Contract Arbitrator for the Binding Arbitration.

Throughout the share matching process, holders of uncommitted IPQ are required to report the amount of uncommitted shares held to holders of uncommitted IFQ (updating that report within 24 hours of any change). To aid in meeting the share matching timeline, the harvester arbitration organization has developed an internet-based system for matching shares—sharematch.com—to facilitate real time commitment of shares and the timely exchange of information concerning uncommitted shares. This system has benefited participants by creating a single forum for matching uncommitted shares.

Holders of harvest shares that are affiliated with holders of processing shares are required to join an arbitration organization for purposes of facilitating share matching and administration. Due to antitrust concerns, these "affiliated harvesters" are not permitted to join an organization that includes unaffiliated harvesters and are not permitted to use a binding arbitration proceeding to settle terms of delivery.

6.1.4 Arbitration System

When the CR Program was implemented, there was concern expressed by both harvesters and processors regarding how the proposed changes in the fishery would impact market power between the sectors. Based on those concerns and direction from Congress an arbitration system was designed to resolve price, delivery terms, performance standards, and other disputes fairly and equitably if class A IFQ and IPQ holders are unable to reach an agreement. A "baseball" style of arbitration[39] was selected. Baseball arbitration requires that both parties provide evidence supporting the requested outcome. Along with that evidence, both the IFQ holders and IPQ holders must each submit their proposed outcome. That outcome could be the ex-vessel price paid or other disputes (e.g., delivery terms). The arbitration procedure up to the presentation of evidence is virtually identical to standard arbitration. However, baseball arbitration imposes strict limits on the arbitrator's ability to select an outcome. The arbitrator is only empowered to take one of two actions: accept the IFQ holder's proposal or accept the IPQ holder's proposal. The arbitrator is not empowered to negotiate an agreement other than the outcome requested by the IFQ holders or the IPQ holders. The decision of the arbitrator is final and issued without explanation.

CR Program arbitration may only be triggered by IFQ holders that have joined a CR Program arbitration organization. IPQ holders are prohibited from initiating the arbitration process. Because only IFQ holders may initiate the arbitration process, they have control over the years and fisheries that will utilize arbitration. It also means that IFQ holders are most likely to initiate the arbitration process in fisheries and during years they anticipate prevailing in the arbiter's ruling.

Certain requirements are established for catcher vessel owners who hold class A QS/IFQ and processors that hold PQS/IPQ regardless of whether participants in the fishery initiate binding arbitration during a year. Because the required submission dates are set before the determination of whether the stocks will

[39] Also known as final offer arbitration or pendulum arbitration.

support a fishery that crab fishing year, the arbitration system process must be conducted and the costs to collect and submit the required information must be incurred each year.

Four data collections are submitted annually:

(1) Annual Arbitration Organization Report: (compiled by each of the two arbitration organizations representing the processors and the harvesters [40] - see template linked in footnote),

(2) Market Report (analysis of the market for products of a specific crab fishery and reports on activities occurring within three months prior to its generation. The purpose of this report is to provide background information on each crab fishery, the products generated by each fishery, and position of those products in the marketplace; discuss the historical division of wholesale revenue; and provide the methods for predicting wholesale prices before the fishery occurs),

(3) Non-binding Price Formula Report (a pre-season report that is designed to serve as a starting point for negotiations between fishermen and processors, or as a starting point for an arbitrator in evaluating offers in an arbitration process. This report documents how each formula was developed), and

(4) Cost Allocation Agreement (provides combined shared arbitration accounting costs since the Federal regulations require that the crab arbitration costs are shared equally between IPQ holders and Class A IFQ holders).

In addition, a Contract Arbitrator Report is submitted if any arbitration occurs within a fishery. A summary of the arbitrations that have been reported are provided in Table 7-6

The shared arbitration system costs are outlined in an annual report submitted to NMFS and the Council by participants in the Alaska Crab Processors Arbitration Organization (ACPAO). Arbitration costs are divided equally between the harvesters and processors based on a landings fee structure. Because of when costs are incurred and when the fees are collected, the processor pays the arbitration costs and is reimbursed through the fee. The fee and structure are agreed to by both parties and the contract describes how shortfall and excess funds are addressed. The ACPAO report identified the following costs as shared arbitration system costs:

- The cost to produce the market report and non-binding pricing formula for each fishery (covers Numbers 2 and 3 of the required data submissions listed above);
- The third-party data provider (Sharematch.com) costs for each fishery;
- The contract arbitrators' costs for each fishery;
- General liability insurance, and directors' and officers' insurance for each arbitration organization;
- The fees and expenses necessary for the participation in the Council's CR Program review process incurred by any arbitration organization authorized representative; and

[40] https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-11/Crab-Arbitration-Organization-Annual-Report-Template-AKRO.pdf?null=

- Attorney's fees of the arbitration organizations to prepare, negotiate and administer the above contracts, obtain and review the above insurance, pursue Department of Justice antitrust review of the implementation of the arbitration system, contribute to and participate in the Council's CR Program review process, and otherwise implement the arbitration system, as amended from time-to-time by NOAA regulation. Attorney's fees associated with the formation and administration of each arbitration organization shall be borne by each arbitration organization.

The fee per pound varies annually and has ranged from $0.00 to $0.01 per pound depending on the estimated arbitration costs and the amount of carryover funds held in reserve (2005 through 2022 fishing years). Fishing year costs incurred ranged from about $325k early in the program to as low as about $80k in recent years. The average over the past 7 years, since the last program review, was about $110k.

Based on the requirements described above, the Arbitration System begins with dissemination of information. The two sectors (harvesters and processors) jointly select a "market analyst," who produces a market report, a "formula arbitrator," who develops a price formula specifying an ex-vessel price as a portion of the first wholesale price. The two sectors (i.e. the Arbitration Organizations) also choose a pool of "contract arbitrators," who preside over any binding arbitration proceedings.

The price formula is an important pre-season report that is designed to inform negotiations. The market report is intended to provide baseline information concerning the market and a signal of a reasonable price. Neither the market report, nor the formula price, has any binding effect. Instead, they are intended to provide baseline information concerning the market and a signal of a reasonable price. These market reports and the price formula have served as the starting point for price negotiations.

The market report and formula price are required to be released at least 50 days before the season opening. The market analyst and formula arbitrator (who may be the same person) generate the market report and formula price, respectively, based on any relevant information, which may include information received from IFQ holders and IPQ holders.

In the first year of the program, the price formula report for AIG recommended a staged price setting process. Under this approach, harvesters receive an advance, guaranteed minimum price at the time of landing based on prevailing market prices at the time of the report. At the end of the season, a price adjustment is made based on average first wholesale prices for the year. This formulation was suggested to put market risk on processors. The report suggested that this starting price would present a risk of loss to processors only in years of very steeply declining market conditions. To the author's knowledge, this approach to pricing has been followed in negotiations in most program fisheries to date but has not been suggested in any of the other non-binding price formulas. The approach has also not been part of any binding arbitration proceeding. Instead, harvesters have negotiated for a minimum price paid at landing before beginning fishing.

There continues to be some disagreement between harvesters and processors regarding how well the Arbitration System has worked. Some of the concerns were described in a discussion paper presented to the Council since the last program review (NPFMC, 2017). That paper provides greater detail regarding some of the concerns when calculating revenue divisions.

6.1.5 Cooperatives

The formation and management of harvest cooperatives provides a structure that shifts some of the quota management burden from NMFS to the cooperative members. It also provides greater flexibility regarding who may harvest IFQ allocated to a cooperative by allowing the cooperative members to make

rules to distribute quota among member vessels. While CR Program rules include provisions for IFQ transfers (i.e., leasing) between permit holders outside of the structure of harvest cooperatives, there are significant constraints in terms of amount that may be transferred and the eligibility of parties to transfer or receive IFQ. For these reasons, cooperatives have become increasingly important, to the point that since the 2009/10 crab season, virtually all IFQ has been managed within the harvest cooperative framework.

The harvest cooperative structure provides a framework for optimizing the allocation and timing of fishing effort, under which an efficient quota lease market is possible. In addition to these advantages, other provisions of the program provide incentives for harvest cooperative formation and membership. Vessels harvesting cooperative IFQ are exempted from vessel IFQ use caps specified for each fishery. Also, IFQ held by an individual that is not assigned to a cooperative may not be leased to any member of a cooperative, or landed by a vessel that is authorized to make landings on a cooperative IFQ permit. The later restriction is necessary to accurately manage allocations to cooperatives and individual IFQ holders.

Lease rates have been a concern of the Council in past program reviews. Lease rates commonly exceed 50 percent of the ex-vessel value per pound in the Bering Sea snow crab fishery and 65 percent the Bristol Bay red king crab fishery. These lease rates provide incentives for vessel operators to have access to the lease market through a cooperative. The CR Program also provides incentives for persons to form relatively large cooperatives or specialized cooperatives to increase the number of persons in their lease market.

Cooperative managers and other cooperative representatives play an important role as mediators between industry sectors and fishery managers. The influential role of harvest cooperatives within the CR Program potentially provides an alternative mechanism for pursuing collective management objectives through non-regulatory means, and cooperative managers are important to facilitating communication between cooperative members and the policy and management agencies.

The Council requested that the CR Program harvest cooperatives voluntarily provide annual reports to the Council, focusing on the effectiveness of measures taken by the cooperatives to meet Council management objectives. Specifically, the Council requested information on measures to promote increased QS holdings by active crew members and vessel owners. Information was also requested on measures intended to address concerns about high lease rates for IFQ and associated effects on crew compensation.

The annual cooperative reports submitted to the Council since 2013 provide information on the specific measures undertaken and compliance with these initiatives among members of the cooperatives. Information presented in the 2022 ICE cooperative report[41] states that ICE operated a website (crabqs.com) designed to inform active participants of available QS through the ICE Member Agreement requiring members to offer at least 10 percent of any QS sales offering under a ROFO to active participants. The DOG Boat Cooperative also adheres to this program[42]. Interest in the ICE ROFO program has declined and in 2021 and again in 2022, no active participants renewed their annual program registration. Coastal Villages Crabbing Cooperative (CVCC) members are required to follow the ROFO

[41] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/CoopRpts2022/ICE.pdf
[42] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/CoopRpts2022/DogBoat_Crab.pdf

provisions[43]. One recent transfer by a cooperative member met those requirements. The Aleutian Island Cooperative[44] also follows the ROFO but did not report any recent transfers.

The 2023 ICE cooperative report[45] indicates that members have self-funded the ROFO program over the past years, but severe budget constraints have limited ICE's ability to manage the program. ICE staff reported that the group is financially unable to maintain the crabqs.com website. If the need arises and the budget allows, ICE can revive the website, but it will remain dormant under current conditions of low budget and demand for the program. ICE made the ROFO program available to all qualified participants, including non-ICE members. ICE indicated that if the crab industry crisis continues, it will have to reassess its ability to continue the program.

To address Council concerns regarding lease rates, ICE notifies its members that the Council is concerned about the potential impact of high lease rates on vessel operations and asks its members to individually consider voluntarily capping their lease rate asks and offers at 65 percent of adjusted gross revenues for BBR crab and 50 percent of adjusted gross revenues for BSS. ICE requires its harvesting members to report the adjusted lease rates paid by every vessel. The reported lease rates include the deductions of certain costs, but those adjustments are not standardized across all vessels. The DOG Boat Cooperative indicated that adjusted lease rates were about 50 percent for BSS and 65 percent for BBR in recent years when the fisheries were open. The CVCC reported similar lease rates, but because of the different methods each cooperative used to account for certain costs direct comparisons are difficult. Lease rates for WBT are currently reported to be about 65 percent[46]

Cooperatives and their memberships have changed over the life of the CR Program. QS holders are required to apply to NMFS RAM for issuance of annual IFQ permits. QS holders electing to join a harvest cooperative, when applying for their annual allocation of IFQ, direct RAM to assign the IFQ to the harvest cooperative. The result is the consolidation of IFQ issued by RAM to a cooperative onto the cooperative's IFQ permits (with separate permits associated with each IFQ sector, region, and quota class). Cooperative membership through an agreement manages the use of that IFQ within the cooperative or across cooperatives through an inter-cooperative agreement. Leasing arrangements between operators of harvesting vessels and QS holders within the cooperative is conducted under terms of private contracts between lessors and lessees. Inter-cooperative transfers require authorization by RAM and administrative reporting by transferee and transferor cooperatives and are largely conducted by cooperative managers online via RAMs eFish account portal. These transfers do not require disclosure of financial or other details beyond identification of IFQ permits and IFQ balances being transferred.

Table 6-1 provides a summary of the number of cooperatives that received an allocation of IFQ from RAM by fishing year from the first year of the program (2005/2006) through the current fishing year (2023/2024). During the first year of rationalization, 15 distinct crab harvesting cooperatives were allocated IFQ. Harvesters pooled IFQ within cooperatives soon after the program was implemented in response to incentives to trade pounds of crab more freely between members. Consolidation of the harvest cooperatives followed, with formation of the ICE harvest cooperative before the 2009/10 crab season. Concerns regarding ICE membership and its compliance with the FCMA resulted in the formation of the

[43] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/CoopRpts2022/CoastalVillages.pdf

[44] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/CoopRpts2022/AleutianIslands_Crab.pdf

[45] https://www.npfmc.org/wp-content/PDFdocuments/catch_shares/CoopRpts2023/ICE.pdf

[46] Personal communication with Aaron Overland on March 4, 2024

Alternative Crab Exchange (ACE) harvest cooperative for the 2013/14 season (Table 6-2). During the 2023/24 season, members of ICE represented 31 percent of the IFQ pounds issued and the ACE and DOG Boat cooperatives about 22 percent of the IFQ, each. The remaining IFQ was assigned to six other cooperatives and IFQ holders that did not join a cooperative. In total about 99.8 percent of the IFQ was assigned to cooperatives.

Table 6-2 shows the percentage of the combined IFQ that was allocated to each cooperative by fishing year. Red shading indicates the cooperative was not active that year. Yellow through darker green indicates the progression from smaller the larger allocations in years the cooperative did form and was issued an allocation by NMFS.

Table 6-1 Summary of cooperatives, cooperative members, and cooperative allocations, 2005/2006 through 2023/2024

	Cooperatives							Co-op Members							IFQ (millions of Lbs)							Total Co-ops	Total Co-op Members	Total IFQ (million Lbs)
Fishing Year	BBR	BSS	EAG	EBT	SMB	WAG	WBT	BBR	BSS	EAG	EBT	SMB	WAG	WBT	BBR	BSS	EAG	EBT	SMB	WAG	WBT			
2005-2006	15	15	5	15		5		332	307	24	315		24		13.8	28.0	2.5	1.2	0.0	2.4	0.0	15	364	47.8
2006-2007	19	19	6	19		5	19	381	346	25	352		24	352	13.6	32.2	2.7	1.6	0.0	2.4	0.9	19	419	53.5
2007-2008	19	19	6	19		5	19	380	349	25	362		24	362	18.1	56.4	2.7	3.1	0.0	2.4	1.9	19	428	84.6
2008-2009	19	19	6	19		5	19	379	351	25	355		23	356	18.3	52.6	2.8	2.5	0.0	2.5	1.4	19	429	80.1
2009-2010	11	11	5	11	11	5		383	356	24	353	197	23		14.4	43.2	2.8	1.2	1.0	2.6	0.0	11	439	65.2
2010-2011	9	9	5		9	4		388	355	28		197	23		13.3	48.8	2.8	0.0	1.4	2.6	0.0	9	437	69.0
2011-2012	9	9	5		9	5		379	363	27		195	23		7.0	80.0	2.8	0.0	2.1	2.6	0.0	9	444	94.5
2012-2013	9	9	5		9	5		381	364	27		198	22		7.1	59.7	3.0	0.0	1.5	2.7	0.0	9	450	73.9
2013-2014	10	10	5	10		6	10	379	369	26	362		22	362	7.7	48.6	3.0	1.3	0.0	2.7	1.5	10	462	64.8
2014-2015	10	10	5	10	10	6	10	371	361	33	356	190	22	356	9.0	61.1	3.0	7.6	0.6	2.7	6.0	10	465	90.0
2015-2016	10	10	5	10	10	6	10	362	362	32	358	187	22	356	9.0	36.5	3.0	10.1	0.4	2.7	7.6	10	471	69.2
2016-2017	9	9	5			6		358	362	31			22		7.6	19.4	3.0	0.0	0.0	2.0	0.0	9	425	32.0
2017-2018	9	9	5			6	9	353	356	31			22	348	5.9	17.1	3.0	0.0	0.0	2.0	2.2	9	454	30.2
2018-2019	9	9	5			6	9	344	352	31			22	335	3.9	24.8	3.5	0.0	0.0	2.3	2.2	9	436	36.6
2019-2020	9	9	5			6		337	348	31			22		3.4	30.6	3.9	0.0	0.0	2.6	0.0	9	406	40.5
2020-2021	9	9	5			6	9	333	346	31			22	320	2.4	40.5	3.3	0.0	0.0	2.7	2.1	9	422	50.9
2021-2022		9	5			6	9		339	33			21	314	0.0	5.0	3.2	0.0	0.0	2.1	1.0	9	398	11.4
2022-2023			5	9		6	9			31	313		21	313	0.0	0.0	3.0	1.0	0.0	1.6	0.8	9	331	6.4
2023-2024	9		5	9		6	9	317		29	301		21	302	1.9	0.0	3.3	0.7	0.0	1.6	1.2	9	364	8.8

Source: RAM permits data (e.g., https://www.fisheries.noaa.gov/sites/default/files/akro/2324cratcoopmbrbreak.csv)

Table 6-2 Percentage of total annual IFQ allocated by cooperative

Cooperative	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
AC Crab Harvesting Co-op	4.66%	4.50%	6.66%	4.17%	1.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Advanced Harvesters Co-op	8.86%	7.66%	8.15%	8.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Alaska Crab Producers Co-op	2.96%	4.31%	4.49%	4.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Alaska Fishermen's Crab Co-op	9.10%	6.44%	6.42%	6.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AK King Crab Harvesters Co-op	8.61%	6.18%	7.30%	6.11%	2.20%	2.08%	3.30%	3.06%	4.81%	4.60%	5.18%	4.96%	5.00%	5.04%	5.06%	5.18%	4.91%	4.38%	4.30%
Aleutian Gold Crab Co-op	0.00%	2.86%	2.08%	2.27%	2.73%	2.62%	2.05%	2.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aleutian Island Co-op	1.32%	3.16%	1.23%	3.00%	0.00%	0.00%	0.00%	0.00%	1.59%	1.63%	1.65%	1.52%	1.52%	1.52%	1.51%	1.59%	0.95%	0.52%	0.81%
Alternative Crab Exchange (ACE)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.25%	31.13%	30.92%	28.82%	29.28%	29.11%	30.54%	36.49%	25.31%	16.38%	21.86%
Coastal Villages Crabbing Co-op	6.29%	4.34%	0.00%	0.00%	5.03%	6.30%	6.37%	6.30%	5.67%	5.58%	5.15%	5.10%	5.08%	4.94%	4.95%	4.97%	5.66%	5.10%	5.54%
CPH Association	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.76%	3.80%	3.92%	3.89%	5.00%	3.02%	1.58%	2.25%
Crab Producer & Harvesters LLC	0.00%	1.78%	3.17%	3.13%	3.10%	4.36%	4.88%	4.88%	4.90%	5.03%	4.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DOG Boat Co-op	0.00%	0.00%	0.00%	0.00%	3.54%	3.68%	5.50%	5.70%	7.90%	7.22%	7.85%	9.82%	10.19%	10.07%	10.21%	9.00%	20.13%	27.94%	22.60%
Fishing Associates Co-op	3.07%	2.62%	2.61%	2.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Independent Crabbers Co-op	0.00%	0.00%	0.00%	0.93%	1.04%	0.52%	0.51%	0.51%	0.53%	0.57%	0.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inter-Coop Exchange (ICE)	0.00%	0.00%	0.00%	0.00%	69.47%	69.68%	65.84%	65.41%	31.44%	33.29%	32.57%	33.64%	32.76%	33.15%	31.65%	25.64%	28.81%	33.06%	30.80%
KBO Crab Co-op	9.02%	7.97%	8.02%	7.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Krabbe Co-op	0.00%	1.20%	1.55%	1.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mariner Crab Harvesting Co-op	6.32%	6.37%	6.50%	6.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Prof. Crab Harvester Co-op	2.43%	2.15%	1.91%	1.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
R & B Co-op	0.00%	0.00%	0.80%	0.73%	3.58%	3.67%	4.32%	4.43%	4.39%	4.04%	4.80%	5.81%	5.66%	5.63%	5.75%	5.34%	7.20%	8.53%	7.92%
Ranier Co-op	0.00%	0.86%	0.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Sea Boat Co-op	5.49%	6.48%	6.91%	10.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
The Bering Sea Crab Co-op	19.03%	19.83%	20.63%	19.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
The Crab Co-op	7.46%	6.57%	3.88%	2.32%	0.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
The Kodiak Co-op	5.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Trident Affiliated Crab Harvesting Co-op	0.00%	4.71%	6.80%	7.57%	7.01%	7.10%	7.24%	7.11%	8.52%	6.91%	7.15%	6.56%	6.71%	6.61%	6.44%	6.79%	4.01%	2.53%	3.93%

Source: RAM permits data (e.g., https://www.fisheries.noaa.gov/sites/default/files/akro/2324cratcoopmbrbreak.csv)

6.1.6 Economic Data Reports

The BSAI Crab EDR program is a census of CR Program participants that collects detailed operational and financial information about CR Program fisheries. Participation in the data collection program is mandatory for all participants in the program fisheries, including catcher vessels, catcher processors, stationary floating crab processors and shoreside crab processors and, as of 2012, Registered Crab Receivers (RCRs) that hold IPQ and purchase crab from delivering vessels, but do not operate a crab processing plant. Should a CR Program participant fail to submit an annual EDR by the due date, NMFS is authorized to withhold issuance or transfer of QS, PQS, IFQ, and IPQ to that person. Persons submitting data have an opportunity to correct errors before enforcement action is taken.

The EDR program was designed by the Council as a component of the CR Program to provide data to help determine whether the social and economic objectives are being achieved. Economic performance of the CR Program is considered in terms of efficiency and profitability changes of the fisheries, and economic stability for harvesters, processors, and coastal communities, including changes both pre and post implementation of the program. To better understand the impacts of the CR Program the submission of historical data was required retroactively for 1998, 2001, and 2004. EDR submissions have been required and collect data regarding activity each calendar year (note this is different than the crab fishing seasons) from when the program was implemented (2005) through the present.

Revised EDR reporting requirements were implemented under a program amendment that went into effect during 2013 for collection of 2012 calendar year data. As noted in the Crab Economic SAFE (2023) several key elements in the EDR data collection before 2012 were limited by data quality and have not been used in analysis of the CR Program. These include quantity and cost of fuel used in the fishery, prices and costs of leasing of IFQ, and spending for factor inputs by individual location. Given the importance of these elements in examining changes in profitability and distribution of income generated by and within the fishery, these data quality issues limit the analysis of several key performance metrics for the fishery. Revised data collection protocols implemented for 2012 and subsequent reporting years have corrected errors associated with quantity and cost of fuel and prices and costs for leasing of crab fishing quota. Due to the described issues, data associated with these EDR elements for 2012 forward are used; data reported before 2012 continue to be withheld due to data quality limitations. Also note that several data elements were eliminated under revised EDR protocols, most notably all operating and capital cost elements for the crab fishing vessel and processing sectors, with the exception of fishing crew wages, processing labor wages, aggregate salary expenses, lease expenses for fishing quota (IFQ and CDQ/ACA quota) and IPQ, vessel expenses for fuel, bait, and food and provisions, and payments for custom processing of crab purchased but not processed by the buyer submitting the EDR.

A list of all past and present EDR forms is available through the PSMFC website.[47] The Council's current global review of the EDR collection systems is not expected to have a substantial impact on the structure of the Crab EDRs or the information currently being collected.

Crab EDR data are collected and housed by PSMFC as the designated NMFS Data Collection Agent. PSMFC abides by all statutory and regulatory data confidentiality requirements, and will only release the data to NMFS, Council staff, and any other authorized users in a "blind" format. Specifically, all identifiers associated with data submitters will be eliminated and replaced with fictitious vessel and processor identifiers for purposes of analyses. However, in cases where the data are requested by NMFS

[47] https://www.psmfc.org/alaska_crab/

Alaska Region RAM, NMFS OLE, NOAA GC, the U.S. Department of Justice or the Federal Trade Commission for a purpose connected to law enforcement or qualification for quota and other Federal permits, PSMFC will provide the data and the identity of the submitter.

EDR data are a critical source of data used in analyses of changes in the harvest and processing sectors, and communities in this document. Without those data all the crew and cost data utilized in this analysis would not be available. EDR data are also used extensively in preparation of the annual Crab SAFE Economic Status Report and other analytical documents.

6.1.7 LLP Licenses

Table 6-3 demonstrates the number of LLP licenses that were in circulation for each crab fishery at the time of program implementation (2005). Of the 347 Crab LLP Licenses issued only one is non-transferable from the initial recipient. That LLP license has not been active in the CR Program fisheries. Since licenses may have multiple species-area endorsements, the total number of licenses cannot be determined by summing the endorsements. This type of matrix demonstrates LLP license holder diversification.

Table 6-3 Crab fishery endorsements on LLP licenses at CR Program implementation

Licenses endorsed for / also endorsed for	BBR	BST and BSS	PIK	SMB	WAI	AIG	CP
BBR	**270**	264	110	168	28	25	26
BST and BSS		**273**	109	169	30	27	27
PIK			**118**	77	15	8	2
SMB				**170**	26	19	13
WAI					**30**	8	4
AIG						**28**	9

Source: NMFS RAM Division

Under the CR Program, a Federal Fisheries Permit and LLP license is not required to harvest CR Program allocations. However, persons retaining any groundfish harvested from Federal waters, including Pacific cod caught for bait must obtain a Federal Fishery Permit. A crab LLP license with the proper endorsement is still required for non-CR Program crab fisheries. The LLP crab endorsement fisheries are currently Aleutian Islands *C. opilio*, Norton Sound red and blue king crab, and "minor species" including Bering Sea golden king crab. LLP license endorsements were revised after the CR Program was implemented to reflect these changes in the required endorsements and are summarized in Table 6-4.

Table 6-4 Summary of 2023 BSAI Crab LLP licenses by endorsements

Crab LLP endorsements	CP		CV			Total
	60-124	>=125	<60	60-124	>=125	
Norton Sound red and blue king crab			60	1		61
Bering Sea Minor Species			8	2	2	12
Bering Sea Minor Species & Norton Sound red and blue king crab			1			1
Aleutian Islands C. opilio & Bering Sea Minor Species	1	26	7	172	68	273
Total	1	26	76	175	70	347

Source: 2023 NMFS LLP License files

6.2 Initial Allocations of QS by Sector and Region

Quota shares for certain CR Program fisheries are assigned for use in a specific region to minimize negative impacts on the more vulnerable region that result from greater harvest and processing flexibility. Table 6-5 shows by fishery the QS holders, region of QS holding, and percentage of quota pool at the time of initial allocation. The individual holdings may have changed over time, but the regional designations remain assigned to the QS. Additional information on the impacts of QS regional designations are provided in the Social and Community Impacts section of the document.

Table 6-5 Initial allocation of QS by regional designation

Fishery	Share holdings by region						Across regions			
	Region/CP	QS holders	% of owner QS in fishery pool	Mean holdings (as a % of owner QS in fishery)	Median holdings (as a % of owner QS in fishery)	Max holdings (as a % of owner QS in fishery)	QS holders	Mean holdings (as a % of owner QS in fishery)	Median holdings (as a % of owner QS in fishery)	Max holdings (as a % of owner QS in fishery)
BBR	North	28	2.4%	0.1%	0.1%	0.2%	251	0.4%	0.4%	2.2%
	South	241	93.0%	0.4%	0.3%	2.1%				
	CP	13	4.5%	0.3%	0.4%	1.0%				
BSS	North	205	42.6%	0.2%	0.2%	1.2%	241	0.4%	0.4%	2.4%
	South	214	48.4%	0.2%	0.2%	2.1%				
	CP	14	9.1%	0.6%	0.7%	1.2%				
BST	Undesignated	248	93.3%	0.4%	0.3%	2.4%	258	0.4%	0.3%	2.4%
	CP	14	6.7%	0.5%	0.4%	1.0%				
EAG	South	13	95.2%	7.3%	6.6%	20.4%	15	6.7%	6.0%	20.4%
	CP	2	4.8%	2.4%	2.4%	4.1%				
PIK	North	84	67.1%	0.8%	0.6%	3.1%	112	0.9%	0.5%	3.4%
	South	76	32.4%	0.4%	0.3%	2.8%				
	CP	1	0.5%	0.5%	0.5%	0.5%				
SMB	North	121	76.7%	0.6%	0.6%	3.4%	135	0.7%	0.6%	4.4%
	South	83	21.3%	0.3%	0.1%	3.8%				
	CP	5	2.0%	0.4%	0.3%	0.9%				
WAG	Undesignated	13	26.9%	2.1%	1.0%	11.0%	15	6.7%	1.8%	45.7%
	West	9	26.9%	3.0%	1.3%	13.5%				
	CP	2	46.2%	23.1%	23.1%	45.7%				
WAI	South	29	61.0%	2.1%	0.6%	13.5%	30	3.3%	0.6%	45.2%
	CP	2	39.0%	19.5%	19.5%	37.8%				

6.3 Transfers of QS and IFQ

Current market information provided in this section is based on discussions with Dock Street Brokers staff[48]. Transfer data from the EDR files are presented in Sections 6.3.1 and Section 6.3.2.

[48] Personal communication with Aaron Overland March 4, 2024

Market activity (transactional volume) was reported to be stable through 2021 for BSS. Since then, transfers have been "pretty much at a stand-still". Given the current market conditions shareholders are having a hard time finding a middle ground for prices because of the TACs (and associated values), although some smaller transactions for BST and BBR have been made.

The closed fisheries make it difficult for buyers and sellers to agree on a price that reflects the long-term profit stream of the fisheries. Two or three stable years of open fisheries to help set the market value may increase sales. As a result, a primary driver of the slow quota market has been the uncertainty created by low TACs and closed fisheries. Closed seasons provide limited information on potential future revenues, so sellers are holding their BSS quota until there are more consistent market signals. Transactions are further complicated when there is debt service because quota that is currently generating no revenue limits its value as collateral for loans.

Some BBR crab quota has sold but at a discounted rate relative to 2020. BSS reached its highest price in 2021 but given current market conditions the buyers generally feel they overpaid. Some of those buyers of BSS in 2021 and are reportedly having a difficult time covering the cost of the quota.

Current market conditions have buyers willing to wait to make purchases. The willingness to wait is reinforced by the BSS rebuilding plan of 3-5 years that signals short-term improvements in the BSS fishery may be limited.

Dock Street Brokers does not facilitate many lease transactions as they occur within cooperatives. However, it was noted that WBT crab lease rates are currently relatively high (estimated 65 percent lease rate). Because relatively few vessels participate in the fishery these vessel operators tend to lease a lot of the crab. If harvesting the quota is difficult because of the TAC relative to CPUE or the number of vessels available in the fishery (quota per vessel) it could increase the risk to the harvesters. For example, the fleet only harvested 62 percent of the WBT 2.1 million lb. TAC in 2020/21.

Lease rates have been identified as an area of Council concern in the past and cooperatives have asked members to limit lease rates. Markets may drive down lease rates if TACs are higher and there are insufficient vessels to harvest the crab being offered for lease. Dock Street staff noted this type of market change in some sablefish fisheries when lease rates declined from 50 percent to 20 percent of ex-vessel value when the TAC increases outpaced harvesting capacity.

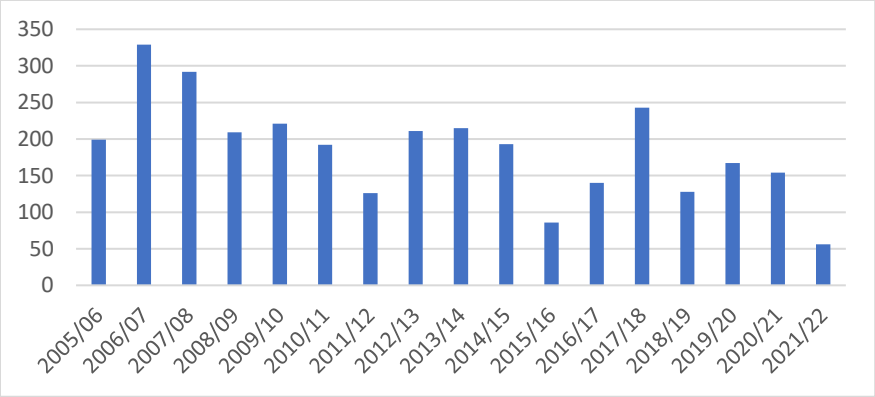
Crab vessel sales and the number of vessels on the market have been impacted by consolidation in the crab fisheries. Holding a vessel that is no longer necessary to fish requires expensive repair and maintenance, so these vessels are often sold, and quota held by the vessel owner is leased through cooperatives. Crab boats that are sold are often repurposed as tenders. The impact of consolidation was an expected outcome of the CR Program as emphasis is placed on quota ownership/use and not investing in greater harvesting capacity. It was noted in the conversation with Dock Street Brokers' staff that the "newest crab boat in the fleet is old enough to buy a beer".

Crew QS transfers (CVC and CPC) have been impacted by a general lack of qualified buyers that satisfy the 365-day landing requirement. Crew members that do meet the requirement often are not fiscally able to buy quota and/or they do not think the purchase is an economically viable asset under current conditions. For the crew quota market to improve, it will be important to create a large enough pool of buyers that foresee the purchase being a viable asset in the long-term.

6.3.1 QS Transfers

Figure 6-1 shows the number of harvest QS sales on an annual basis across all CR Program fisheries. The number of transfers was greatest in the years following the first year of the program. Since the 2007/08 fishing year, the annual number of transfers has ranged from 56 to 243 with the lowest and the highest number of transfers in a year both occurring since the last program review. The number of transfers within a year is driven by a variety of factors which make it difficult to attribute increases or decreases to specific causes or economic conditions.

Figure 6-1 Number of Harvest QS Sales 2005/06 through 2021/22



Source: 2022 Crab Economic SAFE

Table 6-6 provides more detail on the transfers by fishery. Information in that table separates transfers by vessel owner and crew quota, the number of persons involved in the transfer, and the quantity of quota transferred.

Table 6-6 Crab harvest quota (QS) sale transfers, estimated price per QS unit, crew and CV owner QS

		CVC QS				CVO QS			
Spec	Year	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit
BBR	2005/06	21(19,14)	1,221	56	1.13	14(6,10)	7,140	115	0.7
	2006/07	24(20,17)	1,130	40	0.82	27(17,11)	24,420	404	1.18
	2007/08	10(8,5)	525	56	0.9	21(11,13)	7,145	289	1.5
	2008/09	9(7,7)	482	54	0.98	25(16,19)	13,988	274	1.5
	2009/10	9(6,7)	428	38	0.91	12(10,11)	4,526	375	1.25
	2010/11	5(5,5)	293	46	0.8	33(15,22)	14,596	195	1.07
	2011/12	3(3,2)	*	*	*	3(3,3)	*	*	*
	2012/13	4(3,3)	*	*	*	21(9,16)	7,044	141	0.93
	2013/14	9(8,7)	283	34	0.93	7(6,4)	5,424	1,051	1.11
	2014/15	10(8,6)	484	48	1.02	18(8,11)	8,903	86	1.4
	2015/16	3(2,2)	*	*	*	6(5,5)	2,866	364	1.52
	2016/17	11(7,10)	603	51	1.03	9(7,7)	3,138	71	1.45
	2017/18	17(17,14)	1,020	58	0.63	10(7,8)	2,207	223	1.07
	2018/19	4(4,3)	*	*	*	4(3,4)	*	*	*
	2019/20	8(6,7)	254	24	0.33	8(5,7)	5,007	427	0.55

		CVC QS				CVO QS			
Spec	Year	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit
	2020/21	12(10,8)	873	65	0.23	16(10,10)	4,022	25	0.24
	2021/22	1(1,1)	*	*	*	-	-	-	-
	2005/06	25(14,12)	2,793	110	0.28	22(9,12)	24,619	442	0.46
	2006/07	35(17,15)	2,864	65	0.26	36(17,8)	48,984	604	0.36
	2007/08	12(5,5)	822	51	0.38	26(10,13)	24,752	1,000	0.69
	2008/09	10(5,6)	758	48	0.53	15(9,11)	12,649	382	0.62
	2009/10	15(6,8)	1,121	49	0.35	14(8,10)	6,452	366	0.49
	2010/11	11(6,6)	852	81	0.44	56(17,24)	34,572	248	0.6
	2011/12	2(1,1)	*	*	*	21(10,12)	12,598	289	0.7
	2012/13	9(4,5)	*	*	*	40(9,18)	16,223	179	1.07
BSS	2013/14	12(6,6)	674	34	0.83	50(15,18)	20,656	121	1.25
	2014/15	9(5,3)	*	*	*	23(13,14)	22,281	396	1.21
	2015/16	3(2,1)	*	*	*	16(9,10)	7,089	119	0.9
	2016/17	13(7,8)	1,433	138	0.33	7(4,5)	*	*	*
	2017/18	26(14,13)	2,305	76	0.31	4(2,3)	*	*	*
	2018/19	6(3,3)	*	*	*	16(4,10)	3,611	104	0.55
	2019/20	14(8,5)	1,058	62	0.55	14(8,10)	9,647	321	0.69
	2020/21	24(11,8)	2,219	70	0.73	28(9,18)	11,467	256	1.28
	2021/22	-	-	-	-	2(1,2)	*	*	*
BST	2005/06	14(13,11)	401	30	0.22	10(8,9)	5,203	407	0.36
	2006/07	3(3,3)	*	*	*	-	-	-	-
	2005/06	2(2,1)	*	*	*	2(1,1)	*	*	*
	2007/08	2(2,2)	*	*	*	-	-	-	-
	2008/09	4(4,3)	*	*	*	1(1,1)	*	*	*
	2009/10	1(1,1)	*	*	*	5(2,5)	*	*	*
	2010/11	3(2,3)	*	*	*	-	-	-	-
	2013/14	-	-	-	-	9(2,9)	*	*	*
EAG	2014/15	1(1,1)	*	*	*	-	-	-	-
	2015/16	3(2,2)	*	*	*	-	-	-	-
	2016/17	1(1,1)	*	*	*	-	-	-	-
	2017/18	1(1,1)	*	*	*	-	-	-	-
	2019/20	1(1,1)	*	*	*	-	-	-	-
	2020/21	3(1,1)	*	*	*	1(1,1)	*	*	*
	2021/22	-	-	-	-	2(1,2)	*	*	*
	2006/07	17(14,14)	394	22	0.05	17(13,8)	6,578	417	0.1
	2007/08	5(4,3)	*	*	*	9(7,8)	3,031	388	0.19
	2008/09	4(4,4)	*	*	*	14(8,9)	6,246	373	0.19
	2009/10	3(2,3)	*	*	*	5(4,5)	*	*	*
	2010/11	3(3,3)	*	*	*	6(6,2)	*	*	*

		CVC QS				CVO QS			
Spec	Year	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit
EBT	2011/12	-	-	-	-	2(2,2)	*	*	*
	2012/13	2(2,2)	*	*	*	12(5,10)	2,825	44	0.12
	2013/14	6(5,6)	127	27	0.06	10(5,6)	1,412	121	0.06
	2014/15	8(8,7)	185	25	0.21	15(7,11)	4,355	153	0.5
	2015/16	5(2,3)	*	*	*	7(6,7)	4,481	314	0.39
	2016/17	8(7,7)	288	28	0.21	8(5,7)	2,766	304	0.51
	2017/18	19(19,14)	584	30	0.06	9(6,7)	1,657	122	0.33
	2018/19	3(3,3)	*	*	*	2(2,2)	*	*	*
	2019/20	5(4,5)	*	*	*	3(3,3)	*	*	*
	2020/21	2(2,2)	*	*	*	4(3,2)	*	*	*
	2021/22	1(1,1)	*	*	*	1(1,1)	*	*	*
PIK	2007/08	-	-	-	-	8(2,3)	*	*	*
	2008/09	4(2,1)	*	*	*	-	-	-	-
	2010/11	1(1,1)	*	*	*	6(3,1)	*	*	*
	2012/13	2(1,1)	*	*	*	4(1,2)	*	*	*
	2016/17	4(2,2)	*	*	*	-	-	-	-
	2017/18	3(2,2)	*	*	*	-	-	-	-
	2018/19	-	-	-	-	2(1,1)	*	*	*
SMB	2005/06	1(1,1)	*	*	*	2(1,2)	*	*	*
	2006/07	4(3,3)	*	*	*	6(1,3)	*	*	*
	2007/08	4(2,1)	*	*	*	10(3,4)	*	*	*
	2008/09	2(1,1)	*	*	*	-	-	-	-
	2009/10	2(1,1)	*	*	*	4(2,2)	*	*	*
	2010/11	3(2,2)	*	*	*	1(1,1)	*	*	*
	2011/12	2(2,1)	*	*	*	2(2,2)	*	*	*
	2012/13	2(1,1)	*	*	*	23(8,12)	1,003	21	1.02
	2013/14	6(3,3)	*	*	*	2(1,1)	*	*	*
	2014/15	2(1,1)	*	*	*	2(2,2)	*	*	*
	2015/16	1(1,1)	*	*	*	-	-	-	-
	2016/17	2(1,1)	*	*	*	-	-	-	-
	2017/18	12(8,9)	115	8	0.06	2(1,1)	*	*	*
	2018/19	3(2,2)	*	*	*	-	-	-	-
	2019/20	1(1,1)	*	*	*	2(1,2)	*	*	*
	2021/22	1(1,1)	*	*	*	1(1,1)	*	*	*
WAG	2005/06	2(1,1)	*	*	*	1(1,1)	*	*	*
	2007/08	2(1,1)	*	*	*	-	-	-	-
	2008/09	1(1,1)	*	*	*	-	-	-	-
	2010/11	-	-	-	-	2(1,1)	*	*	*
	2011/12	-	-	-	-	2(1,1)	*	*	*
	2012/13	-	-	-	-	2(1,1)	*	*	*

Spec	Year	CVC QS				CVO QS			
		Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit
	2013/14	1(1,1)	-	-	-	1(1,1)	*	*	*
	2014/15		*	*	*	-	-	-	-
	2020/21	2(1,1)	*	*	*	-	-	-	-
WAI	2013/14	-	-	-	-	2(2,1)	*	*	*
WBT	2006/07	16(13,13)	372	22	0.05	22(18,9)	8,512	359	0.06
	2007/08	5(4,3)	*	*	*	8(6,7)	2,948	388	0.13
	2008/09	4(4,4)	*	*	*	14(8,9)	6,246	373	0.13
	2009/10	2(2,2)	*	*	*	5(4,5)	*	*	*
	2010/11	3(3,3)	*	*	*	5(5,2)	*	*	*
	2011/12	-	-	-	-	1(1,1)	*	*	*
	2012/13	2(2,2)	*	*	*	11(5,9)	885	36	0.09
	2013/14	6(5,6)	127	27	0.06	10(5,6)	1,412	121	0.06
	2014/15	6(6,5)	136	25	0.25	16(8,12)	4,677	172	0.38
	2015/16	5(2,3)	*	*	*	7(6,7)	4,481	314	0.39
	2016/17	9(8,8)	408	34	0.2	7(4,6)	1,894	192	0.47
	2017/18	19(19,15)	616	30	0.1	9(6,7)	1,637	122	0.33
	2018/19	3(3,3)	*	*	*	1(1,1)	*	*	*
	2019/20	6(5,5)	170	27	0.08	3(3,3)	*	*	*
	2020/21	5(5,4)	*	*	*	6(4,4)	*	*	*
	2021/22	2(2,2)	*	*	*	1(1,1)	*	*	*

Source: Table 4.27 of 2022 Crab Economic SAFE

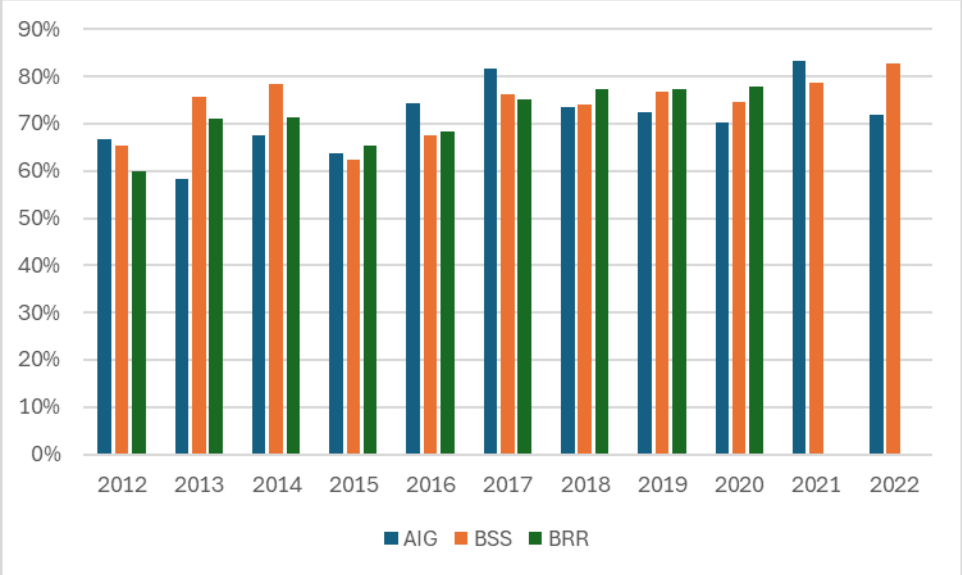
6.3.2 Annual Transfers of IFQ

The first year of the CR Program many crab harvesting cooperatives were formed by vessel and QS owner entities. To take advantage of IFQ leasing provisions the industry began pooling IFQ within larger cooperatives. Since the 2009/10 crab season, virtually all IFQ has been pooled within harvest cooperatives. That change means that almost all IFQ lease transactions registered with NMFS take place within harvest cooperatives. Beginning with the 2009/10 crab season, the ICE harvest cooperative was formed. For the 2023/24 season, 59 percent of crab IFQ was issued to ICE. The Dog Boat Cooperative was the next largest cooperative, in terms of percentage of total IFQ held, with over 22 percent. All the Dog Boat Cooperative quota was for the EAG and WAG fisheries.

The formation of large cooperatives to facilitate transfers means that almost all quota transfer information is derived from the EDR data. EDR data collection for the 2012 calendar year implemented newly revised data collection protocols under Amendment 42 to the BSAI King and Tanner Crabs FMP (78 FR 36122, June 17, 2013); before the implementation of EDR revisions, data collected regarding EDR lease activity and costs did not differentiate between transfers of quota between independent entities that were priced at competitive market rates from non-arm's length transactions (i.e., those between affiliated entities or other types of non-market transfers characterized by nominal prices or in-kind compensation). For this reason, EDR quota lease data collected for 2005-2011 fisheries are not presented. Data associated with 2012 and later fisheries, use market-rate or negotiated-price transfers (based on EDR instructions). EDRs collect the total pounds purchased and amount paid but does not identify the seller or the number of sellers of IFQ or

CDQ during the year. Because the EDRs are based on calendar years and not crab fishing seasons (July-June seasonal calendar) the annual data reported in Figure 6-2 and Table 6-7 may contain information across two fishing seasons. Figure 6-2 is a summary of the percentage of the AIG, BSS, and BRR fisheries that were leased from 2012 through 2022. In general, the percentage of IFQ and CDQ leased has shown a variable but increasing trend over the period, ranging from about 60 percent to 80 percent of the total TAC.

Figure 6-2 Percentage of TAC (CDQ plus IFQ) leased, 2012 through 2022



Source: EDR data as presented in the Crab SAFE and annual TACs.

Information presented in Table 6-7 shows the number of vessels leasing CR Program IFQ and/or CDQ by fishery, quota type, value, and price. Most vessels active in CR Program fisheries lease harvest quota, while a segment of the fleet does not participate in the lease market, landing only harvest quota held by the vessel owner or otherwise not requiring royalty payment to QS holders. Through the end of 2021, the numbers of active vessels not reporting any quota leasing have remained quite consistent over time, at 1-2 AIG vessels per year, and varying between 10 and 12 vessels per year in the BSS and BBR fisheries; participation in BST quota leasing is more variable, from all 30 vessels with BST landings in 2018 reporting leased quota costs, to 17 out of 25 vessels active in the fishery during 2021 (NPFMC, 2023).

Table 6-7 IFQ leasing by fishery in real 2022 dollars

	Vessels leasing quota					Pounds leased (millions)					Lease cost (Million $)					Lease price/lb median				
Year	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO
ALEUTIAN ISLANDS GOLDEN KING CRAB																				
2012	5	4	4	4	4	4.20	0.60	0.13	2.81	0.66	9.47	1.21	0.37	6.43	1.46	2.18	2.61	2.55	2.32	2.53
2013	6	2	5	5	6	3.66	Conf	0.15	2.03	1.28	7.76	Conf	0.38	4.48	2.29	1.74	Conf	2.33	1.88	1.72
2014	4	3	4	4	4	4.25	0.33	0.09	2.65	1.18	9.94	0.93	0.27	6.63	2.11	2.71	2.82	2.85	2.69	2.71

	Vessels leasing quota					Pounds leased (millions)					Lease cost (Million $)					Lease price/lb median				
Year	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO
2015	5	3	4	5	5	4.01	0.33	0.05	2.25	1.38	9.93	1.00	0.16	6.32	2.45	2.56	3.09	2.28	2.79	1.68
2016	4	3	3	3	4	4.11	0.33	0.08	2.20	1.50	13.13	1.35	0.21	8.10	3.46	3.57	3.96	4.06	3.69	3.09
2017	5	4	5	5	5	4.52	0.67	0.20	2.37	1.28	16.08	3.21	1.04	8.35	3.48	3.24	3.57	2.33	3.4	3.25
2018	4	2	3	4	4	4.67	Conf	0.09	2.76	1.52	14.61	Conf	0.31	9.25	3.98	3.2	Conf	2.8	3.05	3.25
2019	4	2	4	4	4	5.20	Conf	0.15	3.13	1.63	17.59	Conf	0.59	11.41	4.64	3.31	Conf	4.03	3.2	3.97
2020	4	2	3	4	4	4.64	Conf	0.11	2.97	1.44	16.10	Conf	0.38	11.05	4.15	3.21	Conf	2.93	3.11	3.24
2021	4	3	4	4	4	4.94	0.49	0.12	2.90	1.43	29.81	2.08	0.84	20.29	6.59	5.76	6.6	6.92	5.6	6.8
2022	4	3	3	4	4	3.63	0.33	0.05	2.01	1.23	14.15	1.44	0.26	8.65	3.80	3.78	4.71	4.88	3.78	3.19
BERING SEA SNOW CRAB																				
2012	60	11	39	55	47	58.13	6.46	1.88	42.80	6.99	75.85	9.27	2.55	54.11	9.93	1.29	1.42	1.39	1.27	1.38
2013	61	11	41	56	50	50.27	6.41	1.77	34.35	7.74	70.60	9.98	2.60	46.10	11.92	1.35	1.55	1.41	1.33	1.43
2014	59	10	37	57	48	42.30	5.37	1.26	29.68	5.99	58.08	7.77	1.80	39.70	8.82	1.39	1.51	1.49	1.38	1.49
2015	57	7	37	55	47	42.32	4.15	1.52	30.36	6.29	50.94	5.34	1.89	35.85	7.86	1.15	1.26	1.2	1.13	1.19
2016	56	7	36	54	45	27.47	3.04	0.93	19.64	3.87	44.47	5.21	1.53	31.17	6.56	1.51	1.66	1.57	1.49	1.57
2017	54	8	37	52	48	16.45	1.98	0.48	11.52	2.47	38.14	4.86	1.23	26.01	6.04	2.22	2.41	2.41	2.17	2.41
2018	52	6	36	48	42	14.03	1.39	0.50	10.05	2.09	30.98	3.32	1.20	21.58	4.88	2.15	2.42	2.32	2.1	2.31
2019	51	8	37	48	45	21.15	2.03	0.70	15.32	3.09	45.40	4.81	1.65	32.06	6.87	2.09	2.4	2.25	2.05	2.17
2020	47	8	34	45	41	25.35	2.49	0.83	18.44	3.58	55.68	5.69	1.92	39.63	8.44	2.08	2.3	2.22	2.04	2.22
2021	51	12	33	49	39	35.39	4.11	1.23	25.14	4.91	89.76	11.48	3.40	61.46	13.41	2.47	2.79	2.7	2.39	2.75
2022	35	4	29	33	33	4.63	0.51	0.12	3.37	0.63	16.00	1.95	0.46	11.36	2.23	3.41	3.9	3.54	3.35	3.64
BERING SEA TANNER CRAB																				
2013	19	5	9	16	13	1.02	0.09	0.03	0.78	0.13	0.95	0.09	0.03	0.68	0.15	0.96	1.25	0.99	0.91	0.99
2014	36	6	24	32	25	7.23	0.73	0.43	5.26	0.82	5.89	0.72	0.22	4.21	0.74	0.83	1.08	0.85	0.82	0.82
2015	45	8	24	43	27	12.74	1.34	0.38	9.49	1.53	11.89	1.43	0.32	8.69	1.46	0.96	0.79	0.97	0.98	0.99

	Vessels leasing quota					Pounds leased (millions)					Lease cost (Million $)					Lease price/lb median				
Year	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO	ALL	CDQ + ACA	CVC + CPC	CVO A	CVO B + CPO
2016	38	7	23	37	31	9.86	0.83	0.44	7.47	1.12	10.46	0.92	0.63	7.54	1.36	0.99	1.08	1.04	0.98	1.05
2017	15	4	14	15	15	1.19	0.16	0.03	0.83	0.17	1.65	0.24	0.04	1.12	0.25	1.33	1.53	1.38	1.32	1.38
2018	30	5	22	28	26	1.89	0.20	0.05	1.39	0.24	2.86	0.32	0.08	2.03	0.43	1.44	1.47	1.42	1.42	1.44
2019	16	3	14	15	14	1.01	0.13	0.04	0.69	0.15	1.69	0.21	0.07	1.17	0.24	1.62	1.45	1.62	1.62	1.62
2020	17	1	9	17	9	0.59	Conf	0.01	0.49	0.05	0.86	Conf	0.02	0.70	0.07	1.12	Conf	1.12	1.12	1.05
2021	17	3	10	13	13	0.81	0.09	0.03	0.56	0.13	1.51	0.17	0.07	1.03	0.25	1.88	2.15	1.91	1.83	1.91
2022	17	4	14	16	16	1.22	0.09	0.06	0.91	0.16	2.22	0.17	0.11	1.65	0.30	1.93	2.08	1.93	1.88	1.87
BRISTOL BAY RED KING CRAB																				
2012	53	5	36	50	42	4.70	0.37	0.17	3.62	0.54	30.25	2.77	1.14	22.65	3.69	6.66	6.87	6.63	6.57	6.76
2013	55	8	37	51	45	6.12	0.71	0.20	4.43	0.78	35.49	4.32	1.22	25.32	4.62	5.77	6.07	5.96	5.61	5.92
2014	52	7	34	50	43	7.12	0.83	0.21	5.23	0.85	37.56	4.54	1.14	27.31	4.58	5.28	5.48	5.34	5.17	5.32
2015	52	5	40	49	42	6.52	0.47	0.22	5.13	0.70	41.51	3.16	1.47	32.25	4.63	6.19	6.61	6.54	6.02	6.29
2016	53	5	35	50	43	5.79	0.55	0.19	4.43	0.61	47.32	4.81	1.60	35.57	5.34	8.08	8.43	8.38	8	8.43
2017	52	6	39	50	43	4.96	0.55	0.15	3.71	0.55	34.21	3.86	1.09	25.47	3.79	6.72	6.96	6.8	6.66	6.85
2018	45	6	35	42	39	3.33	0.36	0.11	2.50	0.36	25.78	2.93	0.88	19.08	2.89	7.55	8.04	7.8	7.41	7.85
2019	46	6	35	42	42	2.94	0.31	0.09	2.16	0.37	25.29	2.88	0.84	18.16	3.41	8.36	9.01	8.84	8.24	8.82
2020	38	5	33	36	35	2.06	0.22	0.06	1.58	0.20	18.11	2.08	0.54	13.66	1.83	8.84	9.22	9.22	8.61	9.09
ST. MATTHEW ISLAND BLUE KING CRAB																				
2012	17	3	9	17	10	1.49	0.10	0.09	1.15	0.14	2.60	0.21	0.06	2.07	0.26	1.79	2.1	1.81	1.74	1.82
2014	4	1	2	3	2	0.13	Conf	Conf	0.10	Conf	0.20	Conf	Conf	0.15	Conf	1.71	Conf	Conf	1.69	Conf
2015	3		2	3	3	0.09		Conf	0.07	0.01	0.11		Conf	0.09	0.01	1.34		Conf	1.34	1.34

Quota type code translations: CVO A (catcher vessel owner Class A IFQ), CVO B, (catcher vessel owner Class B IFQ), CPO (catcher processor owner IFQ), CVC (catcher vessel crew IFQ), CPC (catcher processor crew IFQ), CDQ (Community Development Quota), ACA (Adak Community Allocation)

For lease rates to decline based solely on market forces it is expected that the supply of quota available for lease would need to outpace the demand for leasing quota. For that to occur TAC would need to

increase to a level that the available fleet would reach or be close to its harvesting capacity. Rates tend to be high because harvesters are willing to pay to bid up the price unless constrained by external forces (e.g., Council oversite). As of mid-April 2024, using the sablefish fishery for some classes of quota and areas is an example of where lease rates are lower because of the supply and demand impacts on the market. Aleutian Islands class B shares rates were reported as low as $0.75 per pound and in the Bering Sea for C shares rates were as low as $0.50 per pound. For other areas and classes of quota offer rates typically ranged from $5.00 per pound to $10.00 per pound[49].

6.4 QS Holdings

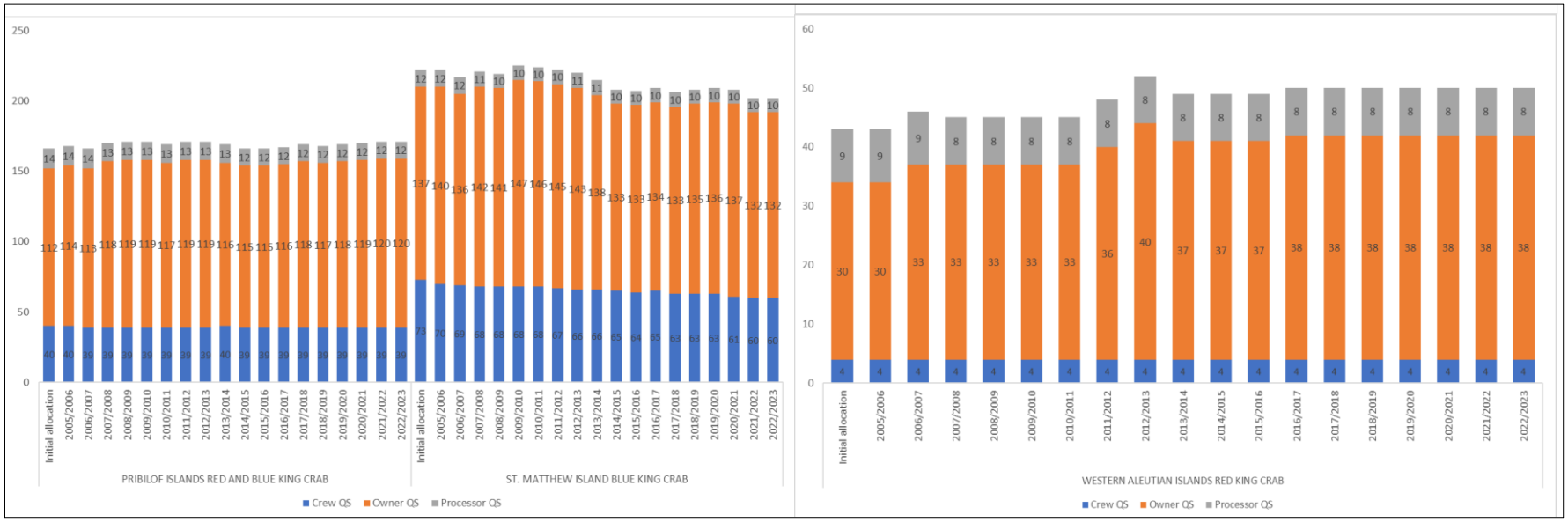
The number of QS holders on an annual basis by QS type are presented for each CR Program fishery in Figure 6-3 and Figure 6-4.

[49] https://www.alaskaboat.com/ifqs?t=sablefish

Figure 6-3 Number of owner, crew, and processor QS holders by BBR, BSS, BST, and AIG fisheries

Source: RAM annual quota permit allocations

Figure 6-4 Number of owner, crew, and processor QS holders by PIK, SMB, and WAI fisheries



Source: RAM annual quota permit allocations

6.5 Structure of Holdings

This section provides information on the change in the distribution of equity interest in QS pools by owner type: Individual, CDQ/Nonprofit, Corporate, Trust/Estate and Unknown. The Unknown category is a catchall for quota that could not be attributed to the other categories.

The data provided in this section shows that the number of trust/estate entities has about doubled, if the period were extended back to 2007 it would show the numbers have tripled from less than 2.5 percent in each of the pools in 2007, to nearly 10 percent in the BBR and EBT/WBT QS pools and 8 percent in the BSS pool in 2021. In addition to the increase in the proportion of equity in QS share pools held by trust/estate entities, CDQ groups and associated non-profit equity interest has approximately doubled over the post-CR period in the BBR, BSS and EBT/WBT pools, from approximately 12 percent each in 2007, to approximately 23 percent in BBR (and EBT/WBT not shown in the table) and 24 percent in BSS. Additional information on ownership by community, CDQ group, and Alaska Tribal entity is provided in Table 8-14.

In general, there has been an increase in equity interest in crab QS pools held by CDQ and Non-profit groups and trust/estate entities, The increase has predominantly come from a decline in equity held by individuals and non-divisible corporate entities. Holdings by trusts/estates have increased because of the time that has passed since the program was implemented (the greying of the fleet). Meaning that more deaths of QS holders have occurred, and other QS holders have developed estate plans that assign certain assets to trusts for a variety of reasons. Increased holdings by CDQ groups and related entities indicate that groundfish and crab CDQ programs have provided opportunities for groups representing Western Alaskan communities to expand investments and participation in fisheries off their coast. This was an objective of the CDQ program and increasing the CDQ crab allocations from 7.5 percent to 10 percent of CR Program species likely helped facilitate that expansion.

Table 6-8 CVO/CPO entity composition by entity type

		BBR			BSS		
Season	Type	QS Entities - Count	Owners Count	Owners - QS Percent	QS Entities - Count	Owners Count	Owners - QS Percent
2015/16	Individual	38	417	69.45 %	44	376	68.95 %
	Corp/Invest Fund	206	8	2.06 %	211	5	1.87 %
	CDQ/Nonprofit	4	6	19.91 %	5	6	21.09 %
	Trust/Estate	-	35	5.40 %	-	34	4.90 %
	Unknown	-	32	0.20 %	-	30	0.18 %
2016/17	Individual	36	426	68.58 %	45	386	`68.21 %
	Corp/Invest Fund	206	7	1.09 %	212	4	0.93 %
	CDQ/Nonprofit	4	6	19.91 %	5	6	21.09 %
	Trust/Estate	-	51	7.39 %	-	51	6.72 %
	Unknown	-	35	0.04 %	-	33	0.04 %
2017/18	Individual	35	425	68.80 %	45	389	68.41 %
	Corp/Invest Fund	206	7	1.09 %	210	4	0.93 %
	CDQ/Nonprofit	4	6	19.59 %	5	6	20.82 %
	Trust/Estate	-	51	7.49 %	-	51	6.82 %
	Unknown	-	34	0.03 %	-	31	0.02 %
2018/19	Individual	37	418	67.99 %	44	390	68.26 %
	Corp/Invest Fund	206	7	1.08 %	214	4	0.94 %
	CDQ/Nonprofit	4	5	19.34 %	5	6	20.64 %
	Trust/Estate	-	56	8.60 %	-	55	7.15 %
	Unknown	-	33	0.01 %	-	31	0 %
2019/20	Individual	34	415	67.17 %	46	377	67.62 %
	Corp/Invest Fund	204	7	1.05 %	211	4	0.94 %
	CDQ/Nonprofit	4	5	19.34 %	5	6	20.64 %
	Trust/Estate	-	61	9.43 %	-	58	7.78 %
	Unknown	-	29	0.01 %	-	27	0 %
2020/21	Individual	35	411	68.33 %	46	376	68.53 %
	Corp/Invest Fund	201	5	0.53 %	214	3	0.41 %
	CDQ/Nonprofit	4	5	19.35 %	5	6	20.65 %
	Trust/Estate	-	60	8.79 %	-	59	7.40 %
	Unknown	-	32	0.01 %	-	33	0.01 %
2021/22	Individual	35	398	64.09 %	48	366	64.88 %
	Corp/Invest Fund	200	5	1.01 %	214	4	0.94 %
	CDQ/Nonprofit	4	40	22.42 %	5	41	23.34 %
	Trust/Estate	-	62	9.47 %	-	60	7.81 %
	Unknown	-	34	0.01 %	-	33	0.01 %

Note Statistics shown for Owner QS report combined crab catcher vessel and catcher processor owner (CVO and CPO) quota share pools, and report the number of distinct QS entities (''Entities''), and number of distinct individuals and equity owners of QS entities (''Owners") obtained by decomposition of ownership information reported to NMFS in Annual IFQ Permit applications, and summed percentages of QS pool shares collectively by Entities and Owners, categorized by type – Individual, CDQ Group/Non-profit, Corporate, Trust/Estate, and Unknown (rounding error and incomplete company ownership data, particularly in the early years of the CR Program, result in residual shares that are assigned to "Unknown" entities).
Source NMFS Alaska Region - Restricted Access Management, Quota Shareholder files; Alaska Fisheries Information Network (AKFIN).

6.6 Active Vessels

Table 6-9 shows the number of vessels that harvested CR Program crab as reported in Fishticket data summaries. The total number of vessels may not exactly match other tables in the document if they were derived from a different source or the datasets were queried at different times. Information of note is the substantial decline (80 percent) in active vessels from the year before the program was implemented (2004) to the most current year of data (2022) and decrease in active vessels since the last review in 2016 to 2022 (38 percent). The recent declines occurred primarily in the BBR, BSS, and WBT fisheries, that experienced substantial TAC declines after 2015. The change in number of active vessels indicates that

under the CR Program crab IFQ holders have some flexibility to scale annual harvest capacity to the available TAC.

Table 6-9 Number of active vessels in the CR Program fisheries

Year	BBR	BSS	EBT	WBT	EAG	PIK	SMB	WAG	WAI	Annual Total
1998	274	230			13	58	132	8	1	286
1999	256	241			14			12		283
2000	244	231			15			15		262
2001	230	207			19			13		251
2002	241	191			19			8	33	248
2003	250	190			18			7	30	253
2004	251	189			19			6		256
2005	89	167		4	6			4		182
2006	81	78	24	42	6			3		102
2007	73	68	23	37	4			3		86
2008	79	78	24	33	4			3		94
2009	70	78	19	42	3		7	2		89
2010	65	68	7	30	3		11	3		79
2011	62	68		49	3		18	3		77
2012	64	72	2	56	3		17	4		83
2013	63	71	30	60	3			4		81
2014	63	70	33	61	3		4	2		75
2015	64	69	41	32	3		3	2		81
2016	63	68	25	31	3			3		82
2017	61	63	1	16	4			3		72
2018	55	63		30	4			3		68
2019	56	61		18	3			3		66
2020	47	59	1	25	3			3		64
2021	1	62		21	3			3		66
2022		42	8	18	2			4		51
Fishery Total	302	268	80	103	22	58	135	18	36	310

Source: AKFIN summary of Fishticket data: CRAT_FT(2_26_24)

6.7 Vessel Gross Earnings and Operating Costs

The Crab EDR program collects specific information on earnings and expenditures for vessels operating in the CR Program fisheries. Those data are summarized in the annual Crab Economic SAFE document. Due to the Crab EDR collection structure the data are reported by calendar year and not fishing year. In this section, reported dollar values are adjusted for inflation to 2021-equivalent value.

Fleet-level monetary and percentage statistics are calculated across all vessels that submit an EDR. Data reflect total commercial volume and value across all management programs (LLP/open access, IFQ, CDQ, ACA) inclusive of all harvesting sector production; approximation of ex-vessel sale value of catcher processors and catcher-seller volume is incorporated in revenue total by multiplying volume of retained catch by the weighted average ex-vessel sale price sourced from CV sector EDR data.

Cost information reported in the Crab EDR data collection program does not include all variable costs and fixed cost and capital expenditures are entirely excluded. As a result, estimated gross profit does not account for fixed, overhead, finance/interest, and associated costs and is not a complete measure of net income or economic profit. A summary table for the vessel level and fleet aggregate operating costs and revenue residuals are found at Table 4.23 and Table 4.24, respectively in the 2022 Crab Economic SAFE (NPFMC, 2023).

A summary of the CR Program fleet's revenue and costs are provided in Table 6-10. Data for the 2012 through 2016 calendar years are shown as the mean value for those years. Data for 2017 through 2021 are the most recent data available. All dollar values are reported in millions of real 2021 dollars. The closures and TAC reductions that occurred in recent years are not included but are anticipated to substantially decrease revenues and costs reported in the table. Changes in the fishery in recent years is anticipated to change the cost and revenue in the years 2022 through 2023, that are not currently available.

Table 6-10 Summary of CR Program fleet-level cost, ex-vessel revenue, and revenue residuals (millions of 2021 dollars), 2012-2021

All CR Program Fisheries	2012-2016 average	2017	2018	2019	2020	2021
Active Vessels	81	72	67	67	64	65
Gross ex-vessel Revenue	$260.0	$183.7	$160.4	$199.6	$210.2	$288.7
Non-labor costs[1]	$20.0	$9.3	$9.9	$11.4	$12.1	$31.9
Labor cost	$52.0	$36.4	$31.7	$39.0	$42.8	$58.7
Total Cost[2]	$280.00	$193.00	$170.30	$211.00	$222.30	$320.60
Gross ex-vessel profit[3]	$188	$138.0	$118.9	$149.1	$155.3	$198.1
Lease Royalties portion of profit	$93 (49%)	$76.4 (55%)	$64.4 (54%)	$79.5 (53%)	$81.1 (52%)	$111.8 (56%)

1/ Non-labor costs include provisions, bait, and fuel
2/ Total cost excludes variable costs not listed above, all fixed costs, and all capital expenditures
3/ Overestimates profitability because not all costs are included in the calculation.

6.8 Crew Employment and Remuneration

Information in this section focuses on fishing crew and captain employment and compensation. The analysis does not attempt to estimate the number of crew that have advanced to the position of captain under the CR Program. The SSC requested that information be included if it was available. However, it was determined that it could not be reliably estimated by tracking a person holding an ADF&G crew license and then obtaining a CFEC license. While ADF&G crew licenses are often held by non-captains and CFEC license are held by captains that is not always true. There is also uncertainty tracking a person holding these licenses over time as they are not durable. Using the person signing the fishticket as a proxy for the captain was also considered. Again, this idea was rejected because the captain does not always sign the fishticket for a variety of reasons. If it is important to track advancement of crew to becoming a captain, that should be considered when modifying the EDR crew data collections. For some operations it may also be important to identify whether more than one captain operates the vessel on a trip and if there are any specific characteristics of the two captains' duties that should be differentiated. Multiple captains are most likely to be on catcher processor vessels, catcher vessels that have long fishing seasons, or illness.

Consolidation of the crab fleet following rationalization in 2005/06 resulted in fewer vessels fishing and longer fishing seasons (Table 6-11). The number of crew positions was reduced and working conditions changed, resulting in longer periods of active work in the fisheries for fewer crew members and captains. The crew share system typically used to determine crew compensation is substantially determined by the price and market value of landed crab, as well as prices of other factor inputs (i.e. fuel and quota lease costs). The quantity and royalty cost of IFQ leased by a vessel, and how lease costs and other deductible operating and crew-related expenses are treated in crew settlements have a large effect on vessel earnings and crew earnings as do supply and demand for these positions. In this study, lease royalty costs are included as an operating cost and represent the diversion of surplus generated by vessel landings from a vessel owner's balance sheet represented by quota lease costs, which are commonly paid to the quota holder as a share of gross ex-vessel value of the leased quota pounds, and share payments to crew and captain are typically paid on the basis of the gross residual revenue after lease royalty costs, with additional deductions for vessel and personal expenses.

Table 6-11 Crew data pre-CR Program through 2008

Fishery	Year	Number of vessels	Total crew positions	Mean crew size	Mean vessel harvest (pounds)	Mean days at sea	Captain pay ($)		Mean crew pay (excluding captain)	Crewmember pay ($)	
							Mean	Median		Mean	Median
All CR Fisheries	1998	212	1266	6.0	1,017,733	96	117,276	115,785	249,780	40,249	39,744
	2001	211	1251	5.9	199,825	52	61,540	40,973	123,271	19,936	14,625
	2004	235	1395	5.9	192,605	32	73,609	66,613	154,847	25,541	22,138
	2005	169	1007	6.0	320,039	37	78,770	55,911	152,893	25,903	20,264
	2006	101	640	6.3	628,448	68	86,828	75,006	174,865	28,204	26,858
	2007	86	572	6.7	758,928	68	134,958	129,146	283,763	45,274	42,429
	2008	94	632	6.7	1,069,194	90	175,376	175,115	383,915	59,896	56,582

Source: 10-year review Table 5-21

Vessel-level data on crew employment and earnings, vessel revenues and costs, and operating conditions used to analyze changes in crew compensation over time come from a combination of EDRs and eLandings. Prior analyses of crew compensation, including Abbott et al. (2010), the Five-Year Review, and 10-year review and, principally, used EDR data before revision of the data collection in 2012. Data before 2012 included crew share percentages and cost deductions applied in settlement calculations, vessel days operating (days fishing, and days travelling and offloading), and number of crew receiving share payments, all of which were directly reported in the EDR but were discontinued as of 2012. EDR data on IFQ lease costs before 2012 have been determined to be unreliable and were not used in those analyses, except for the 2012 to 2014 data used in the 10-year review. Because of these changes it is not possible to construct a complete dataset of all variables used in the previous analyses that is continuous and reliable through the entire period.

In the Five-Year Review of the CR Program, analysis of crew employment and earnings focused primarily on changes in crew employment and earnings in the transition to rationalization. As noted in the previous discussion, conditions for obtaining crew positions and working onboard crab vessels before rationalization were substantially different before rationalization. Particularly when derby fishing conditions were in effect, elevated physical risk to crew members as well as financial risk given the

potential for poor catch rates likely contributed to substantial premium received by crew in higher negotiated share percentages than would otherwise have occurred. Assessing how crab crew earnings and contract terms during the years before the CR Program compared to other Alaska fisheries, or under more typical conditions of labor demand for crew members, versus the current CR Program would be difficult. Before the CR Program vessel owners holding crab LLP license faced an elevated demand for crew members due to the larger fleet and intensive effort produced extraordinary hiring conditions. The atypical demand for crew labor, a comparison of crew earnings before and after the transition to the CR Program require that persons consider whether conditions that prevailed during the derby fishery are the standard against which crew compensation should be compared in ongoing program review. While crew employment and remuneration were clearly substantially changed following the transition to rationalized management, to what degree those changes were caused by the implementation of the CR Program, as opposed to the mitigation of overcapitalization generally, and of derby conditions specifically, is likely not possible to ascertain.

The Council raised concerns regarding crew compensation in the Five-Year Review and that concern resulted in subsequent work developing alternatives for regulatory measures to address these concerns. The Council ultimately elected to pursue measures coordinated by, and implemented through harvest cooperatives on a voluntary basis (Council motion on C-4(a)-(c), February, 2013). This resulted in the ICE harvest cooperative's development of initiatives to encourage QS holders to voluntarily limit the rate of compensation charged for leased crab IFQ (to 50 percent of ex-vessel value for BSS, and 65 percent for BBR) and promote transfers of QS to active crew members and equity owners of active fishing vessels. ICE's initiatives were subsequently adopted by other harvest cooperatives, as demonstrated in cooperative reports submitted to the Council, and EDR lease cost data reported by vessel owners.

6.8.1 Overview of Crew Employment and Compensation Changes

EDR data related to the compensation of crew and captains during calendar years from 2009 through 2022 are presented in this section. Data are presented for CR Program fisheries that have been open to fishing since the last CR Program review. Information focuses on harvest crew positions, crew and captain compensation in dollars, and percentage of gross share of catcher vessel revenue paid to captains and crew members. As stated earlier in the analysis, the emphasis is on changes since the last review. The reader is referred to the 10-year review for information before 2009.

Table 6-12 Crew positions and compensation by CR Program fishery, 2009 through 2022, when fishery was open since 2016.

Fishery/Year	Harvest crew positions	Mean harvest crew positions per vessel	Total harvest crew pay (Millions real 2022 $)	Total captain pay (Millions real 2022 $)	Catcher vessel gross share to crew (median)	Catcher vessel gross share to captain (median)	Catcher vessel gross share to labor (median)
AI Golden King Crab							
2009	35	7.00	$2.37	$1.40	0.12	0.05	0.18
2010	35	7.00	$3.99	$2.27	0.11	0.05	0.16
2011	36	7.20	$4.99	$2.71	0.12	0.05	0.16
2012	46	7.67	$4.35	$2.24	0.13	0.05	0.18
2013	44	7.33	$4.14	$1.88	0.13	0.05	0.18
2014	35	7.00	$3.99	$1.73	0.13	0.06	0.19
2015	35	7.00	$4.40	$2.01	0.13	0.07	0.19
2016	36	7.20	$5.38	$2.46	0.15	0.06	0.21

Fishery/Year	Harvest crew positions	Mean harvest crew positions per vessel	Total harvest crew pay (Millions real 2022 $)	Total captain pay (Millions real 2022 $)	Catcher vessel gross share to crew (median)	Catcher vessel gross share to captain (median)	Catcher vessel gross share to labor (median)
2017	36	7.20	$5.50	$2.32	0.16	0.07	0.24
2018	37	7.40	$6.03	$2.81	0.15	0.07	0.22
2019	37	7.40	$7.42	$2.70	0.15	0.06	0.21
2020	35	7.00	$8.78	$2.95	0.16	0.06	0.23
2021	37	7.30	$11.27	$4.35	0.16	0.06	0.21
2022	36	7.20	$6.08	$2.46	0.16	0.06	0.21
Mean	37.1	7.21	$5.62	$2.45	0.14	0.06	0.20
BSS							
2009	536	6.96	$16.23	$7.19	0.15	0.07	0.22
2010	444	6.53	$11.70	$5.25	0.15	0.07	0.22
2011	453	6.66	$25.01	$11.19	0.14	0.07	0.21
2012	502	6.97	$33.81	$15.22	0.14	0.07	0.21
2013	481	6.77	$27.40	$12.47	0.13	0.06	0.2
2014	480	6.86	$21.75	$9.76	0.13	0.06	0.2
2015	491	7.01	$20.61	$9.33	0.13	0.06	0.2
2016	463	6.81	$17.58	$7.85	0.13	0.06	0.2
2017	441	7.00	$14.60	$6.19	0.14	0.07	0.2
2018	436	6.92	$11.66	$5.00	0.14	0.07	0.2
2019	428	7.02	$16.61	$7.18	0.13	0.07	0.2
2020	417	7.07	$20.22	$8.89	0.14	0.07	0.21
2021	448	7.22	$32.25	$13.49	0.14	0.06	0.19
2022	298	7.08	$4.95	$2.16	0.13	0.06	0.19
Mean	451.3	6.92	$19.60	$8.66	0.14	0.07	0.20
BS Tanner Crab							
2009	102	7.29	$0.67	$0.41	0.15	0.07	0.21
2010	21	5.25	$0.16	$0.09	0.18	0.1	0.28
2013	156	7.09	$0.55	$0.26	0.17	0.08	0.24
2014	279	6.80	$3.79	$1.76	0.15	0.07	0.21
2015	365	6.63	$7.23	$3.36	0.15	0.07	0.23
2016	296	6.42	$5.85	$2.67	0.17	0.08	0.24
2017	100	6.25	$1.14	$0.51	0.15	0.07	0.22
2018	211	7.03	$1.61	$0.69	0.15	0.07	0.22
2019	139	7.69	$1.04	$0.47	0.16	0.07	0.23
2020	163	6.52	$0.43	$0.18	0.15	0.07	0.22
2021	149	7.45	$0.93	$0.94	0.14	0.07	0.22
2022	142	6.76	$1.14	$0.60	0.15	0.06	0.22
Mean	198.0	6.78	$3.40	$1.58	0.15	0.07	0.23
BBR							
2009	443	6.33	$11.91	$5.64	0.12	0.06	0.2
2010	422	6.48	$16.43	$7.82	0.12	0.06	0.18
2011	413	6.66	$13.41	$6.22	0.13	0.07	0.19

Fishery/Year	Harvest crew positions	Mean harvest crew positions per vessel	Total harvest crew pay (Millions real 2022 $)	Total captain pay (Millions real 2022 $)	Catcher vessel gross share to crew (median)	Catcher vessel gross share to captain (median)	Catcher vessel gross share to labor (median)
2012	428	6.68	$9.99	$4.50	0.14	0.06	0.2
2013	418	6.63	$9.32	$4.44	0.12	0.06	0.18
2014	422	6.70	$9.48	$4.37	0.12	0.06	0.18
2015	441	6.89	$11.17	$5.24	0.11	0.06	0.17
2016	423	6.71	$13.59	$5.88	0.13	0.06	0.19
2017	419	6.86	$8.35	$3.79	0.12	0.06	0.18
2018	365	6.64	$5.74	$2.64	0.12	0.05	0.17
2019	370	6.61	$5.58	$2.56	0.10	0.05	0.15
2020	333	7.09	$3.95	$1.82	0.10	0.05	0.15
Mean	408.1	6.69	$9.91	$4.58	0.12	0.06	0.18

Crew pay per vessel day has also been considered as a method to measure crew and captain compensation. Data in Table 6-13 shows daily employee compensation by crab fishery from 2018 through 2022 (the most recent year these data are available). Data through 2021 are reported in the 2023 Crab Economic SAFE by fishery for all fisheries combined in Figure 1.7, page 16 and by fishery in Figure 3.5, page 77. Information presented in Figure 1.7 shows that crew pay per day in 2021 increased to nearly $1,600, substantially exceeding the previous high of $1,350 per day in 2011. Much of the increase was attributed to the AIG fishery that showed substantial increases in ex-vessel price and first wholesale price, and that impacted pay per day, increasing to about $2,195 per day in 2021 from about $1,000 per day in 2009. Other CR Program fisheries pay per day declined or were fairly stable in recent years, with BBR averaging at about $1,460 per day and BSS at about $944 per day. Average daily crew pay in the AIG fishery declined substantially in 2022, to $1,322. This is the lowest daily rate over the period. As shown in the table below, the average captain's daily pay was more than twice the crew daily pay and followed similar trends.

Table 6-13 Average Crab Industry Employee Compensation per day, 2018 through 2022

Fishery/Employee	2018	2019	2020	2021	2022	Average
AIG						
Processing Employee	$164	$172	$201	$209	$222	$194
Vessel Captain	$4,277	$4,154	$3,928	$5,337	$3,315	$4,202
Vessel Crew	$1,434	$1,784	$1,949	$2,195	$1,322	$1,737
BBR						
Processing Employee	$169	$171	$201			$180
Vessel Captain	$4,217	$3,541	$3,840			$3,866
Vessel Crew	$1,626	$1,376	$1,368			$1,457
BSS						
Processing Employee	$167	$176	$200	$207	$220	$194
Vessel Captain		$2,646	$2,365	$2,829	$2,081	$2,480
Vessel Crew		$1,017	$886	$1,087	$784	$944
BST						
Processing Employee	$159	$174	$204	$197	$223	$191
Vessel Captain	$1,369				$1,198	$1,283
Vessel Crew	$530				$395	$462

Source: AKFIN summary of EDR data

The average daily pay for processing employees is also provided in this table. See Table 7-5 for additional information on processing employee compensation.

6.8.2 Analysis of Changes in Crew Compensation

Changes in crew compensation in the BBR fishery declined in recent years both in terms of total payments and median shares paid to captains and crew. Decrease in demand for crew (fewer crew positions available) and increases in quota leasing may have played a role in the decline. Recall that lease costs are typically deducted from gross revenue before calculating crew shares and there was a change in how the data were collected starting in 2012. Crew compensation in other fisheries has remained relatively stable except for the increases in the AIG crew per day rate noted above in years before 2022. Crew pay per day in 2022 was lowest in all fisheries over the 2018 through 2022 period.

6.9 Entry Opportunities

6.9.1 Entry into the Harvest Sector Before the CR Program

Entry into the BSAI crab fisheries under the LLP occurred by meeting the participation requirements to be issued an LLP license or by purchasing an LLP license. Because LLP holders were not allocated a share of the crab fisheries the LLP holder typically owned or had access to a vessel used to harvest a portion of the available GHLs. In the years before the implementation of the CR Program the fisheries were highly overcapitalized with many more vessels and processors participating than needed to harvest and process the GHL. The level of overcapitalization may have also limited skippers and crew member's ability to access financing to become owners because of greater financial uncertainty. Persons that were able to enter the fishery were typically long-term captains or crew and had developed a succession plan with the owner(s).

Low GHLs in the early 2000s, made investments in the fishery riskier and the structure of the fisheries increased the uncertainty of being profitable under derby seasons of a few days or weeks. Persons dependent on revenues from the fisheries for their vessel payments, often more recent entrants, faced greater risks under this derby management as they competed with others for a share of the GHL.

Expectations that a rationalization program could be implemented may have also impacted the cost of entry. Vessels and LLP licenses with more catch history would command a higher price. The uncertainty of the value of vessels and LLP licenses reduced the markets for vessels and LLP licenses because many persons wanted to wait to better understand the value of those assets after the CR Program was implemented. Because of the potential distribution of harvest privileges, over capitalization, and crab stock conditions, entry opportunities were subject to uncertainty. However, some stakeholders may have participated in the fishery because of the anticipated value associated with being allocated harvest privileges under the CR Program.

6.9.2 Entry into the Harvest Sector Under the CR Program

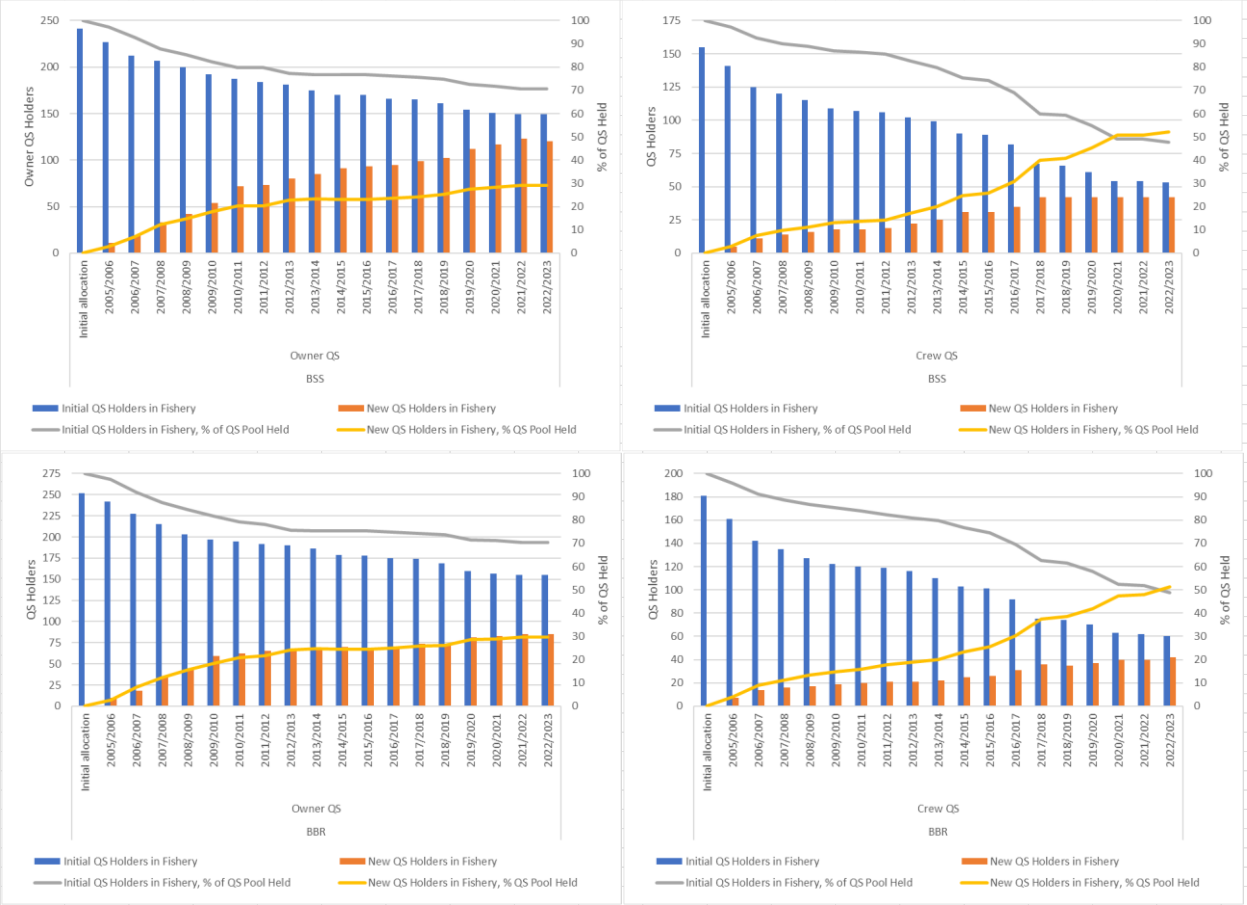
Entry into the CR Program fisheries is dependent on access to annual allocations of IFQ and markets for landing crab. IFQ may either be derived from QS held by the person or by leasing IFQ from another QS holder. QS could have been initially issued to the QS holder or it could have been purchased after the initial allocation if they met the requirements to hold QS (see Section 2.3.1). IFQ leasing includes transfers from the CDQ program and the Adak apportionment. CDQ and Adak allocations and harvest are described in Section 8.3.

The marketing of crab could also be important to IFQ holders, especially under current conditions. If Class B and C quota holders could access live markets outside the traditional structure, it could create greater opportunity for entry into the market by acquiring additional quota or crew members buying into the fishery and having access to higher prices. These types of markets were utilized by at least one vessel for red king crab in 2023. Clarifying current fishery regulations to help facilitate these markets could be considered by the Council to promote entry into crab fisheries. The issues are described in more detail in Section 8.

6.9.3 QS Market

There is limited information available on how much QS is listed for sale on an annual basis. Available data are collected through EDRs reporting the changes in quota ownership and not quota available for sale. Figure 6-5 uses data derived from the EDRs and shows the number of initial QS holders, the number of new QS holders (persons that were not issued QS initially), and the percentage of QS held by each group on an annual basis. BBR and BSS fisheries are used as examples and show that QS transfers have differed by Owner QS and Crew QS. Owner QS was transferred more in the early years of the CR Program and a has been relatively flat in recent years. Crew QS has shown a steadier trend of new entrants over the entire period. The percentage of BBR and BSS Owner QS held by new entrants has been relatively steady, increasing from about 20 percent during the 2010/2011 season to about 30 percent in 2022/2023. Crew QS held by new entrants during that same period increased from 25 percent to 30 percent in 2010/2011, depending on the fishery, to over half of the Crew QS being held by new entrants in the 2022/2023 season.

Figure 6-5 Initial and new QS holders (owners and crew) and percentage of QS held



Source: AKFIN EDR data.

There are several reasons that the Owner QS and Crew QS would exhibit different patterns of new entrants, some of which include:

1. Owner QS may be leased,
2. The value of QS differs depending on the long-term income stream that is expected, and is impacted by fishery closures and market conditions, so Owner QS holders may not want to sell in a down market,
3. There are fewer vessels fishing and that could limit the opportunities for initial Crew QS holders to remain in the fishery, and
4. Crew must meet active participation requirements to hold QS and those same types of restrictions are not placed on Owners holding QS.

6.9.4 Fisheries Finance Program

The Fisheries Finance Program (FFP) was established to provide long-term fixed rate financing for the cost of harvesting privileges in federally managed limited access systems including the Bering Sea/Aleutian Islands Crab Fisheries. The FFP may also be used to refinance existing debt incurred for purposes covered under the program. In addition to the purchase of harvest quota, FFP loans may also be

used for refurbishing, modernization or purchasing of existing fishing vessels, but may not be used for the purpose of substantially increasing the harvesting capacity of vessels.

The FFP proposals that are submitted and are determined to meet the program's requirements may apply. Submission of an application form requires a one-time filing/commitment fee equal to 0.5 percent of the proposed loan amount. U.S citizens or businesses that are at least 75 percent U.S.-owned with a good credit history are eligible for the program. The amount of the loan cannot exceed 80 percent of the total cost of the project. The terms of the long-term loans (up to 25 years) have a fixed rate with interest rates set at 2 percent above the U.S. Treasury rate for borrowing similar maturities. During the fiscal years 2011 through 2023 the FFP program approved 18 loans for a total of $5.7 million[50] to finance the purchase of CR Program quota for an average of about $317k per approved loan application.

6.10 Fishing Capacity Reduction Program (Buyback)

A reverse auction bidding process was used to permanently remove 25 fishing vessels and 62 fishing licenses and permits for $97,399,357 from five crab fishery categories. Those categories and the current annual fee percentage are listed below:

1. Bristol Bay Red King Crab (2.5 percent fee);
2. Bering Sea Snow (Opilio) and Tanner (Bairdi) (5.0 percent fee);
3. Aleutian Island Red King Crab (5 percent fee);
4. Pribilof Red King and Pribilof Blue King Crab (5 percent fee); and
5. St. Matthew Blue King Crab (5.0 percent fee).

Fees for repayment of the loan are paid based on harvests from the listed crab species categories. Fish sellers are required to pay the fee and persons making the first ex-vessel purchase of the crab (“fish buyers”) are required to collect and submit the fee based on the total delivery value. Fee collection to repay the 30-year loan began on October 17, 2005. The interest rate is fixed at 6.54 percent. Fisheries that have been closed during the loan period accrue interest without paying down the principal. As a result, some fishery loan balances are about double the original loan amount. Other fisheries that have recently been closed have paid down the principal but are currently accruing interest at a greater rate than the annual loan repayment.

Table 6-14 BSAI Crab Buyback Program Sub-loan Balances (rounded to whole dollars)

BSAI Crab Buyback Fishery	Original Loan Amount	Current Principal Balance	Outstanding Interest	Annual Interest on Current Principal	Total Loan Balance
BSAI BSS and BST	$66,410,767	$44,775,240	$2,861,346	$2,888,003	**$46,970,350**
BBR	$17,129,957	$3,725,523	$558,526	$240,296	**$4,223,303**
AIG	$6,380,837	$0.00	$0.00	$0.00	**$0.00**
SMB	$5,668,991	$5,668,991	$5,673,271	$365,650	**$11,249,829**
PIK	$1,571,216	$1,571,217	$1,898,888	$101,343	**$3,444,485**
WAI	$237,588	$237,588	$287,136	$15,324	**$520,850**
Total:	**$97,399,357**	**$55,978,558**	**$11,279,168**	**$3,610,617**	**$66,408,818**

Source: https://www.fisheries.noaa.gov/s3/2023-06/BSAI-Crab-Loan-Balances-06.30.2023.pdf

[50] Personal communication with Sherri McCann February, 21 2024.

7 PROCESSORS AND PROCESSING LABOR

7.1 Primary Program Elements Impacting the Processing Sector

7.1.1 Processing Shares

Processing shares were authorized by Congress for the CR Program. The Congressional directive appears in the Consolidated Appropriations Act of 2001. The directive requested the Council to consider plans for rationalization of both the Bering Sea and Aleutian Islands crab fisheries and the Gulf of Alaska groundfish fisheries. The specific language states that the:

> *"North Pacific Fishery Management Council shall examine the fisheries under its jurisdiction, particularly the Gulf of Alaska groundfish and Bering Sea crab fisheries, to determine whether rationalization is needed. In particular, the North Pacific Council shall analyze individual fishing quotas, processor quotas, cooperatives, and quotas held by communities. The analysis should include an economic analysis of the impact of all options on communities and processors as well as the fishing fleets."*

The Magnuson-Stevens Act itself does not grant the Council the authority to allocate processing quotas. Because of concerns relative to how a rationalization program could alter the balance of market power in the fishery, consideration of processor shares and the authority to allocate them under the CR Program was unique. To address these issues the program includes binding arbitration (see discussion provided in Section 6.1.3)

7.1.2 Regionalization

Regionalization of Class A shares was implemented to provide protections for communities in areas that may be negatively impacted by implementation of the CR Program. Regionalization limits the movement of processing location across regional boundaries. In addition, most processors have acknowledged a community interest in processing landings using their IPQ, and report that they have continued to process those landings in the community of origin. Whether this acknowledgement of community interests will persist is not known. In the case of IPQ designated for processing in the North region, processing has effectively been required to occur near St. Paul. Processing at the St. Paul shore-based plant has been limited by cost of opening the plant and acquisition of wastewater permits. A processor, through discussions with community representatives, has recently been processing BSS in the area utilizing a floating processor. The use of the floater provides tax revenue for the community and meets the objective of the regional landing requirement. Additional discussion of community effects is contained in Section 8.2.7.

7.2 Application for PQS

Holders of PQS must apply to NMFS annually to be issued their annual processing privilege. The application for IPQ is due June 15th for all CR Program fisheries. A copy of the current application may be found on NMFS website[51]. Most crab IFQ fisheries open October 15th, an exception being the EAG and WAG IFQ fisheries that open August 1st. Differences in the timing of the fisheries and when the

[51] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-09/Application-for-annual-crab-individual-processing-quota-permit-ipq-AKRO-NOAA.pdf?Ev0KdcMRL95PrG6lG8_Wtbxk_kbsiMl8=

application is due means that processors do not know the amount of crab that will be available to process by the date the application must be submitted.

The substantial costs associated with labor and the production of crab products may mean that costs will be greater than the revenue generated from the sale of those products, especially in years of very low TACs. This could create a dilemma for the processors. They could opt to process knowing that they will realize a loss. This option could be sustainable in the short term, with losses being offset by diversification in other fisheries. It is unlikely this strategy is sustainable in the long term for most processors. Another option would be to not apply for IPQ or apply but withdraw their IPQ application and have the IPQ distributed among the processors that apply. Consolidating the IPQ among fewer processors could further exacerbate the problems that have been addressed associated with processors staying within the established use caps and limit harvester markets.

7.3 Initial Allocation by Region

As expected, fewer processors than harvesters participated in the crab fisheries during the initial qualifying period so PQS were more concentrated among initial recipients (Table 7-1). Across all fisheries, there were 27 entities initially issued PQS for the 2005/2006 season. As in the harvest sector, concentration of initial allocations of processing privileges varied across fisheries. The Aleutian Islands fisheries, which had the least participation during the qualifying period, were the most concentrated. The BBR, BSS, and BST fisheries, which had the most participants during the qualifying period, were the least concentrated.

The CR Program is intended to protect community interests by regionalizing certain fisheries. The regional distribution of shares differed with landing patterns that arose from the geographic distribution of fishing grounds and processing activities. In the Pribilof red and blue king crab fisheries, most historic processing occurred in the Pribilof Islands, resulting in over two-thirds of the processing allocations in those fisheries being designated for processing in the North region. Most processing in the Saint Matthew Island blue king crab fishery occurred on floating processors near the fishing grounds in the North region. The Bering Sea snow crab fishery allocations are split almost evenly between the North and South regions. Less than 5 percent of the BBR PQS is designated for North processing. All qualifying processing in the EAG fishery occurred in the South region, resulting in all processing shares in that fishery (and in the WAI fishery, which was based on the same history) being designated for processing in the South region. All processing allocations for WAG fishery were split evenly with half required to be processed in the West region and half undesignated, which can be processed anywhere. BST crab processing shares are also undesignated.

The CR Program established PQS caps that apply individually and collectively to both the PQS holdings of an entity and IPQ used at an affiliated processing plant each fishing year. Recall that initially processing caps prevent any person from holding or using more than 30 percent of the outstanding PQS in any program fishery unless they were initially allocated more than that amount. In the WAG fishery, the maximum allocation was more than 60 percent of the pool, double the shareholdings cap. This entity was ‘grandfathered’ based on historical processing. In the EAG fishery, one allocation of approximately 45 percent of the pool was more than one and one-half times the cap. In only one other fishery, the St. Matthews Island blue king crab fishery, did an initial allocation exceed the cap. In that fishery, slightly greater than 30 percent of the quota was allocated to one processing entity.

Table 7-1 Initial allocation of IPQ

Fishery	Shareholdings by region						Across regions			
	Region	Percent of total allocation	PQS holders	Mean holding	Median holding	Maximum holding	PQS holders	Mean holding	Median holding	Maximum holding
BBR	North	2.6%	3	0.9%	0.2%	2.3%	17	5.9%	1.6%	23.0%
	South	97.4%	17	5.7%	1.6%	20.7%				
BSS	North	47.0%	9	5.2%	5.4%	15.5%	20	5.0%	2.1%	25.2%
	South	53.0%	17	3.1%	0.4%	9.7%				
BST	Undesignated	100.0%	23	4.4%	0.8%	24.3%	23	4.4%	0.8%	24.3%
EAG	South	100.0%	8	12.5%	6.0%	45.9%	8	12.5%	6.0%	45.9%
PIK	North	67.5%	6	11.3%	12.0%	23.3%	14	7.1%	3.2%	24.5%
	South	32.5%	11	3.0%	1.0%	13.5%				
SMB	North	78.3%	6	13.1%	8.9%	29.9%	12	8.3%	5.1%	32.7%
	South	21.7%	9	2.4%	1.8%	7.8%				
WAG	Undesignated	50.0%	8	6.3%	0.4%	33.3%	9	11.1%	1.0%	63.0%
	West	50.0%	9	5.6%	0.5%	29.7%				
WAI	South	100.0%	9	11.1%	1.0%	63.0%	9	11.1%	1.0%	63.0%

Source: 10-year Review

7.4 Transfers of PQS

Discussions with Dock Street Brokers' staff indicated that they are typically not involved with PQS sales. It was noted that the pool of buyers and sellers is small and well known. Sales that do occur typically involve buyers and sellers contacting each other directly.

Table 7-2 provides a detailed summary of processing quota transfers that have occurred under the CR Program. In the first two years of the program, a large portion of the IPQ pool was subject to the "cooling off" provision, which required processing to occur in the community of the processing history that led to the allocation of the underlying PQS. Consequently, few changes in the distribution of processing of Class A IFQ/IPQ landings occurred in the first two years of the program. The cooling-off period likely accounts for many transfers occurring in 2008/09 fishing year. Since that season a limited number of processor quota transfers have taken place in the CR Program fisheries. Transfers have not taken place each year, with most transfers before the 2018/19 fishing season. The limited number of transfers by fishery and year results in the number of units and QS prices being masked to preserve confidential information for most years and fisheries.

Effectively measuring changes in ownership of PQS over time is difficult. That is, movement of PQS may occur through a traditional transfer, in which a PQS transfer application is submitted to NMFS, identifying a quantity of PQS shares being transferred from one PQS-holding entity to an eligible buyer.

Table 7-2 Transfers of processor quota 2008/09 through 2021/22

Fishery	Year	Transfers (transferors, transferees)	Total units transferred (1,000)	Median units per transfer (1,000)	Median price per QS unit
BBR	2008/09	4(4,3)	31,159.18	4,680.19	0.11
	2009/10	1(1,1)	*	*	*
	2014/15	3(1,1)	*	*	*
BSS	2008/09	2(2,2)	*	*	*
	2009/10	2(1,1)	*	*	*
	2013/14	1(1,1)	*	*	*
	2014/15	3(1,1)	*	*	*
	2017/18	1(1,1)	*	*	*
EAG	2005/06	1(1,1)	*	*	*
	2008/09	3(2,2)	*	*	*
	2014/15	1(1,1)	*	*	*
	2017/18	1(1,1)	*	*	*
WAG	2008/09	8(4,3)	18,921.69	979.27	0.08
EBT	2008/09	5(5,4)	12,152.78	1,645.50	0.05
	2014/15	1(1,1)	*	*	*
	2017/18	1(1,1)	*	*	*
	2018/19	1(1,1)	*	*	*
	2021/22	1(1,1)	*	*	*
WBT	2008/09	5(5,4)	12,152.78	1,645.50	0.00
	2014/15	1(1,1)	*	*	*
	2018/19	1(1,1)	*	*	*
SMB	2012/13	3(2,1)	*	*	*
	2014/15	2(1,1)	*	*	*

Source: Crab Economic SAFE (Table 4.28)

7.5 Summary of Leasing and Custom Processing Arrangements

Under the CR Program, a large portion of the processing (and raw crab purchasing) is vested in the holders of processing shares. To achieve efficiencies in processing, holders of processor shares have used custom processing arrangements to process substantial portions of the landings in the fisheries. Under these arrangements, an IPQ holder/crab buyer contracts for the processing of landings of crab, while retaining all interests and obligations associated with the landed and processed crab. The processor of the crab receives offloaded crab from vessels that has been purchased by the crab buyer and provides processing services as contracted, ultimately passing on the finished product to the crab buyer. The buyer is obligated to pay both the fisherman for the landing, as well as taxes on the landings.

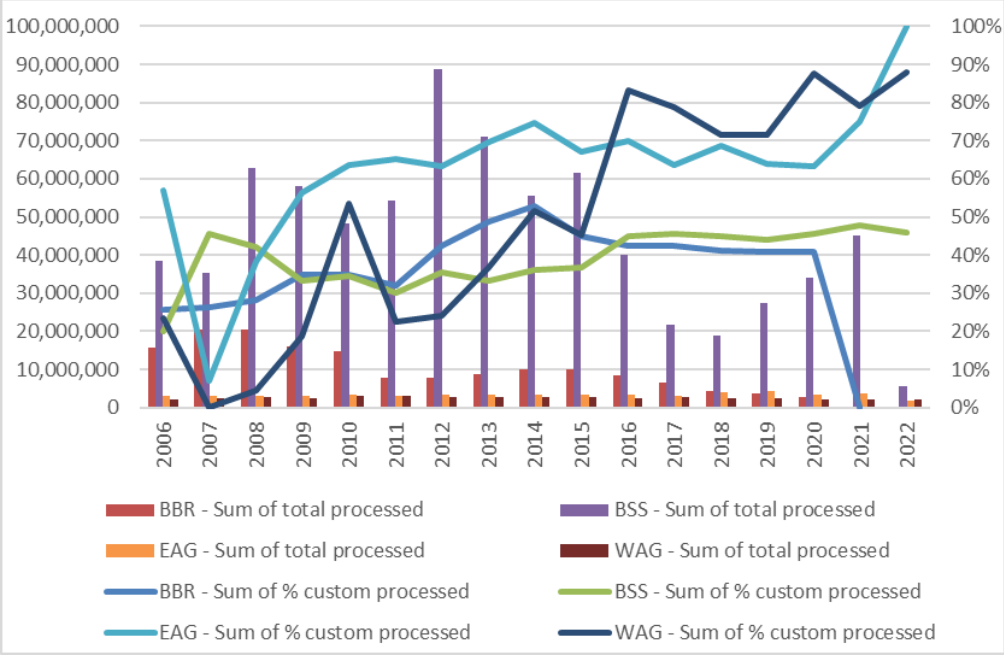
Short-term transfers under leases and custom processing arrangements are the primary means by which PQS holders in the crab fisheries have achieved consolidation under the rationalization program. Custom processing has increased in most fisheries since the program was implemented with the greatest increase in percentage terms in the EAG and WAG fisheries (Figure 7-1). The extent of these leases in all fisheries suggests that some holders of PQS chose not to be active in processing each year, instead leasing their IPQ to realize benefits of consolidation. In addition to those more traditional leasing transactions, some portion of these leases is believed to achieve efficiencies among active processors. For example, an IPQ holder operating a plant in the North may choose to exchange its South IPQ for another IPQ holder's North IPQ to improve efficiency and consolidate processing of its holdings. Effectively measuring changes in ownership of PQS over time is more difficult as a result. That is, movement of PQS may occur

through a traditional transfer, in which a PQS transfer application is submitted to NMFS, identifying a quantity of PQS shares being transferred from one PQS-holding entity to an eligible buyer.

As discussed in the 10-year Review, custom processing arrangements are particularly attractive to IPQ holders who have identified markets for sales and wish to achieve efficiencies in processing. Under these arrangements, the IPQ holder can contract for processing services, maintaining its interest in the crab and processed products. Custom processing relationships are also useful for processing in remote regions, where an IPQ holder may have an obligation to process, and few fully operational shore plants exist. In these areas, a cost-effective means of processing is for IPQ holders to consolidate processing in one or two plants reducing the cost of capital and labor (including the costs of moving crews and supplies to the remote location). Custom processing is also utilized more frequently as more PQS is purchased by entities that do not own processing capacity.

Custom processing relationships are evident in comparing the amount and percent of custom processing in each fishery. In the first year of the program, custom processing of IPQ occurred most prominently in North region of the Bering Sea snow crab fishery and in the EAG. Few custom processing arrangements existed in the BBR fishery until the third year of the program, when Dutch Harbor plants entered relationships with several buyers. The most recent year that fishery was open the percentage of crab custom processed was about 40 percent of the total processed. The EAG and WAG fishery have both been above 60 percent custom processing since 2016, with amounts over 80 percent in recent years. In terms of quantity custom processed the BSS is much larger than other fisheries, which is in part due to the relative TAC for that fishery relative to the other fishery TACs.

Figure 7-1 Whole pounds processed and percent custom processed by fishery and year



Source: FT_CRAB_

7.6 The Structure of PQS Holding Entities and Current PQS Holdings

PQS holdings are structured within various corporate entities, ranging from smaller limited liability partnerships up to large corporations. The underlying distribution of PQS holdings among individual shareholders is somewhat obscured by the complexity of corporate structures under which PQS is held. Currently, PQS is reported to be held by the entities listed in Table 7-3.

Table 7-3 Processing QS holders 2023/2024 by percentage of fisheries PQS held

QS Holder	BBR	BSS	EAG	EBT	PIK	SMB	WAG	WAI	WBT
57 DEGREES NORTH LLC (CBSFA)	12.35	17.32	4.79	19.71	13.30	19.41	0.00	0.00	19.71
ADAK FISHERIES LLC (Adak)	0.00	0.00	0.00	0.00	0.00	0.00	5.41	5.41	0.00
ALASKA LIVE SHELLFISH	0.06	0.00	0.00	0.04	0.26	0.00	0.54	0.54	0.04
ALYESKA SEAFOODS INC.(P)	7.04	4.13	8.38	7.39	3.87	1.76	0.34	0.34	7.39
APICDA JOINT VENTURES INC. (APICDA)	1.58	5.73	6.93	4.83	2.46	4.34	29.98	0.00	4.83
ARCTIC SEA HOLDINGS INC	9.41	8.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATXAM CORPORATION	0.00	0.00	0.00	0.00	0.00	0.00	17.17	29.98	0.00
B & N FISHERIES COMPANY	0.00	0.00	0.00	0.00	0.00	3.51	0.00	0.00	0.00
COASTAL VILLAGES REGION FUND (CVRF)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GKC HOLDINGS LLC (50% NSEDC)	0.00	0.00	5.68	0.00	0.00	0.00	0.00	0.00	0.00
KODIAK FISHERIES DEVELOPMENT ASSOCIATION	3.56	0.13	0.00	2.44	0.83	0.04	0.00	0.00	2.44
NORQUEST SEAFOODS INC. (P)	0.00	3.44	0.00	2.27	0.00	0.00	0.00	0.00	2.27
NORTH PACIFIC SEAFOODS INC (P)	0.00	0.01	0.00	0.01	0.97	0.00	0.00	0.00	0.01
OCEAN2TABLE ALASKA LLC	0.00	0.01	5.68	0.01	0.00	0.00	0.00	0.00	0.01
ORCA BAY FOODS LLC	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00
PETER PAN SEAFOOD COMPANY LLC (P)	5.30	0.00	0.00	2.50	0.00	0.00	0.00	0.00	2.50
PETER PAN SEAFOODS INC. (P)	12.56	15.62	0.00	19.63	14.52	24.22	0.00	0.00	19.63
RAS II LLC (P)	0.70	0.16	0.92	12.35	13.85	7.96	0.39	27.06	12.35
ROYAL ALEUTIAN SEAFOODS INC.	0.00	0.00	45.36	0.00	0.00	0.00	14.10	0.00	0.00
STUART DOUGLAS	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00
TRIDENT SEAFOODS CORPORATION (P)	23.38	25.37	1.02	0.00	25.46	32.67	1.03	1.03	0.00
UNISEA INC. (P)	13.59	10.76	0.00	16.01	18.26	2.08	1.40	2.65	16.01
WESTWARD SEAFOODS INC. (P)	10.47	8.90	20.04	12.81	6.10	4.02	29.64	32.99	12.81
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2324cratpqsunitswithserial.csv
Processing capacity = (P)

NMFS website[52] also lists IPQ issued annually for each crab quota fishery, after TACs are established. Data are listed by holder, fishery, sector, region, and class based on the PQS held by persons. Table 7-4 shows the percentage of IPQ issued by fishery to entities for the 2023/2024 fishing year. A total of 13 entities are listed in the table and represent various types of commercial business types including those held by CDQ organizations. The entities do match the IPQ holders in all instances are listed by whether they have processing capacity or not.

[52] https://www.fisheries.noaa.gov/alaska/commercial-fishing/permits-and-licenses-issued-alaska

Table 7-4 IPQ permits allocated for the 2023/2024 fishing year by IPQ holder and fishery

IPQ Holder	BBR	EAG	EBT	WAG	WBT
57 DEGREES NORTH LLC (CBSFA)	12.35%	4.79%	19.71%	0.00%	19.71%
ALYESKA SEAFOODS INC. (P)	0.00%	0.00%	0.00%	0.00%	0.00%
APICDA JOINT VENTURES INC. (APICDA)	0.54%	0.00%	0.00%	30.01%	0.00%
COASTAL VILLAGES CRAB LLC (CVRF)	4.71%	0.00%	0.00%	0.00%	0.00%
GKC HOLDINGS LLC (50% NSEDC)	0.00%	6.59%	0.00%	0.00%	0.00%
KEYPORT LLC	6.66%	6.93%	19.03%	17.18%	25.47%
NORQUEST SEAFOODS INC. (P)	0.00%	0.00%	2.27%	0.00%	2.27%
NORTH PACIFIC SEAFOODS INC (P)	0.00%	0.00%	0.01%	0.00%	0.01%
OCEAN2TABLE ALASKA LLC	0.00%	5.68%	0.00%	5.95%	0.00%
PETER PAN SEAFOOD COMPANY LLC (P)	12.31%	0.00%	7.99%	0.00%	1.55%
ROYAL ALEUTIAN SEAFOODS INC. (P)	22.56%	45.36%	30.79%	15.87%	30.79%
TRIDENT SEAFOODS CORPORATION (P)	23.37%	1.02%	0.00%	1.03%	0.00%
WESTWARD SEAFOODS INC. (P)	17.52%	29.64%	20.20%	29.96%	20.20%

Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2324cratipqholder.csv
Processing capacity = P

7.7 Processing Limits

The Council expressed concern about the potential for excessive consolidation of PQS when it developed the CR Program. Excessive consolidation could have adverse effects on crab markets, price setting negotiations between harvesters and processors, employment opportunities for harvesting and processing crew, and tax revenue to communities in which crab are landed. To address these concerns in the processing sector the CR Program limits the amount of PQS that a person can hold, the amount of IPQ that a person can use, and the amount of IPQ that can be processed at a given facility. These limits are commonly referred to as use caps.

Processors were initially limited in how much IPQ they can receive at a processing facility. In each of the nine BSAI crab fisheries under the Program, a person is limited to holding no more than 30 percent of the PQS initially issued in the fishery and using no more than the amount of IPQ resulting from 30 percent of the initially issued PQS in a given fishery. In addition, no person is permitted to use more than 60 percent of the IPQ crab in the Bering Sea *C. opilio* fishery designated for exclusive use in the north region. Finally, no processing facility can be used to process more than 30 percent of the IPQ in a crab fishery.

Before Amendment 27, the Program calculated a person's IPQ use cap by summing the total amount of IPQ that is (1) held by that person; (2) held by other persons who are affiliated with that person through common ownership or control; and (3) any IPQ crab that is custom processed at a facility an IPQ holder owns. A custom processing arrangement exists when one IPQ holder: (1) has a contract with the owners of a processing facility to have his crab processed at that facility; (2) that IPQ holder does not have an ownership interest in the processing facility; and (3) that IPQ holder is not otherwise affiliated with the owners of that crab processing facility.

The use caps and their application have been modified under Amendment 27 (2009), Amendment 47 (2017) and the recent (December 2023) Council final action on use processing use caps. Amendment 27 was implemented to accomplish two goals associated with use caps. First, it modified the methods used to calculate and apply use caps when custom processing arrangements occur. This portion of the rule change allows processing facility owners who also hold IPQ to be able to use their facility to establish custom

processing arrangements with other IPQ holders to process more crab at their facilities, thereby improving throughput and providing a more economically viable processing platform. The six fisheries with historically low TACs or that occur in more remote regions addressed under the amendment were BSS, WAG, WAI, EAG, SMB, and PIK.

Second, it establishes a limit on the maximum amount of processing that may be undertaken at processing facilities in the EAG and WAI fisheries. Amendment 27 prohibited a person from processing more than 60 percent of the IPQ issued for the WAI or EAG fisheries in a crab fishing year at a single processing facility east of 174° W. long. This provision applies to all IPQ processed at a shoreside crab processor or stationary floating crab processor and does not exempt IPQ crab that are delivered under a custom processing arrangement from IPQ use cap calculations. The Council's intent behind this provision is to limit the potential consolidation of IPQ that could occur under the custom processing exemptions contained in this rule. This processing limit prevents excessive consolidation of the number of markets available to harvesters, a scenario that is more likely in these fisheries compared to the other fisheries with custom processing exemptions given their historically relatively small TACs compared to other crab fisheries.

Amendment 47 added the EBT and WBT fisheries to the list of fisheries that were exempt from custom processing counting towards IPQ use caps. The unforeseen exit of one processor from WBT/ EBT processing resulted in less than the minimum number of processing companies needed to process all the Tanner crab IPQ without exceeding the IPQ use caps. As a result of this consolidation in processing operations, the processors currently operating in the Bering Sea region were constrained by IPQ use caps in the WBT/ EBT fisheries.

The December 2023 Council final action (had not been implemented when this section was drafted) recommended removing the EAG and WAI processing facility use caps at 50 CFR 680.7(a)(9). It also recommended exempting custom processing of EBS snow crab IPQ with a South region designation, BBR IPQ, and WAG IPQ processed east of 174° W longitude from the PQS/IPQ and processing facility use caps under the program, but retained the regionalization limitations associated with the quota.

The December 2023 action also addressed issues that have arisen since more crab processor shares have been acquired by participants that do not own processing facilities and are dependent on custom processing markets. Also, recent declines in BBR and Eastern Bering Sea snow crab abundance have resulted in closures of commercial fishing seasons and increase the likelihood of future low TAC limits. These changes have reportedly caused significant disruption to participants, including high costs and inefficiencies in the harvesting and processing of these crab species. Custom processing of crab is exempt from IPQ use caps with the exception of BBR, EBS snow crab with a south-region designation, and WAG processed east of 174° W longitude. So, the Council proposed adding these fisheries to the custom processing exemption, with the expectation of allowing participants to increase efficiency and continue to derive benefits from the fisheries.

7.8 Crab Processing Employment and Wages

Employment and wages in the CR Program crab fisheries are presented in Table 7-5 for the years 2009 through 2022. Information provided in the table shows the number of plants reporting processing labor in the EDR, thousands of labor hours, labor payments in real 2022 dollars, processing pay to process 1,000 pounds of whole crab in 2022 dollars, median labor hours to process 1,000 pounds of whole crab, and the median hourly wage in 2022 dollars.

The number of active processing plants receiving deliveries from BSAI crab fisheries continued to be at low numbers compared to when then program was implemented (19 active plants in CR Program fisheries in 2006). Recent TAC reductions and fishery closures have played a role in the reduced processing activity. Crab processing employment in 2022 in terms of labor payments was greatest in the BSS, AIG, and BST fisheries, respectively. This is a significant change since the BBR fishery is traditionally included in the list when it is open to fishing. The BSS fishery accounted for the largest share of processing labor wages in 2021 and 2022, but the total wages fell from $8.3 million in 2021 to $2.5 million in 2022. It is also worth noting that median wages continued to increase in recent years. Wages were about $13/hour through the mid-2020's in real dollars. Wages have increased to about $18.5/hour in 2022. This increase has been noted as a concern by processors both in terms of profitability and its impact on the arbitration process that uses the ratio of gross ex-vessel and gross first wholesale prices as a benchmark to start that process.

Table 7-5 Crab processing labor and wage payments

Species/year	Plants with processing labor	Processing labor hours total (1,000)	Processing labor payment total, real	Processing pay per 1,000 lbs raw crab, plant median, real	Processing labor hours per 1K raw lbs, plant median	Processing pay per hour, plant median, real
ALEUTIAN ISLANDS GOLDEN KING CRAB						
2009	5	44	$1,097,384	108	9.90	$13.15
2010	4	61	$1,650,992	149	12.90	$12.66
2011	7	49	$1,423,791	133	10.37	$12.83
2012	8	53	$1,385,358	93	6.89	$12.76
2013	6	61	$759,035	131	9.19	$12.40
2014	4	61	$701,182	127	10.93	$11.29
2015	3	74	$905,600	141	11.92	$11.90
2016	4	67	$918,103	180	13.04	$14.07
2017	5	58	$792,914	178	12.70	$13.79
2018	5	65	$908,376	162	11.54	$13.65
2019	3	57	$825,134	159	10.48	$14.31
2020	4	62	$978,636	171	10.52	$16.78
2021	4	56	$895,650	155	9.61	$17.41
2022	3	41	$735,192	161	8.69	$18.51
BERING SEA SNOW CRAB						
2009	14	600	$8,649,417	164	13.44	$13.29
2010	11	534	$7,072,390	165	13.92	$12.72
2011	14	555	$7,717,811	181	13.90	$13.24
2012	13	1087	$14,956,066	201	16.00	$12.97
2013	12	774	$9,942,038	158	12.84	$12.49
2014	10	590	$7,790,406	150	12.08	$13.05
2015	10	747	$10,475,911	192	15.45	$13.14
2016	8	447	$6,804,217	187	12.96	$14.35
2017	8	266	$3,804,297	173	11.98	$14.03
2018	8	232	$3,290,382	172	12.39	$13.91
2019	8	333	$5,180,673	198	13.36	$14.63
2020	8	351	$6,397,543	227	13.87	$16.66
2021	8	469	$8,861,684	190	11.51	$17.28
2022	7	131	$2,498,612	299	15.41	$18.37
BERING SEA TANNER CRAB						
2009	8	29	$366,896	171	14.34	$12.71
2010	5	6	$80,318	304	23.87	$12.73
2013	7	17	$201,673	164	13.77	$11.98
2014	8	122	$1,508,967	144	11.96	$11.82
2015	8	230	$3,000,625	163	13.06	$12.72
2016	7	145	$2,051,763	164	11.56	$14.16
2017	5	20	$258,276	166	12.40	$12.58
2018	7	29	$397,828	142	10.37	$13.24
2019	7	14	$228,393	168	12.18	$14.54
2020	5	8	$123,039	174	11.09	$16.99
2021	6	9	$181,420	162	7.04	$16.42
2022	6	28	$537,222	254	14.15	$18.55
BRISTOL BAY RED KING CRAB						
2009	12	199	$2,813,771	184	14.23	$13.19
2010	13	212	$3,012,675	185	15.36	$12.47
2011	14	104	$1,558,229	178	13.97	$13.05
2012	12	100	$1,470,782	168	13.74	$13.52
2013	10	104	$1,475,636	176	14.95	$12.47
2014	9	130	$1,724,557	173	12.11	$11.62
2015	10	127	$1,853,298	193	14.92	$12.80
2016	10	130	$2,039,273	165	11.20	$14.59
2017	10	81	$1,220,645	188	13.47	$14.13
2018	9	55	$856,600	170	11.50	$14.05
2019	8	47	$802,561	187	12.72	$14.21
2020	8	31	$610,377	250	15.71	$16.72
ST. MATTHEW ISLAND BLUE KING CRAB						
2009	2	*	*	*	*	*
2010	5	19	$215,186	168	14.48	$12.41
2011	6	17	$188,320	187	15.10	$11.82
2012	6	21	$303,073	156	11.09	$12.19
2014	1	*	*	*	*	*
2015	1	*	*	*	*	*

Source: https://reports.psmfc.org/akfin/f?p=501:951

7.9 CRAB MARKETS AND PRICES

7.9.1 Wholesale Crab Markets for King and Snow Crab

The king crab and snow crab imports and exports were provided in Figure 3-2. Figure 7-2 and Figure 7-3 includes a more detailed breakout by country the U.S. sold to or bought from during the years 1998 through 2023. It is possible that some of the substantial increase in king crab imports during 2021 was the result of buyers preparing for the anticipated Russian ban on imports and the snow crab increase was due to the low TACs in the U.S. and high catch limits in Canada.

Figure 7-2 U.S. Imports of King Crab and Snow Crab, 1998 through 2023

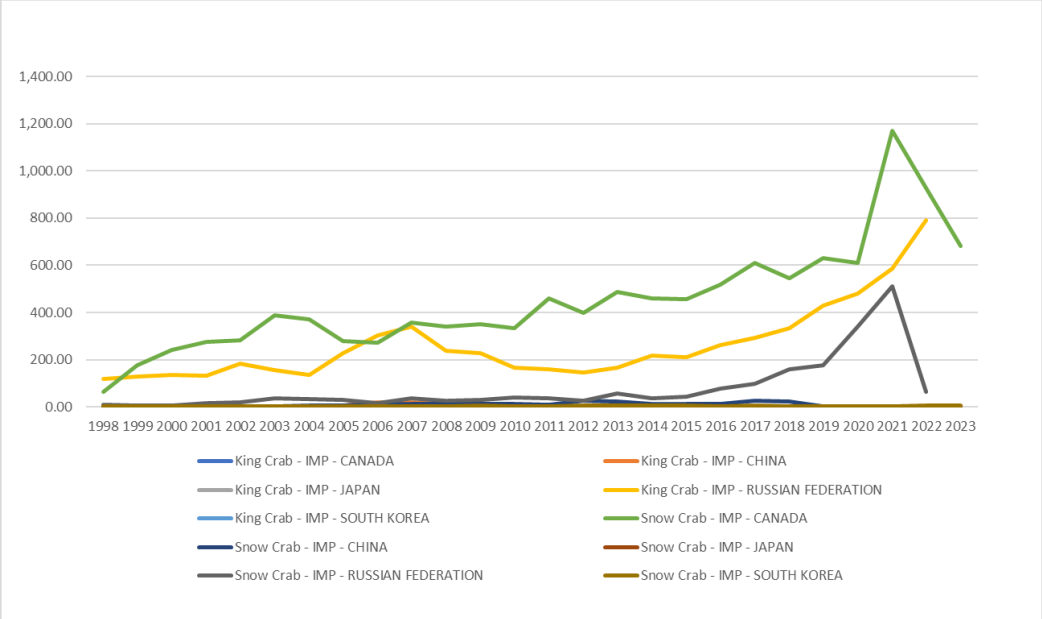
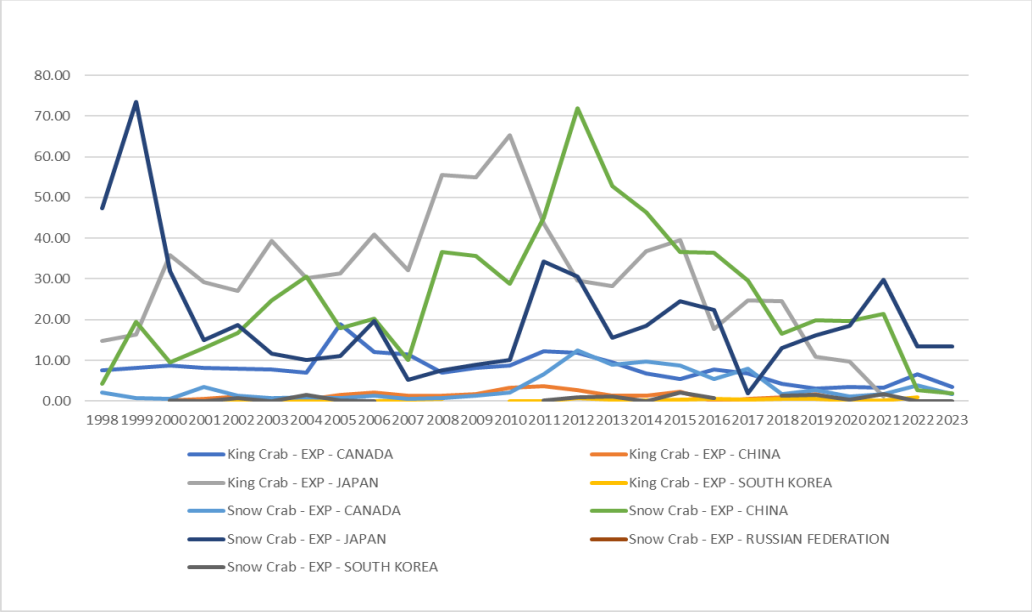


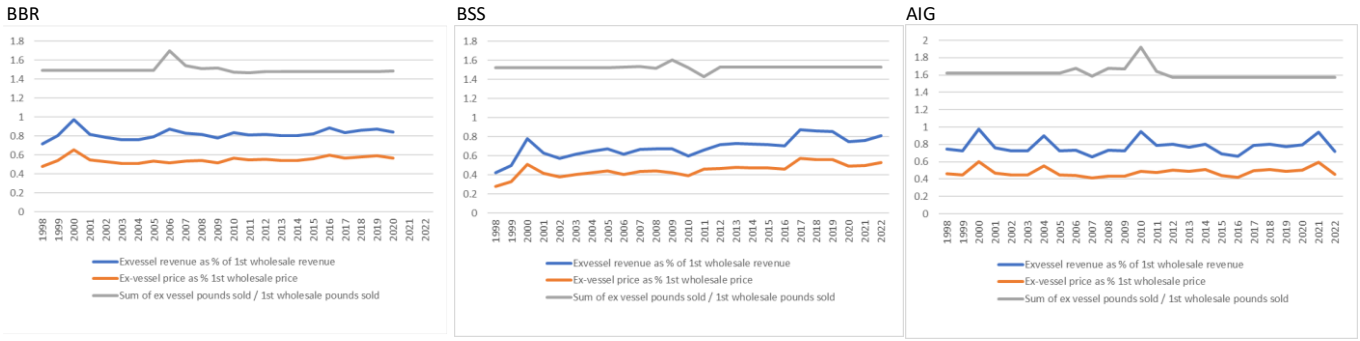
Figure 7-3 U.S. Exports of King Crab and Snow Crab, 1998 through 2023



7.9.2 Ex-vessel Price and Delivery Terms

Prices paid to harvesters are a substantial component of processors' costs. Figure 7-4 shows the ex-vessel price and revenue as a percentage of first wholesale price and revenue. It also shows the ratio of whole crab weight purchased relative to the first wholesale pounds sold. That ratio accounts for the weight lost from turning whole crab into frozen sections or other products produced. It also is reflected in the ratio of ex-vessel to first wholesale revenues being greater than the ratio of ex-vessel price to first wholesale price, although, in general, they follow a similar trend.

Figure 7-4 Ratio of ex-vessel to first wholesale revenue. Price, and pounds sold in the BBR, BSS, and AIG fisheries 1998 through 2022.



Source: CRSAFEEXEC01 - BSAI Crab SAFE: harvesting and processing sector output - product volume, gross revenue, and average price, 1998-present

The division of revenues is affected by more factors than the aggregate arm's length ex-vessel price divided by the aggregate first wholesale price. Changes in costs of production for harvesters and processors impact profitability. Several of these costs are discussed in this document. However, using labor costs as an example, processing labor is paid an hourly rate (including overtime pay) that has increased substantially in recent years. Harvesters typically pay crew a share of the ex-vessel value of crab sold after certain costs are deducted from the gross revenue. Deductions vary by firm but typically include lease payments up to 50 percent for BSS and 65 percent for BBR crab[53] and can include other major expenses like fuel and provisions.

7.9.2.1 Delivery Terms and Pricing Under the LLP

Much of the information in this section is derived from the 10-year review. Before the CR Program, harvests in most BSAI crab fisheries were consolidated over a short season. Pricing practices differed somewhat between crab fisheries with relatively short seasons and a relatively high number of participants (such as the BBR and BSS fisheries) and fisheries with fewer participants and longer seasons (such as the AIG fisheries). Differences in ex-vessel pricing across fisheries are highlighted.

BBR and BSS Fisheries

In the years leading up to implementation of the rationalization program, harvesters in the BBR and BSS fisheries coordinated most price negotiations. Since the early 1990s, the Alaska Marketing Association

[53] A recent DOG boat cooperative report noted that lease rates were somewhat more for quota held by a CDQ group, but only the noted limits were deducted when calculating crew payments.

(AMA) represented a substantial share of harvesters in price negotiations in the largest crab fisheries (BBR, BSS, and BST).

Approximately one month before each season opening, AMA representatives met with each of the major crab processors to informally discuss the markets for crab products. Based on these discussions and information gathered through its own market research, AMA representatives would determine an expected price for crab, which it would communicate to the processors. The AMA would then solicit price offers from each processor and submit those offers to its members for a vote. This process of soliciting prices would continue until a price offer acceptable to AMA members was received. Since deliveries were unrestricted, once an acceptable offer was received from a processor all other processors usually matched that offer to maintain market share. Prices generally remained constant over the short seasons. In 2001, AMA members created an incentive for higher price offers in the BBR fishery by informally agreeing to reward the processor that offered the accepted price with additional deliveries. AMA members made a similar agreement for the 2002 BSS fishery.

If an acceptable price was not received before the seasoning opening, catcher vessels would not begin fishing. For example, in both the 2000 and 2001 Bering Sea snow crab seasons harvesters did not begin fishing until several days after the announced opening because no processor had offered an acceptable price during pre-season price negotiations. Although not all vessel owners were members of the AMA, the entire catcher vessel fleet remained at port until an acceptable price was received by the AMA.

Catcher processors, on the other hand, did not abide by these “stand downs” but began fishing at the opening of the season. These vessels were unaffected by the price negotiations because they process the crab they harvest. Fishing by catcher processors, however, had the potential to weaken the negotiating position of catcher vessels by reducing the amount of crab available for harvest after a price agreement was reached.

The pricing process in the fisheries typically established two prices—the main price applied to higher value, new shell crab (grade 1) and a secondary, lower price was established for lower value, old shell crab (grade 2). The price differential reflected the differences in prices the two grades brought in wholesale and retail markets. The ex-vessel price difference between grades often varied substantially across processors. In general, the price difference averaged approximately 25 percent of the grade 1 price ($1.00 per pound for red king crab and $0.25 for snow crab), but in some instances the price difference was much greater.

Although this informal system established a single price for each grade of crab, price competition among processors existed on a minor scale. Occasionally, some processors offered small bonuses (e.g., $0.05 per pound) or used different grading practices to attract additional vessels. In addition, a few harvesters preferred to handle their own price negotiations rather than be represented by the AMA.

Ex-vessel pricing could also vary regionally for several reasons. In fisheries where vessels made multiple deliveries, the availability of goods and services in a delivery location can be important to harvesters. Food, bait, fuel, and good port facilities could make a processor more attractive to vessels wishing to offload harvests. Processors in locations that offer fewer goods and services were at times compelled to pay a price premium to induce harvesters to sell their catch. Processors more distant from grounds might also be required to pay a higher price to compensate harvesters for increased transiting time and costs and higher risk of deadloss (and possibly for time away from the grounds if harvesters made midseason deliveries). Proximity to markets could also influence ex-vessel prices. Processors with less access to

markets sometimes paid slightly less for crab because they were required to bear a higher cost to transport the crab to markets.

Aleutian Islands Golden King Crab Fisheries

Historically, the AIG fisheries had many fewer participants than the BBR and BSS fisheries. AIG fisheries also lasted several months, in contrast to seasons shorter than one month for BBR and BSS. As a result, ex-vessel pricing practices differed substantially in the AIG fisheries.

Longer seasons in the AIG fisheries allow for substantial in-season price fluctuations, which were uncommon in the short season fisheries. The long seasons with fluctuating prices complicate collective negotiation of ex-vessel prices by participants in the AIG fisheries. Traditionally, harvesters in these fisheries negotiated prices independently. Only in the last few years of LLP management did some harvesters use collective action to negotiate ex-vessel prices.

7.9.2.2 Delivery Terms Under the CR Program

Several aspects of the structure of the CR Program have affected delivery terms and pricing since its implementation. The different catcher vessel IFQ types may impact prices because of the different limitations on use of those shares and the effects of the arbitration system on Class A IFQ landing prices. Negotiations of prices and terms of delivery occur independently for the different share types to avoid potential infractions of the statute that prohibits processors from using IPQ to leverage Class B IFQ deliveries. That statute specifically states:

If the Secretary determines that a processor has leveraged its Individual Processing Quota shares to acquire a harvester[']s open-delivery 'B shares', the processor's Individual Processor Quota shares shall be forfeited.

For these reasons, the price setting and delivery terms for Class A IFQ were discussed separately from those for Class B and C share IFQ in the 10-year review. That review provided a section that began with a detailed discussion of pricing of Class A IFQ landings (including the Arbitration System) and concluded with a discussion of Class B and C share IFQ and distributional issues related to the use of those shares. The sections are summarized below, and the reader is referred to the 10-year review for a more comprehensive discussion.

The Arbitration System is a component of the CR Program that serves several important purposes, including dissemination of market information to facilitate negotiations, the coordination of matching Class A IFQ held by harvesters to IPQ held by processors, and the opportunity to use the binding arbitration process to resolve terms of delivery. Most of the Arbitration System is regulated through private contracts among QS/IFQ holders and PQS/IPQ holders through mandatory Arbitration Organizations (AOs). These organizations are parties to the contracts that define and govern the share matching and Arbitration System. NOAA Fisheries will not issue IFQ or IPQ in a program fishery until arbitration organizations representing enough QS and PQS holders to account for at least 50 percent of the A share QS and 50 percent of the PQS issued for a fishery select the market analyst, formula arbitrator and a pool of contract arbitrators, and notify NOAA Fisheries of their selection. This requirement is intended to ensure that the Arbitration System is in place before the start of the fishery. Arbitration organizations serve an administrative function allowing shareholders to achieve efficiencies without compromising their competitive position or operational aspects of their businesses. The Arbitration System begins with dissemination of information. The two sectors (harvesters and processors) jointly select a "market analyst," who produces a market report, a "formula arbitrator," who develops a price

formula specifying an ex-vessel price as a portion of the first wholesale price. The two sectors (i.e. the Arbitration Organizations) also choose a pool of "contract arbitrators," who preside over any binding arbitration proceedings. The price formula is intended to inform negotiations; the market report is intended to provide baseline information and a signal of a reasonable price. When the arbitrator selects a price then (s)he must consider several factors, including current ex-vessel, consumer, and wholesale prices, innovations and developments, efficiency and productivity, quality, and financial health and stability. The arbitrator must also identify factors relevant to price determination, including delivery timing and location; however, the arbitrator is not required to consider these factors in setting the price.

Participants who have used the binding arbitration process have relied on the lengthy season approach, whereby arbitration proceedings are delayed until a time during the crab fishing year. The lengthy season approach discourages a situation where harvesters refuse to fish until terms and delivery price is negotiated. Some processors contend that the reliance on the lengthy season approach unduly burdens processors by preventing them from reconciling their books in a timely manner.

Arbitration events have generally occurred less over the more recent years of the CR Program. This could be due to resolved issues, fine-tuning price formulas, and arbitration related amendments. It could also be due to more predictable outcomes; and therefore, a willingness to settle terms outside of arbitration. Table 7-6 includes a summary of arbitration events included in NMFS Alaska Region RAM annual management report (2012) and updated with more recent annual arbitration summaries submitted to NMFS. It is possible this table is not all inclusive of arbitration events. In recent years many of the arbitration proceedings have involved the WAG fishery.

Table 7-6 Arbitration Proceedings, 2005/2006 through 2022/2023

Season	Number of Proceedings	Fishery	Issue	Outcome
2005/06	2	BSS, BST	Crab costs/ delivery terms	Contract arbitrators selected harvesters' offers.
2006/07	5	BBR, BSS, WBT, WBT	Crab costs/ delivery terms	Contract arbitrators selected harvesters' offers.
2007/08	2	All fisheries	Procedural: clarify specific timing of price dispute resolutions	Lengthy season approach selected; no further arbitration to resolve price, quality, or other disputes.
2008/09	1	BBR	Procedural: Crab costs/ delivery terms	An issue of a processor's use of a two-tier price structure was settled and a price issue was resolved in favor of the harvester.
2009/10	3 (1 dispute)	AIG, BSS	Procedural (golden king crab); Crab costs/ delivery terms	For the golden king crab fishery, arbitrators selected a later lengthy season arbitration filing date. For the snow crab fishery, contract arbitrators selected the processor's offer.
		AIG	Crab costs/ delivery terms	Two post-season crab costs and terms of delivery disputes: one settled outside of arbitration, and arbitrators resolved issues in favor of harvester.
2010/11	1 (2 disputes)	AIG	Crab costs/ delivery terms	Arbitrators selected the processor's offer for WAG crab.
		AIG	Crab costs/ delivery terms	WAG price and terms of delivery dispute settled outside of arbitration.
2011/12	2 disputes (number of proceedings unknown)	AIG	Crab costs/ delivery terms	Outcome unknown
2012/13	0 (reported)			
2013/14	1	AIG	Crab costs/ delivery terms	Arbitrators selected the harvester's offer for WAG.
2014/15	0 (reported)			
2015/16	0 (reported)			
2016/17	0 (reported)			
2017/18	0 (reported)			
2018/19	0 (reported)			
2019/20	0 (reported)			
2020/21	0 (reported)			
2021/22	2	BSS & BST	Crab cost/delivery terms	Arbitrators selected the harvester's offer
2022/23	0 (reported)			
2023/24	0 (reported) through 4/18/2024)			

Source: RAM 2012 report, Arbitration reports, personal communication with Jake Jacobsen (April 19, 2024), personal communication Malcom McLellan (April 2024)

8 SOCIAL AND COMMUNITY

Of the 18-month, 3-year, 5-year, and 10-year reviews incorporated into this analysis by reference, the latter three included comprehensive, stand-alone social impact assessment (SIA) appendices informed by ethnographic fieldwork in seven of the nine Eligible Crab Communities, which are readily accessible via the links contained in Table 1-1. The scope of the SIA component of the current program review (this social and community section) is much narrower. It focuses primarily on what has changed (or has not changed) at the community and regional level since the 10-year CR Program review, particularly with respect to outcomes relative to the CR Program elements that were designed as, or have served to function as, community and regional protection measures.

Specifically, this social and community section is organized into four subsections, including: a regional context summary; an overview of regional and community quantitative indicators of fishing community engagement in and dependency on the CR Program fisheries; an overview of CDQ, Adak, and western Alaska Tribal entity participation in the CR Program fisheries, and a concluding section on community and social outcomes relative to the CR Program community protection elements.

8.1 Regulatory Context Summary

This program review is an informational analysis rather than an analysis of potential management actions that would satisfy the analytical requirements to implement FMP or other regulatory amendments. As such, this social and community regulatory context summary, requested following the public review the proposed workplan for the CR Program Review at the October 2023 Council meetings, is presented as background information should the Council subsequently choose to consider amending the BSAI crab FMP or CR Program elements potentially involving social, community, environmental justice, and tribal impact considerations.

Community-level social impact assessments (SIAs) for regulatory amendments are guided largely by National Standards 8 (Communities) and 4 (Allocations) under the provisions of the Magnuson-Stevens Act; the National Environmental Policy Act (NEPA); Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Population and Low-Income Populations; and Tribal consultation and collaboration processes guided or informed by EO 13175, a recent Presidential Memorandum, and a recent Council action as described below. Other relevant EOs include those advancing racial equity and support for underserved communities, tackling the climate crisis, and advancing equity, justice, and opportunity for Asian Americans, Native Hawaiians, and Pacific Islanders, each of which contains embedded direction on economic and environmental justice and serving disadvantaged and underserved communities. Finally, NOAA Fisheries Equity and Environmental Justice Strategy provides guidelines relevant to social impact assessments. Each of these are summarized in turn in the following subsections.

8.1.1 Magnuson-Stevens Act National Standards 8 and 4

National Standard 8 (50 CFR [Code of Federal Regulations] 600.345[54]) specifies that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act, take into account the importance of fishery resources to fishing communities by utilizing economic and

[54]The National Standard 8 guidelines referenced, current as of January 25, 2024, are from the Electronic Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600, Subpart D, Section 600.345 (cited as 50 CFR 600.345) are available at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=6b0acea089174af8594db02314f26914&mc=true&r=SECTION&n=se50.12.600_1345 accessed 1/29/2024.

social data that are based on the best scientific information available in order to (1) provide for the sustained participation of such communities, and (2) to the extent practicable, minimize adverse economic impacts to such communities.

Per National Standard 8, the term "fishing community" means a community that is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and fish processors that are based in such communities. A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops). Also, per National Standard 8, the term "sustained participation" means continued access to the fishery within the constraints of the condition of the resource.

Under National Standard 4, conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such an allocation shall be: (1) fair and equitable to all such fishermen; (2) reasonably calculated to promote conservation; and (3) carried out in such a matter that no particular individual, corporation, or other entity acquires and excessive share of such privileges. Among other National Standard 4 guidelines:

> *Definition. An "allocation" or "assignment" of fishing privileges is a direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete user groups or individuals. Any management measure (or lack of management) has incidental allocative effects, but only those measures that result in direct distributions of fishing privileges will be judged against the allocation requirements of Standard 4.*
>
> *An allocation of fishing privileges may impose a hardship on one group if it is outweighed by the total benefits received by another group or groups. An allocation need not preserve the status quo in the fishery to qualify as "fair and equitable," if a restructuring of fishing privileges would maximize overall benefits. The Council should make an initial estimate of the relative benefits and hardships imposed by the allocation, and compare its consequences with those of alternative allocation schemes, including the status quo. Where relevant, judicial guidance and government policy concerning the rights of treaty Indians and aboriginal Americans must be considered in determining whether an allocation is fair and equitable* (50 CFR 600.325[55]).

8.1.2 Social and Economic Analysis Under NEPA

Under NEPA, "economic" and "social" effects are specific environmental consequences to be examined (40 CFR 1502.16 and 1508.8).

8.1.3 EO 12898 Environmental Justice

EO 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register [FR] 7629; February 16, 1994), directs Federal agencies "to make achieving environmental justice part of its mission by identifying and

[55] The National Standard 4 guidelines referenced, current as of January 25, 2024, are from the Electronic Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600, Subpart D, Section 600.325 (cited as 50 CFR 600.325) are available at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=6b0acea089174af8594db02314f26914&mc=true&r=SECTION&n=se50.12.600_1325 accessed 1/29/2024.

addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

EO 12898 directs the development of agency strategies to include identification of differential patterns of consumption of natural resources among minority populations and low-income populations; Council on Environmental Quality (CEQ) environmental justice guidance under NEPA also specifically calls for consideration of potential disproportionately high and adverse impacts to Indian tribes[56] beyond a more general consideration of potential disproportionately high and adverse impacts to minority populations.[57]

8.1.4 Tribal Consultation and Collaboration

EO 13175 of November 6, 2000, Consultation and Coordination with Indian Tribal Governments (65 FR 67249; November 9, 2000), was promulgated:

> "*…in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes*."

The Presidential Memorandum of January 26, 2021, Tribal Consultation and Strengthening Nation-to-Nation Relationships (86 FR 7491, January 29, 2021) affirms that the current Administration:

> "*…is committed to honoring Tribal sovereignty and including Tribal voices in policy deliberation that affects Tribal communities. The Federal Government has much to learn from Tribal Nations and strong communication is fundamental to a constructive relationship*."

The Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships does not change the definition of a Federal agency as specified under EO 13175, and as such, the National Marine Fisheries Service (NMFS) is the agency responsible for carrying out Tribal Consultations.

Additionally, on February 8, 2021, the NPFMC unanimously adopted a motion[58] relative to the Community Engagement Committee that recommended, among other actions, that the Council work "*with NMFS to receive and understand results of Tribal Consultation meetings as early in the process as possible, preferably prior to Council final action*."

[56] The term "Indian tribe" is retained due to its use in both the EO and CEQ guidance; the provisions of the EO and CEQ guidance are understood to apply to federally recognized Alaska Native tribes.

[57] Per CEQ guidance on environmental justice, under NEPA, the identification of a disproportionately high and adverse human health or environmental effect (including interrelated social, cultural, and economic effects) on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives, mitigation strategies, monitoring needs, and preferences expressed by the affected community or population. Further, per CEQ guidance, agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. The factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community (Council on Environmental Quality 1997).

[58] https://meetings.npfmc.org/CommentReview/DownloadFile?p=2c4a513f-889d-4647-9bea-29ed4bde660f.pdf&fileName=D1%20Motion.pdf

8.1.5 Other Recent Executive Orders

Five other Executive Orders, EO 13985, EO 14008, EO 14031, EO 14091, and EO 14906, address issues of equity as well as economic and environmental justice, as described below.

8.1.5.1 EO 13985 Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

EO 13985 of January 20, 2021, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (86 FR 7009; January 25, 2021), addresses issues of equity for Indigenous and Native American persons, persons who live in rural areas, and persons otherwise adversely affected by persistent poverty or inequality, among other groups, as well as underserved communities in general. Specifically, under Section 2, Definitions:

> *For purposes of this order: (a) The term "equity" means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.*
>
> *(b) The term "underserved communities" refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list in the preceding definition of "equity."*

Section 8 of EO 13985, Engagement with Members of Underserved Communities, specifies that:

> *In carrying out this order, agencies shall consult with members of communities that have been historically underrepresented in the Federal Government and underserved by, or subject to discrimination in, Federal policies and programs*.

8.1.5.2 EO 14008 Tackling the Climate Crisis at Home and Abroad

EO 14008 of January 27, 2021, Tackling the Climate Crisis at Home and Abroad (86 FR 7619; February 1, 2021), under Part II, Taking a Government-Wide Approach to the Climate Crisis, includes language on securing environmental justice and spurring economic opportunity. Specifically, Section 219 states:

> *To secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern. That means investing and building a clean energy economy that creates well-paying union jobs, turning disadvantaged communities—historically marginalized and overburdened—into healthy, thriving communities, and undertaking robust actions to mitigate climate change while preparing for the impacts of climate change across rural, urban, and Tribal areas.*
>
> *Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health,*

environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.[59, 60]

8.1.5.3 EO 14031 Advancing Equity, Justice, and Opportunity for Asian-Americans, Native Hawaiians, and Pacific Islanders

EO 14031 of May 28, 2021, Advancing Equity, Justice, and Opportunity for Asian-Americans, Native Hawaiians, and Pacific Islanders (86 FR 29675; June 3, 2021), builds upon EO 13985 to advance equity and racial justice for underserved communities, which include Asian American, Native Hawaiian, and Pacific Islander communities, and the Presidential Memorandum of January 26, 2021 (Condemning and Combating Racism, Xenophobia, and Intolerance Against Asian Americans and Pacific Islanders in the United States [86 FR 7485; January 29, 2021]), which articulates the policy of the current administration to address and confront racism, xenophobia, and intolerance..

8.1.5.4 EO 14091 Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

EO 14091 of February 16, 2023, Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (88 FR 10825; February 22, 2023), builds directly upon EO 13985 and provides guidelines for agencies including establishing agency equity teams, comprehensive agency equity strategies, embedding equity into government-wide processes, and helping rural communities identify and access federal resources to create equitable economic opportunities, among others.

8.1.5.5 EO 14096 Revitalizing Our Nation's Commitment to Environmental Justice for All

EO 14096 of April 21, 2023, Revitalizing Our Nation's Commitment to Environmental Justice for All (88 FR 25251; April 21, 2023), builds upon EOs 12898 and 13985 to advance equity and racial justice for underserved communities. Portions of the EO most relevant to Council regulatory analyses include Section 3, which sets forth a whole-of-government approach to environmental justice, Section 4 that requires each agency to develop Environmental Justice Strategic Plans, and Section 5, which seeks to address the need for research, data collection, and analysis to advance environmental justice.

---

[59] In the July 20, 2021 *Interim Implementation Guidance for the Justice40 Initiative,* Memorandum for the Heads of Departments and Agencies (M-21-28, Executive Office of the President, Office of Management and Budget, https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf accessed 1/29/2024), an "Interim Definition of Disadvantaged Communities" is provided that includes several variables that may apply singly or in varying combinations to some of the fishing communities participating in the BSAI rationalized crab fisheries. These include low-income, high and/or persistent poverty; high unemployment and underemployment; linguistic isolation; high housing cost burden and substandard housing; high transportation cost burden and/or low transportation access; disproportionate environmental stressor burden and high cumulative impacts; limited water and sanitation access and affordability; disproportionate impacts from climate change; high energy cost burden and low energy access; and access to health care, among others. This same interim implementation guidance defines communities as "either a group of individuals living in geographic proximity to one another, or a geographically dispersed set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions."

[60] In September 2021, the United States Environmental Protection Agency (EPA) published *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts* (EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report accessed 1/29/2024). As noted on page 4 of that document, however, "due to data limitations, this report does not analyze the impacts of climate change on socially vulnerable populations living in Hawai'i or Alaska." Primary climate change impacts that were analyzed in the document are: air quality and health; extreme temperature and health; extreme temperature and labor; coastal flooding and traffic; coastal flooding and property; inland flooding and property.

8.1.6 NOAA Fisheries: Equity and Environmental Justice Strategy

NOAA Fisheries Final Equity and Environmental Justice [EEJ] Strategy was released on May 22, 2023.[61] As noted in the executive summary of that document:

> *"…It is our goal to make…*[NOAA Fisheries] *services available to everyone, such that no community[62] is underserved… Equity is the fair treatment of all individuals, taking into account that not everyone has been treated fairly. Environmental justice is equity applied to environmental laws, policies, and practices. The Federal Government recognizes that barriers to equity have left many communities underserved, and they are often the most vulnerable to environmental issues, such as climate change. Recognizing that not all communities have had equal access to NOAA Fisheries' services, we identified three overarching goals to move us closer to EEJ for all:*
>
> - *Prioritize identification, equitable treatment, and meaningful involvement of underserved communities;*
> - *Provide equitable delivery of services; and*
> - *Prioritize EEJ in our mission work with demonstrable progress.*

8.1.7 Ocean Justice Strategy

Ocean Justice Strategy, a report by the Ocean Policy Committee[63] was published in December 2023.[64] As noted in the executive summary of that document:

> *"…Ocean justice derives from environmental justice, with a specific focus on the ocean and Great Lakes. It focuses on addressing environmental justice concerns related to the use of the ocean for economic, cultural, spiritual, and recreational purposes, and food security. Ocean justice provides the opportunity to work towards repairing past harms and a lens through which to think through past, current, or future impacts to the ocean. It also provides a framework with which to improve the well-being of people in coastal communities and other communities connected to and dependent on the ocean. The Biden-Harris Administration's vision for ocean justice was developed with input from public comments received through a Request for Information published in the Federal Register, Government-to-Government consultation with Tribal Nations, roundtables with U.S. Territories and Native Hawaiian organizations, and a 2023 virtual Ocean Justice Summit. The vision includes:*
>
> - *Equitable access to the benefits of a healthy and resilient ocean and sustainable ocean economy.*
> - *Meaningful engagement of all communities in Federal ocean activities.*

---

[61] https://www.fisheries.noaa.gov/feature-story/noaa-fisheries-releases-final-equity-and-environmental-justice-strategy Accessed January 29, 2024.

[62] As footnoted in NOAA Fisheries EEJ Strategy executive summary: *For the purposes of this* [EEJ Strategy] *document, "communities" are groups of individuals, representatives from organizations or interest groups, or governmental entities that have a strong interest in or are affected by NOAA Fisheries' work and policies.*

[63] As noted in the report, the Ocean Policy Committee was codified by the National Defense Authorization Act for Fiscal Year 2021 to coordinate Federal actions on ocean-related matters and traces its roots to the National Ocean Council created by EO 135473. The Ocean Policy Committee itself was established by EO 13840.

[64] https://www.whitehouse.gov/wp-content/uploads/2023/12/Ocean-Justice-Strategy.pdf?cb=1701982354#:~:text=It%20focuses%20on%20addressing%20environmental,recreational%20purposes%2C%20and%20food%20security accessed 4/30/2024.

- *Recognition of the value of engagement with Tribal Nations, Indigenous Peoples, and Indigenous Knowledge in ocean decision-making and research.*
- *Expanded and improved ocean education to build knowledge about the ocean and create a diverse and inclusive ocean workforce."*

8.2 Regional and Community Context of the Fishery Engagement and Dependency

8.2.1 Approach

In the 5-year CR Program Review SIA, a two-pronged approach to analyzing the community and regional components of changes associated with the implementation of CR Program was utilized. First, tables based on existing quantitative fishery information were developed to identify patterns of engagement in and dependency on the various components of the fishery. Second, a subset of BSAI crab communities were characterized in a series of detailed community profiles to describe the range, direction, and order of magnitude of social- and community-level impacts associated with the relevant crab fisheries.

In the 10-year CR Program Review SIA, while tables of quantitative indicators engagement and dependency like those used in the 5-year CR Program Review were updated and included in document, the detailed community profiles similar to those used in the "second prong" of the 5-year CR Program Review SIA were not included in the 10-year CR Program Review SIA, given that the focus of the latter review was on changes that occurred in the second five-year interval following program implementation (i.e., the intent of the analysis was to not replicate detailed background information contained in the earlier document that was (and still is) readily available). Links to the 5-year and 10-year CR Program Review SIAs are provided in Table 1-1.

In the current 17-year CR Program Review SIA component (this Community and Social section), the approach used in the 10-year CR Program Review SIA is followed, but with the focus shifted to changes that have occurred in the 7-year interval following the 10-year CR Program Review. This includes capturing any new types of impacts as well as following the threads of community and social impacts that were identified in the previous CR Program reviews. Previously compiled community profiles providing broader community context information are identified in Section 8.4.1.

8.2.2 Methodology Notes: Assigning Sector-Based Activities to Communities

Within the quantitative characterization of fishery engagement and dependency, several simplifying assumptions were made. First, assignment of catcher vessels and catcher processors to a region or community has been made based upon ownership address information as listed in the CFEC vessel registration files. Thus, some caution in the interpretation of this information is warranted. It is not unusual for vessels to have complex ownership structures involving more than one entity in more than one region. Further, the community of ownership address does not directly indicate where a vessel spends most of its time, purchases services, or hires its crew as, for example, some of the vessels with ownership addresses in the Pacific Northwest spend a great deal of time in Alaska ports and hire at least some crew members from these ports. The region or community of ownership address does, however, provide a rough indicator of the direction or nature of ownership ties (and a proxy for associated economic activity, as no existing datasets provide consistently collected time-series information on where catcher vessel expenditures on support services are made), especially when patterns are viewed at the sector. Where catcher vessel and catcher processor ownership by CDQ groups is known, that information is also presented as the returns from those vessels likely largely accrue to the CDQ region rather than the community of ownership address (if different).

Ownership location has also been chosen for this analysis as the link of vessels to communities rather than other indicators, such as vessel homeport information, based on previous Council SIA experience (e.g., the 5-year CR Program Review SIA) that has indicated the problematic nature of existing homeport data. Ownership location has further been chosen for this social and community analysis as the link of vessels to communities for consistency with the ownership location-based analysis that was done in the crab rationalization pre-implementation SIA[65] as well as the 3-year, 5-year, and 10-year CR Program review SIAs (available via the links in Table 1-1). While catcher vessel and catcher processor ownership address reported in CFEC data is the primary link of vessels to communities used in the analysis, separate information on the geography of CVO, CVC, CPO, and CPC QS holdings distribution is also presented. Ownership address is also used to assign QS holdings to communities, except for CVO and CPO QS held by CDQ organizations, which are attributed to the CDQ regional groups rather than communities of ownership address (if different).

For shore-based processors, regional or community designation was based on the operating location of the plant (rather than ownership address) to provide a relative indicator of the local volume of fishery-related economic activity, which can also serve as a rough proxy for the relative level of associated employment, income, and local government revenues. There are, however, considerable limitations on the data that can be utilized for these purposes, based on confidentiality restrictions. A prime example of this is where a community is the site of one or two shore-based processors active in a community each year. No information can be disclosed about the volume and/or value of landings in those communities. In the few cases where operational location information is known, floating processors are grouped with shore-based processors by community. In all other cases, floating processor activity in this analysis is associated with the greater Seattle metropolitan area, as defined by the Seattle Metropolitan Statistical Area (Seattle MSA[66]), which is the location of ownership address for all relevant floating processors.

8.2.3 Distribution of Catcher Vessels

This section contains information on patterns of catcher vessels distribution by individual Alaskan communities in a first subsection (to capture the annual details of multiple small communities with relatively small vessel numbers that may otherwise be obscured), followed by quantitative indicators of community engagement in and dependence on the CR Program from both Alaskan and non-Alaskan communities in a second subsection. Lastly, this section provides CV crew employment by crew member residence community or groups of communities in a third subsection.

8.2.3.1 Patterns of Catcher Vessel Distribution by Individual Alaska Community

The following three tables provide counts of catcher vessels participating in one or more of the relevant BSAI crab fisheries by year by Alaska community of vessel ownership address. The tables vary based on when local ownership address vessels participated over the 1998-2022 period. Evident in these tables is the overall decrease in the number of catcher vessels participating in the fisheries from the pre- to post-rationalization period.

[65] BSAI Crab Fisheries Final EIS (including Appendix 3: Social Impact Assessment Overview and Community Profiles), August 2004. Available at https://www.fisheries.noaa.gov/resource/document/bering-sea-aleutian-islands-crab-fisheries-final-environmental-impact-statement

[66] The Seattle MSA encompasses all communities in King, Pierce, and Snohomish counties, Washington.

Table 8-1 shows the Alaska communities that had catcher vessels participating in the fisheries only during the 1998-2005 pre-crab rationalization years.67 As shown, a total of nine Alaskan communities had some degree of catcher vessel participation in the fisheries during only these years. In the years leading up to the implementation of the crab rationalization program, the overall crab fleet was declining due to multiple factors, including buy-back efforts that were undertaken as a prelude to rationalization, as documented in detail in the 10-year CR Program Review SIA. None of these communities have had local ownership address catcher vessels participating in the rationalized crab fisheries from the implementation of the program through 2022, the most recent full year of data used in this analysis. Three of these communities also saw some shore-based processing of relevant BSAI crab species during the 1998-2005 period but not after (Sand Point, 2002-2004; Cordova, 2001; and Sitka, 2005), while a fourth (Akutan), the only Eligible Crab Community appearing in this table, had shore-based processing occur in every year 1998-2022 (see Table 8-15).

Table 8-1 Alaska Communities with CVs Participating in Relevant BSAI Crab Fisheries 1998-2005 but No Years After Implementation of CR Program (number of CVs)

Community of CV Ownership Address	1998	1999	2000	2001	2002	2003	2004	2005	Unique Vessels	Vessel Years
Petersburg	4	4	4	4	4	2	2	2	4	26
Sand Point	8	3	5	1	--	1	1	--	9	19
Cordova	3	2	1	1	2	2	2	1	4	14
Sitka	2	2	2	2	2	2	1	--	2	13
Yakutat	1	1	1	1	1	1	1	1	1	8
Seward	4	1	1	--	--	--	--	--	4	6
Akutan	1	1	1	1	--	--	--	--	1	4
Big Lake	1	1	1	--	--	--	--	--	1	3
Anchor Point	--	--	--	--	--	--	1	--	1	1

Source: AKFIN Summary of CAS data (crat_sia 4_22_24.xls)

Table 8-2 shows the Alaska communities that had catcher vessels participating in the fisheries during the 1998-2005 pre-crab rationalization years and some (but not all or nearly all) of the years following the implementation of the CR Program. As shown, four Alaska communities fall into this category, and none of these communities had vessel owner participation after 2016. Three of the four had no local ownership catcher vessels participating in the fishery after the first one to three years of the CR Program. The fourth community had more recent post-CR Program implementation catcher vessel participation in the fishery, which consisted of one vessel in each of two years following rationalization, but none in the most recent six years covered by the data. Two of these communities are also Eligible Crab Communities (King Cove and Unalaska/Dutch Harbor[68]) and had shore-based BSAI crab processing occur in every year 1998-2022, one had shore-based processing occur in one year during the 1998-2005 pre-rationalization period only

[67] 2005 was a transition year in the implementation of the crab rationalization program. The CR Program took effect for the 2005/2006 season (i.e., part-way through 2005), which makes the data for 2005 not directly comparable to analogous data from either the earlier years or the later years. In this social/community section, for the sake of simplicity, 2005 data are treated as being part of the pre-rationalization period in contrast to later years during which the program was fully implemented.

[68] Unalaska/Dutch Harbor is used throughout this section as the name for the community. The municipal boundaries of the City of Unalaska include a portion of Unalaska Island and fully encompass the Port of Dutch Harbor, Amaknak Island, and the geographic feature of Dutch Harbor that is defined by a sand spit extending from Amaknak Island. Fisheries statistics are often kept separately for two areas of the same community (i.e., the portion of the community on Unalaska Island and the portion on Amaknak Island, with the latter being termed “Dutch Harbor”). The “Unalaska/Dutch Harbor” term is used here to clearly denote the fisheries data for the entire community are being used with no disrespect intended toward those who prefer the name Unalaska be used exclusively for the community.

(Kenai, 1999), and one (Kenai) had no shore-based BSAI crab processing occur in any year 1998-2022 (see Table 8-15).

Table 8-2 Alaska Communities with CVs Participating in Relevant BSAI Crab Fisheries 1998-2005 and Some but Not All Years After Implementation of CR Program (number of CVs)

Community of CV Ownership Address	1998	1999	2000	2001	2002	2003	2004	2005	CR Implementation	2006	2007	2008	2009-14	2015	10-Year Prgm Review	2016	Unique Vessels	Vessel Years
King Cove	4	3	4	3	2	2	1	1		2	1	2		--		--	6	25
Ketchikan	1	1	1	1	1	1	1	1		1	1	1	NONE	--		--	1	11
Unalaska/Dutch Harbor	2	2	--	--	1	1	--	1		1	--	--		--		--	5	8
Kenai	1	1	1	1	1	--	--	--		--	--	--		1		1	2	7

Source: AKFIN Summary of CAS data (crat_sia 4_22_24.xls)

Table 8-3 shows the four Alaska communities (Kodiak, Anchorage, Homer, and Seldovia) that had local ownership address catcher vessels participating in the fisheries during the pre-crab rationalization years 1998-2005 and all or nearly all the years following the implementation of the CR Program, along with Wasilla, which has a different history of catcher vessel engagement in the relevant crab fisheries.

Table 8-3 Alaska Communities with CVs Participating in Relevant BSAI Crab Fisheries 1998-2005 and All or Nearly All Years Implementation of CR Program, plus Wasilla (number of CVs)

Community of CV Ownership Address	1998	1999	2000	2001	2002	2003	2004	2005	Program Implementation	2006	2007	2008	2009	2010	5-Year Review	2011	2012	2013	2014	2015	10-Year Review	2016	2017	2018	2019	2020	2021	2022	Unique Vessels	Vessel Years
Kodiak	42	40	37	35	32	30	33	22		14	11	12	12	9		8	9	8	8	8		8	8	7	7	7	7	4	55	418
Anchorage	6	6	6	6	6	7	7	8		4	4	6	5	8		6	8	9	7	8		6	5	5	5	4	7	6	24	155
Homer	9	8	8	8	7	6	5	3		3	3	4	4	5		5	6	5	4	4		6	3	3	3	3	3	2	13	120
Seldovia	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	--	2	24
Wasilla	--	--	--	--	--	--	--	--		--	--	--	1	--		--	--	--	--	1		1	1	1	1	1	2	1	3	10

Source: AKFIN Summary of CAS data (crat_sia 4_22_24.xls)

Kodiak, which among Alaska communities has had the greatest number of catcher vessels participating in the relevant fisheries every year covered by the data except 2021 and 2022 (tied with Anchorage and one less than Anchorage, respectively), has experienced the greatest decline in catcher vessel participation over time. Anchorage has changed little its level of engagement over the pre-and post-rationalization years, Seldovia changed not at all until 2022, while Homer has had a relatively consistent level of engagement from the immediate pre-rationalization years.

Wasilla is unique in this context for two reasons. First, it is the only Alaska community that did not have local ownership address catcher vessels participating in the relevant crab fisheries in the pre-rationalization period shown but did following rationalization. Second, all vessels attributed to Wasilla are (or were at the time) owned by a CDQ group or a wholly owned subsidiary of that group. While some vessels owned in whole or in part by CDQ groups have been attributed to Anchorage over the years, there are no known instances of this occurring in Kodiak, Homer, or Seldovia.[69]

Kodiak is the only Eligible Crab Community among the five communities appearing in the table and had shore-based BSAI crab processing occur in every year 1998-2022, except for 2021. Wasilla had processing occur in one year (1998) only, while the other three communities (Anchorage, Homer, and Seldovia) had no shore-based BSAI crab processing occur in any year 1998-2022 (see Table 8-15).

[69] See Table 8-12 for a one-year example (2024) of community attributions of CVs and CPs owned by CDQ groups (or their wholly owned subsidiaries).

Trends of note with respect to the sustained participation of Alaska ownership address catcher vessels in the CR Program fisheries include: (1) the participation of fewer vessels over time; (2) the consolidation of catcher vessel participation into fewer communities; and (3) the consolidation of catcher vessel participation into what are by Alaska standards relatively large communities. In the years since the 10-year CR Program Review (2016-2022), four of the five Alaska communities that remained active in the CR Program fisheries through local ownership address vessels (Kodiak, Homer, Anchorage, and Wasilla, the first of which is an Eligible Crab Community) had populations of greater than 5,000 persons in 2020 (Table 8-29). The single exception to this trend was Seldovia[70] which had a single local ownership address vessel participating in the CR Program fisheries in each of the years 2016-2021 and none in 2022. None of the communities in the BSAI region that in earlier years (1998-2015) had local ownership address catcher vessels participating in the crab fisheries that were incorporated into the CR Program had any local ownership address vessels participating in those fisheries after 2008 (Sand Point, Akutan, King Cove, and Unalaska/Dutch Harbor, the first three of which are in the Aleutians East Borough and the latter three of which are Eligible Crab Communities).

8.2.3.2 Catcher Vessel-based Quantitative Indicators of Fishing Community Engagement in and Dependency on the Rationalized Crab Fisheries,

The four tables in this section include catcher vessel quantitative indicators of community engagement and dependency on the rationalized crab fisheries across all geographies within the limits of data confidentiality constraints. Engagement is measured as the degree of continued participation (i.e., trends in the number of active CR Program vessels associated with a community through vessel owner residence) and dependence as the gross ex vessel fisheries revenue associated with a community through vessel owners' address that is attributable to CR Program relative to all fisheries revenue. Annual average data are presented for 1998-2005 (the pre-rationalization period[71]), 2006-2010 (the years covered by the 5-year CR Program Review SIA), 2011-2015 (the years covered by the 10-year CR Program Review SIA), and by year and annual averages for the years 2016-2022.

Table 8-4 demonstrates fishery engagement by providing BSAI rationalized crab fishery annual average catcher vessel counts by community of historical ownership address for groupings of Alaska communities with any vessels active in 1998-2005, 2006-2010, and 2011-2015, as well as for the Seattle MSA; Washington communities outside of the Seattle MSA combined; Oregon communities combined; and all other states combined. For 2016-2022, annual counts, an annual average, and percentages of the grand total are provided, along with a count of unique vessels, which may be indicative of continuity of participation (or lack thereof) at the vessel level. As shown, vessel ownership among states is heavily concentrated in Washington, and specifically within the Seattle MSA (which alone accounts for over half of the fleet), while within Alaska vessel ownership is relatively evenly concentrated in Kodiak,

[70] Population 235 in 2020 (Table 8-29).

[71] It is important to note the years included in the pre-rationalization annual average calculations shown in the tables in this section are not the same years that were used as the base years to determine qualification for the rationalization program and the level of initial quota allocation under the program, nor are they the same years that were used as a baseline for the pre-implementation *BSAI Crab Fisheries Final Environmental Impact Statement Social Impact Assessment* (NOAA 2004, Appendix 3). The base years for rationalization program qualification and initial allocation of BSAI crab fishing quota were 1996–2000, with one throw-away year. The baseline years used for the pre-implementation social impact assessment were 1991–2000, spanning more years of historic fishery participation but having the same ending date as the program qualification period itself. The pre-rationalization period used in this section (1998-2005) cover the years where data quality is sufficient to allow good comparability to later years and it is the same period that was used in previous CR Program Review SIAs. Note that for processing data used in other sections, pre-2000 data are typically not used for the pre-rationalization period due to similar data quality issues.

Anchorage/Wasilla, and Homer/Seldovia (and absent from other parts of the state, with the exception of CDQ owned vessels, discussed separately in Section 8.2.5).

Table 8-4 Catcher Vessels Harvesting Rationalized Crab by Community of Vessel Historic Ownership Address, 1998-2022 (number of vessels)

Community	1998-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (number)	Annual Average 2016-2022 (percent)	Unique Vessels 2016-2022 (number)
Anchorage/Wasilla*	6.9	5.6	7.8	7	6	6	6	5	9	7	6.6	10.00%	11
Homer/Seldovia**	9.1	4.8	6	8	4	4	4	4	4	2	4.3	6.52%	8
Kodiak	33.9	11.6	8.2	8	8	7	7	7	7	4	6.9	10.43%	10
Southeast***	6.1	1.2	0	0	0	0	0	0	0	0	0.0	0.00%	0
Southwest****	8.6	0.6	0	0	0	0	0	0	0	0	0.0	0.00%	0
Alaska	64.6	23.8	22	23	18	17	17	16	20	13	17.7	26.96%	28
Oregon	21.3	10.2	9.8	10	10	9	9	7	7	5	8.1	12.39%	10
Seattle MSA	136.1	46.4	40	42	37	35	36	36	32	27	35.0	53.26%	45
Other WA	18.5	4.6	4.4	5	5	4	3	2	3	3	3.6	5.43%	8
Washington	154.6	51	44.4	47	42	39	39	38	35	30	38.6	58.70%	52
Other States	6.1	1.2	1.2	1	1	1	0	2	2	2	1.3	1.96%	2
Total	246.6	86.2	77.4	81	71	66	65	63	64	50	65.7	100.00%	86

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

*Anchorage/Wasilla includes: Anchorage, Wasilla, and Big Lake. After 2005 it includes only Anchorage and Wasilla.

**Homer/Seldovia includes: Anchor Point, Homer, Kenai, Seldovia and Seward. After 2005 it includes only Homer, Kenai, and Seldovia.

***Southeast includes: Cordova, Ketchikan, Petersburg, Sitka, Yakutat. After 2005 it includes only Ketchikan.

****Southwest includes:Akutan, Unalaska/Dutch Harbor, King Cove, and Sand Point. After 2005 it includes only Unalaska/Dutch Harbor and King Cove.

Table 8-5 provides BSAI crab catcher vessel ex-vessel annual average gross revenue information by ownership address community groupings for 1998-2005, 2006-2010, and 2011-2015 and by year, annual average, and percent of grand total for 2016-2022. As shown, in 2016-2022, two-thirds of total ex-vessel gross revenue was associated with Washington ownership address vessels and about one-fifth of the total was linked to Alaska vessels. With Alaska, about half of the 2016-2022 annual average ex-vessel gross revenue was associated with Anchorage/Wasilla ownership address vessels and about one-third with Kodiak vessels.

Table 8-5 Catcher Vessel Ex-Vessel Value while Harvesting Rationalized Crab by Community of Vessel Historic Ownership Address, 1998-2022 (in Millions of 2022 dollars)

Community	1998-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (dollars)	Annual Average 2016-2022 (percent)
Anchorage/Wasilla*	6.0	23.2	36.0	24.7	17.9	16.2	19.9	21.2	35.5	12.6	21.1	11.10%
Homer/Seldovia**	8.6	6.3	13.2	11.8	3.3	3.4	4.2	4.2	5.4	1.2	4.8	2.51%
Kodiak	28.3	24.8	30.8	24.1	12.1	10.7	12.8	15.5	17.2	2.9	13.6	7.15%
Southeast***	3.8	1.2	0	0	0	0	0	0	0	0	0	0.00%
Southwest****	6.4		0	0	0	0	0	0	0	0	0	0.00%
Alaska	53.1	55.4	80.0	60.6	33.3	30.3	36.9	40.9	58.1	16.6	39.5	20.76%
Oregon/Other States	28.2	27.5	38.7	35.2	21.4	17.6	21.5	25.5	43.5	11.0	25.1	13.18%
Seattle MSA	128.5	106.4	145.4	145.4	98.2	105.2	117.0	133.5	160.1	49.8	115.6	60.71%
Other WA	14.8	9.1	15.6	16.7	11.7	9.3	9.6	7.9	14.3	1.9	10.2	5.35%
Washington	143.2	115.5	161.0	162.2	109.9	114.5	126.6	141.4	174.4	51.7	125.8	66.06%
Total	224.5	198.4	279.8	258.0	164.6	162.4	185.0	207.7	276.0	79.3	190.4	100.00%

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

*Anchorage/Wasilla includes: Anchorage, Wasilla, and Big Lake. After 2005 it includes only Anchorage and Wasilla.

**Homer/Seldovia includes: Anchor Point, Homer, Kenai, Seldovia and Seward. After 2005 it includes only Homer, Kenai, and Seldovia.

***Southeast includes: Cordova, Ketchikan, Petersburg, Sitka, Yakutat. After 2005 it includes only Ketchikan.

****Southwest includes:Akutan, Unalaska/Dutch Harbor, King Cove, and Sand Point. After 2005 it includes only Unalaska/Dutch Harbor and King Cove.

Table 8-6 provides information on BSAI rationalized crab catcher vessel dependency on rationalized crab compared to all other areas, gear types, and species fished by those same vessels, as measured by percentage contribution to total annual average ex-vessel gross revenue to the extent possible within data confidentiality restrictions for the years 1998-2005, 2006-2010, 2011-2015, and 2016-2022. As shown, dependency was increasing across the first three of the four time periods for vessels in all geographies combined and within each geography that can be disclosed, except for Anchorage/Wasilla and "Other WA," both of which had a minor dip in the second period. However, annual average dependency across all geographies declined in the 2016-2022 period. This is likely due to a combination of lower BSAI rationalized crab TACs, consolidation of the fleet with fewer vessels represented, and rationalized crab fishery closures, not the CR Program itself.

Table 8-6 Ex-Vessel Value Diversification for Catcher Vessels Harvesting Rationalized Crab, 1998-2022 (rationalized crab as a percent of total revenue)

Community	1998-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016-2022 Annual Average
Anchorage/Wasilla*	79.68%	78.90%	71.02%	54.13%
Homer/Seldovia**	82.44%	84.34%	90.41%	64.48%
Kodiak	62.45%	81.62%	94.17%	69.23%
Southeast***	62.30%	*	0.00%	0.00%
Southwest****	74.08%	*	0.00%	0.00%
Alaska	68.07%	80.51%	81.64%	59.78%
Oregon/Other States	60.44%	76.27%	87.24%	68.12%
Seattle MSA	58.65%	77.12%	83.48%	70.60%
Other WA	77.53%	74.08%	97.52%	78.34%
Washington	60.15%	76.87%	84.66%	71.17%
Total	61.89%	77.77%	84.12%	68.07%

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

*Anchorage/Wasilla includes: Anchorage, Wasilla, and Big Lake. After 2005 it includes only Anchorage and Wasilla.

**Homer/Seldovia includes: Anchor Point, Homer, Kenai, Seldovia and Seward. After 2005 it includes only Homer, Kenai, and Seldovia.

***Southeast includes: Cordova, Ketchikan, Petersburg, Sitka, Yakutat. After 2005 it includes only Ketchikan.

****Southwest includes:Akutan, Unalaska/Dutch Harbor, King Cove, and Sand Point. After 2005 it includes only Unalaska/Dutch Harbor and King Cove.

Table 8-7 provides information on overall community catcher vessel fleet dependency on BSAI rationalized crab for the years 1998-2005, 2006-2010, 2011-2015, and 2016-2022. This table includes all commercial fishing catcher vessels, not just vessels that participated in the BSAI rationalized crab fisheries. It compares the ex-vessel revenue from the BSAI rationalized crab fisheries to ex-vessel revenue from all other areas, gear types, and species fished by all commercial fishing vessels with ownership addresses in that same community or group of communities. Evident in the early couple of periods is the decline of local community fleet dependence in the "Southwest Alaska" grouping on BSAI rationalized fisheries (and the cessation of local ownership address catcher vessels participation in those fisheries) following the implementation of the CR Program. In the larger picture, while there is considerable variability over time, on annual average basis relative economic dependence of Alaska community fleets that included vessels fishing in the BSAI rationalized crab fisheries went from 20 percent to 12 percent dependence on BSAI rationalized crab (as measured in ex-vessel gross revenues) from the 2011-2015 to the 2016-2022 period, while the analogous figures for Washington communities were 16 percent to 12 percent, again likely due to a combination of lower BSAI rationalized crab TACs, consolidation of the fleet focusing more on crab and less on groundfish which is linked to the lower TACs having a greater impact, and rationalized crab fishery closures, not the CR Program itself.

Table 8-7 Ex-Vessel Value Diversification for Communities with Catcher Vessels Harvesting Rationalized Crab, 1998-2022

Years	Community	Annual Average Number of Vessels Participating in Rationalized Crab	Annual Average Number of All Commercial Fishing Vessels in those Same Communities (aka the "Community Fleet")	Annual Average Rationalized Crab Ex-Vessel Revenue (millions 2022 dollars)	Annual Average Total Ex-Vessel Revenues from All Areas, Gears, and Species Fisheries for the Community Fleet (millions 2022 dollars)	Ex-Vessel Value of Rationalized Crab as a Percentage of Total Community Fleet Ex-Vessel Revenue Annual Average
1998-2005	Anchorage/Wasilla*	6.9	234.4	6.0	26.5	22.80%
	Homer/Seldovia**	9.1	454.4	8.6	80.7	10.67%
	Kodiak	33.9	311.5	28.3	136.2	20.77%
	Southeast***	6.1	1302.8	3.8	166.8	2.25%
	Southwest****	8.6	156.8	6.4	35.4	17.96%
	Alaska	64.6	2459.8	53.1	445.7	11.91%
	Oregon/Other States	27.4	68.6	28.2	118.5	23.77%
	Seattle MSA	136.1	27.4	128.5	550.7	23.33%
	Other WA	18.5	100.2	14.8	92.4	15.98%
	Washington	154.6	439.1	143.2	643.1	22.27%
	Total	246.6	2967.4	224.5	1207.3	18.59%
2006-2010	Anchorage/Wasilla	5.6	261.4	23.2	61.1	38.01%
	Homer/Seldovia	4.8	379.8	6.3	98.6	6.38%
	Kodiak	11.6	259.2	24.8	147.3	16.81%
	Southeast & Southwest	1.8	215.4	1.2	36.3	7.75%
	Alaska	23.8	1115.8	55.4	343.3	16.15%
	Oregon/Other States	11.4	68.6	27.5	73.9	37.19%
	Seattle MSA	46.4	420.2	106.4	859.3	12.38%
	Other WA	4.6	100.2	9.1	58.4	15.60%
	Washington	51.0	779.6	115.5	917.7	12.59%
	Total	86.2	1964.0	198.4	1334.9	14.86%
2011-2015	Anchorage/Wasilla	7.8	296.4	36.0	120.7	29.83%
	Homer/Seldovia	6.0	470.2	13.2	127.6	10.34%
	Kodiak	8.2	267.6	30.8	158.8	19.40%
	Alaska	17.7	1034.2	80.0	407.1	19.65%
	Oregon/Other States	9.4	63.6	38.7	78.8	49.13%
	Seattle MSA	40.0	392.6	145.4	947.8	15.34%
	Other WA	4.4	103.4	15.6	56.5	27.61%
	Washington	44.4	763.6	161.0	1004.3	16.03%
	Total	77.4	1861.4	279.8	1490.3	18.77%
2016-2022	Anchorage/Wasilla	6.6	261.0	21.1	88.9	23.76%
	Homer/Seldovia	4.3	454.1	4.8	112.4	4.25%
	Kodiak	6.9	227.9	13.6	118.3	11.51%
	Alaska	22.0	943.0	39.5	319.7	12.36%
	Oregon/Other States	11.0	55.4	25.1	56.8	44.22%
	Seattle MSA	35.0	392.6	115.6	771.8	14.98%
	Other WA	3.6	103.4	10.2	47.6	21.41%
	Washington	38.6	723.9	125.8	819.4	15.35%
	Total	65.7	1722.3	190.4	1195.9	15.92%

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

*Anchorage/Wasilla includes: Anchorage, Wasilla, and Big Lake. After 2005 it includes only Anchorage and Wasilla.

**Homer/Seldovia includes: Anchor Point, Homer, Kenai, Seldovia and Seward. After 2005 it includes only Homer, Kenai, and Seldovia.

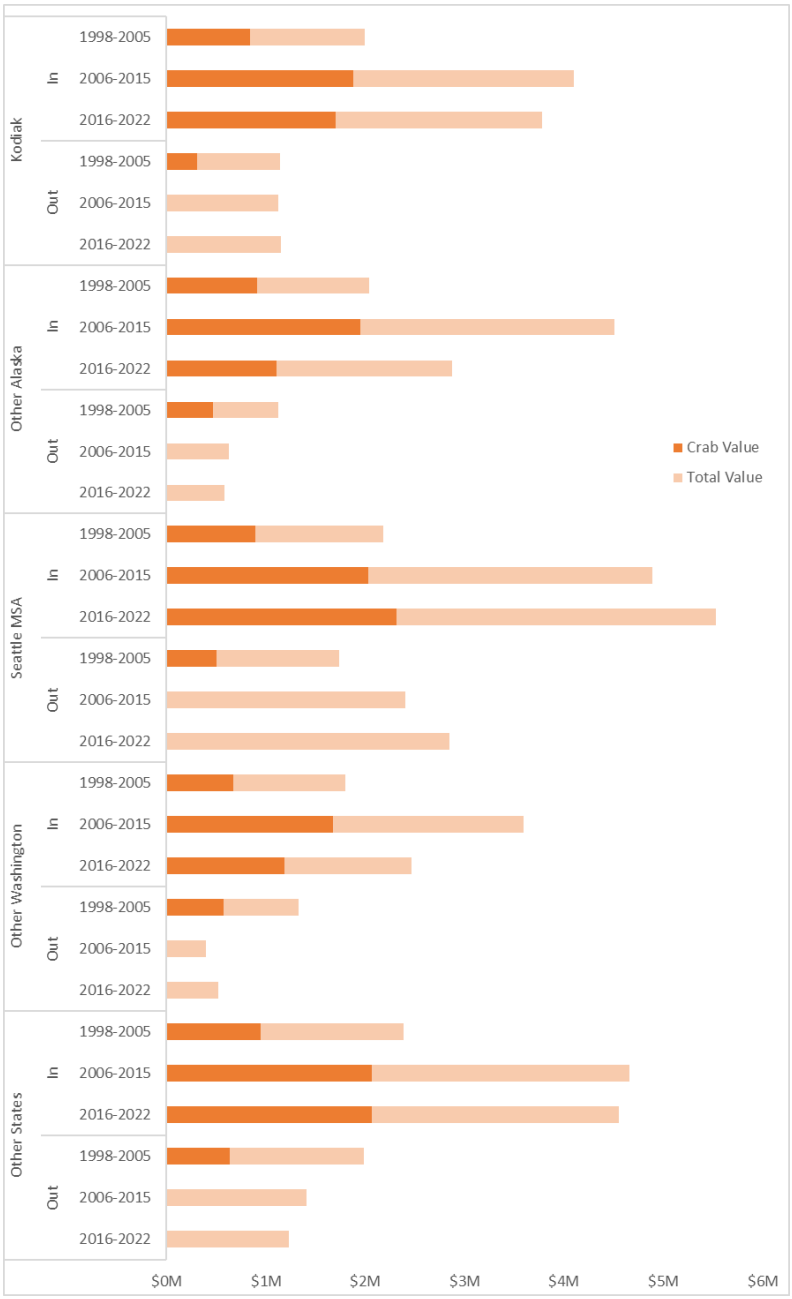
***Southeast includes: Cordova, Ketchikan, Petersburg, Sitka, Yakutat. After 2005 it includes only Ketchikan.

****Southwest includes:Akutan, Unalaska/Dutch Harbor, King Cove, and Sand Point. After 2005 it includes only Unalaska/Dutch Harbor and King Cove.

Communities may continue to derive benefits from catcher vessels that exited the BSAI rationalized fisheries after the inception of the CR Program if they have remained in the community and have continued to participate in other fisheries. Figure 8-1 tracks the ex-vessel value per vessel comparisons of crab vessels that were used during the qualifying period to earn CVO quota shares (during the pre-rationalization period) and subsequently (1) stayed in the crab fishery post-program implementation (the "In" vessels in the figure) or (2) got out of the crab fishery post-program implementation but stayed active

in other fisheries (the "Out" vessels in the figure). This can be used as a rough gauge for continued (or discontinued) benefits to communities in the form of ongoing vessel operations for the "In" and "Out" classes of vessels over the years.

Figure 8-1 Harvest comparison of BSAI Crab Catcher Vessels In/Out of the BSAI Rationalized Crab Fisheries (annual average ex-vessel gross revenue)



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

8.2.3.3 Harvester Crew Employment

Many communities participate in the rationalized BSAI crab fisheries through their residents working as crew aboard catcher vessels and/or catcher processors. Included in this section are tables providing information, based on crew residence address, regarding the number of crew members and amount of crew compensation by community (or group of communities) along with a table relating community of catcher vessel ownership address and crew member residence address. Data for each of these tables comes from EDRs, which are available for the last 4 years covered by the 10-year CR Program Review (2012-2015) and for 2016-2022. No comparable information is available for the 1998-2005 pre-rationalization years or earlier post-rationalization years because the EDR crew information collection was modified in 2013 for the collection of data from the 2012 calendar year.

Table 8-8 provides information by community or community grouping of the number of catcher vessel and capture processor fishing crew members participating in the rationalized BSAI crab fisheries on an annual average basis 2012-2015, annually for each year 2016-2022, and on an annual average basis for 2016-2002, based on community of crew residence. Also provided for each community or community grouping is the annual average percentage of crew members from that community as a percentage of all crew members from all communities for the years 2016-2022. Among the states, as shown, on an annual average basis 2016-2022, roughly one-third of harvester crew members came from Alaska, one-third of crew members came from Washington, and one-third came from Oregon and other states, with Oregon accounting for roughly one-tenth of the total and “Other States” accounting for over one-quarter of the overall total, which speaks to the wide geographic distribution of crew members in the rationalized crab fisheries.

Within Alaska, the communities with easily the highest average number of harvester crew members 2016-2022 are Kodiak, the Anchorage MSA, Homer/Seldovia, and Unalaska/Dutch Harbor, in that order. While Kodiak, Anchorage/Wasilla, and Homer/Seldovia account for all Alaska communities with local ownership address catcher vessels over this same period (Table 8-5), Unalaska/Dutch Harbor saw its last local ownership address BSAI rationalized crab fishery catcher vessel in 2006 (Table 8-2), which points to the importance of Unalaska/Dutch Harbor’s position as the major Alaskan support services port for the CR Program fisheries. Of additional note is King Cove’s fifth position after Unalaska/Dutch Harbor among Alaska communities, given that King Cove is a much smaller community than any of the other top eight Alaska crew member communities over the 2016-2022 period and saw its last local ownership address BSAI rationalized crab fishery catcher vessel in 2008 (Table 8-2).

Table 8-8 Crew Members Harvesting Rationalized Crab by Community of Crew Address, 2012-2022 (number of licenses)

	Community	Annual Average 2012-2015 (number)	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (number)	Annual Average 2016-2022 (percent)
	Anchorage MSA*	48.8	42	35	37	45	33	43	25	37.1	6.56%
	Dutch Harbor/Unalaska	23.8	20	12	18	19	3	14	14	14.3	2.52%
	Homer/Seldovia	34.0	27	22	24	26	18	29	12	22.6	3.98%
	Kenai/Soldotna/Sterling	7.0	7	6	5	8	10	5	4	6.4	1.13%
	King Cove	4.5	9	6	9	6	3	10	3	6.6	1.16%
	Kodiak	75.0	60	62	54	50	24	36	23	44.1	7.79%
	Sitka	5.3	3	2	1	3	18	1	0	4.0	0.71%
	Petersburg	1.0	3	3	4	4	14	2	3	4.7	0.83%
Other AK**	Akutan	1.8	3	0	1	0	0	0	0	0.6	0.10%
	Cordova	2.5	1	6	5	1	5	3	3	3.4	0.61%
	Dillingham	1.5	0	0	0	0	10	0	0	1.4	0.25%
	Fairbanks	1.3	1	0	0	0	4	0	1	0.9	0.15%
	Haines	0.8	0	1	1	1	3	0	0	0.9	0.15%
	Juneau/Douglas/Auke Bay	0.3	0	1	0	0	12	0	0	1.9	0.33%
	Ketchikan	1.0	1	2	2	2	5	1	0	1.9	0.33%
	Ninilchik	0.5	1	2	1	1	1	1	0	1.0	0.18%
	Nome	0.5	2	2	0	0	1	2	2	1.3	0.23%
	Sand Point	2.3	2	2	2	5	2	3	3	2.7	0.48%
	Seward	0.8	2	2	1	3	2	1	1	1.7	0.30%
	Toksook Bay	2.8	1	2	0	0	2	0	0	0.7	0.13%
	Valdez	1.5	2	1	1	1	2	1	1	1.3	0.23%
	Wrangell	0.3	2	2	2	1	6	0	0	1.9	0.33%
	All Other AK	19.5	12	8	9	6	55	8	5	14.7	2.34%
	Other AK Subtotal	37.0	30	31	25	21	110	20	16	36.1	6.38%
	Alaska Total	236.3	201	179	177	182	233	160	100	176.0	31.06%
	Newport	9.8	17	10	8	6	2	9	7	8.4	1.49%
	Other WA	58.3	55	43	46	50	19	59	28	42.9	7.56%
	Oregon Total	68.0	72	53	54	56	21	68	35	51.3	9.05%
	Seattle MSA	178.3	172	157	140	129	77	105	70	121.4	21.43%
	Other WA	98.3	88	70	70	65	66	42	37	62.6	11.04%
	Washington Total	276.5	260	227	210	194	143	147	107	184.0	32.48%
	Other States Total	152.8	201	148	141	167	175	141	114	155.3	27.41%
	Grand Total	**733.5**	**734**	**607**	**582**	**599**	**572**	**516**	**356**	**566.6**	**100.00%**

Source: Economic Data Reports, data compiled by AKFIN

*Includes the Muncipality of Anchorage and the Matanuska-Susitna Borough.

**Communities included by name in the "Other AK" category are those communities that met a screening cutoffs of (1) at least 10 crew instances, with an instance being one crew license in one year over the years covered by the table, and (2) had at least three total licenses issued in any one year in this same period. The 67 Alaska communities that that did have at least one crew member in the data but did not meet one or both of these screening criteria are not listed by name in this table but were put into the residual "All Other AK" category. As durable crew IDs are not available, a count of distinct individual crew members is not possible for any geography.

Table 8-9 provides information on BSAI rationalized crab fishery harvest vessel crew compensation for the same communities or groups of communities of crew residence and time periods shown in the previous table. Among the states, crew members with residence addresses in Washington accounted for approximately one-third of all crew compensation on an annual average basis over the period 2016-2022, with Alaska accounting for approximately one-quarter of the total and Oregon and Other States accounting for roughly 12 percent and 30 percent, respectively.[72]

Table 8-9 Harvester Crew Compensation by Community of Crew Address, 2012-2022 (millions of 2022 dollars)

Community	Annual Average 2012-2015 (number)	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (millions)	Annual Average 2016-2022 (percent)
Anchorage MSA	3.97	3.36	2.13	2.15	3.91	3.03	5.06	1.74	3.05	6.59%
Dutch Harbor/Unalaska	1.96	1.35	1.34	1.26	1.65	0.30	2.52	0.98	1.34	2.90%
Homer/Seldovia	2.41	2.50	1.91	1.58	2.19	2.01	2.73	0.83	1.96	4.24%
Kenai/Soldotna/Sterling	0.49	0.65	0.28	0.30	0.49	0.85	0.86	0.71	0.59	1.28%
King Cove	0.31	0.56	0.24	0.54	0.41	0.21	0.90	0.10	0.42	0.91%
Kodiak	5.33	3.75	3.19	2.42	2.72	1.42	2.42	0.85	2.39	5.17%
Petersburg	*	0.32	*	*	0.32	1.53	*	0.22	0.43	0.94%
Sitka	*	0.21	*	*	0.10	1.44	*	0.00	0.28	0.60%
Other AK	3.02	2.79	2.28	1.49	1.43	8.51	2.28	0.75	2.79	6.03%
Alaska Total	17.99	13.61	10.62	7.95	10.88	15.95	15.62	5.00	11.38	24.58%
Newport	1.11	2.11	1.60	1.09	1.12	*	2.14	0.90	1.31	2.82%
Other OR	5.16	4.92	3.70	3.67	5.60	*	7.20	1.96	4.02	8.67%
Oregon Total	6.27	7.03	5.29	4.75	6.72	1.25	9.34	2.87	5.32	11.49%
Seattle MSA	15.95	15.07	11.12	9.71	10.17	6.78	13.56	3.33	9.96	21.52%
Other WA	9.66	8.68	6.11	6.38	5.95	5.75	6.63	2.35	5.98	12.91%
Washington Total	25.61	23.75	17.23	16.09	16.12	12.53	20.19	5.67	15.94	34.43%
Other States Total	12.59	17.85	11.40	10.44	13.01	19.67	17.07	6.15	13.66	29.50%
Grand Total	**62.45**	**62.24**	**44.54**	**39.24**	**46.74**	**49.39**	**62.21**	**19.70**	**46.29**	**100.00%**

Source: Economic Data Reports, data compiled by AKFIN

*Includes the Muncipality of Anchorage and the Matanuska-Susitna Borough.

Table 8-10 provides information in a "cross-walk" format on the relationship between BSAI rationalized crab fishery harvest vessel ownership address communities and their crew members community of residence for 2020, which was chosen as a representative year before major fishery closures. As shown, for Anchorage/Wasilla-owned vessels, about 30 percent of the crew came from Alaska, 30 percent from Washington and 40 percent from other states. For Homer/Seldovia owned vessels the analogous rough numbers were 80 percent from Alaska, 10 percent from Washington, and 10 percent from other states, while for Kodiak they were 50 percent from Alaska, 35 percent from Washington, and 15 percent from other states. Vessels from Seattle MSA hired about 40 percent of the crew from Alaska, as did Oregon vessels. Overall, for all catcher and catcher processor vessels from all areas combined, about 40 percent of fishing crew members were from Alaska, 25 percent from Washington, 5 percent from Oregon, and 30 percent from other states, indicative of a large geographic reach of the fishery in attracting crew members. In terms of local hires for Alaska vessels, Anchorage MSA vessels hired 6 percent of their crew from

[72] It is not clear from the data why there are differences between the states in crew compensation relative to number of crew. For example, it appears on average that crew from Alaska were paid somewhat less than crew from some states or aggregation of states. It may be that Alaska crew worked less time due to being more diversified in their participation in other fisheries or that the residents of other states tended to participate at a relatively higher rate in fisheries that have been less impacted by TAC reductions (e.g., AIG).)

Anchorage/Wasilla, Homer/Seldovia vessels hired 15 percent of their crew from Homer/Seldovia, and Kodiak vessels hired 13 percent of their crew from Kodiak.

Table 8-10 Vessel Owner Address by Crew Address for Vessels Harvesting Rationalized Crab, 2020

Crew Residence Address	Vessel Ownership Address							
	Anchorage/ Wasilla	Homer/ Seldovia	Kodiak	Oregon	Seattle MSA	Other Washington	Other States	Grand Total
Anchorage MSA	5	4	8	5	14	0	0	**36**
Chevak	1	0	0	0	0	0	0	**1**
Cordova	0	2	0	0	3	0	0	**5**
Dillingham	3	3	0	1	3	0	0	**10**
Dutch Harbor/Unalaska	0	0	0	0	3	1	0	**4**
Fairbanks	0	0	0	1	3	0	0	**4**
Haines	2	0	0	0	1	0	0	**3**
Homer/Seldovia	1	7	0	1	9	3	0	**21**
Juneau/Douglas/Auke Bay	0	1	2	2	8	0	0	**13**
Kenai/Soldotna/Sterling	2	0	1	3	4	0	1	**11**
Ketchikan	1	1	0	0	4	0	0	**6**
King Cove	0	0	0	1	2	0	0	**3**
Kodiak	0	1	11	4	6	2	0	**24**
Ninilchik	0	0	0	0	1	0	0	**1**
Nome	0	0	0	0	1	0	0	**1**
Petersburg	2	0	2	0	14	0	0	**18**
Sand Point	1	0	0	0	2	0	0	**3**
Seward	0	0	0	0	2	0	0	**2**
Sitka	1	0	3	2	10	1	2	**19**
Toksook Bay	0	0	1	0	1	0	0	**2**
Valdez	1	0	0	0	1	0	0	**2**
Wrangell	0	0	1	2	3	0	0	**6**
Other AK	5	3	3	8	32	4	1	**56**
Alaska Total	25	22	32	30	127	11	4	**251**
Newport	0	0	0	0	2	0	0	**2**
Other Oregon	1	0	3	1	11	1	3	**20**
Oregon Total	1	0	3	1	13	1	3	**22**
Seattle MSA	12	1	4	16	44	0	4	**81**
Other Washington	12	2	5	10	35	3	1	**68**
Washington Total	24	3	9	26	79	3	5	**149**
Other States Total	35	2	16	16	107	9	1	**186**
Grand Total	**85**	**27**	**60**	**73**	**326**	**24**	**13**	**608**

Source: Economic Data Reports, data compiled by AKFIN

*Includes the Muncipality of Anchorage and the Matanuska-Susitna Borough.

8.2.4 Distribution of Catcher Processors

Relatively few catcher processors have participated in the rationalized BSAI crab fisheries in recent years. No more than five catcher processors fished per year since the implementation of the CR Program and two or three vessels fished each year since 2010 (the last year covered in the CR Program 10-year review), except for 2022, when only one vessel was active in the fishery. As shown in Table 8-11, based on community of ownership address, two vessels with Alaska ownership addresses participated in the fishery in the 1998-2005 pre-rationalization period (for one year each) and none have done so since the implementation of the CR Program. Otherwise, all participation by catcher processors in the relevant fisheries has been by vessels with Seattle MSA ownership addresses. It is important to note, however that

as was the case with catcher vessels, CDQ groups or their subsidiaries have held ownership interest catcher processors over the years, making clear attributions to communities less that straightforward in some instances.[73] One of the catcher processors fishing steadily since the inception of the CR Program with a Seattle MSA ownership address is owned in part by a CDQ group.

Table 8-11 Communities with CPs Participating in Relevant BSAI Crab Fisheries, 1998-2005 (number of CPs)

Community	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Annual Average (number)	Annual Average (percent)	Unique Processors (number)
Anchorage	1	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1	0.4%	2
Seattle MSA	3	--	10	8	11	9	10	8	5	5	5	5	3	3	3	2	2	2	2	2	2	2	3	2	1	4.3	20.2%	22
Grand Total	**4**	**0**	**10**	**8**	**12**	**9**	**10**	**8**	**5**	**5**	**5**	**5**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**2**	**1**	4.4	20.6%	24

Source: FT_CRAB_EXTRACT.xls

Due to the small number of catcher processors participating in the fishery, analysis first wholesale gross revenues by community of ownership address are aggregated with those of shore-based processors and floating processors in Section 8.2.7.1. The analysis of CPO and CPC QS units across communities is combined with that of the distribution of CVO and CVC QS units in Section 8.2.6.

8.2.5 CDQ Ownership of Catcher Vessels and Catcher Processors Participating in the Rationalized Crab Fisheries

As noted in the discussions of community engagement in and on dependency BSAI rationalized crab fisheries, attributions of catcher vessels and catcher processors to communities in Section 8.2.3 and Section 8.2.4, respectively, have been done through the use vessel ownership address. In more than a few cases, these vessels have complex ownership structures for which ownership decomposition information is not available. From a social or community impact perspective, one important type of ownership that has been identified as important to understand in previous CR Program Review SIAs is where CDQ groups have ownership interest in vessels that ownership addresses outside of any of the CDQ regions.

Patterns of CDQ ownership in vessels has been variable over the years, but Table 8-12 provides point-in-time information on current (as of May 2024) CDQ group ownership interests in BSAI crab catcher vessels and catcher processors and community of ownership address as reported in the data used for this analysis. As shown in the table five of the six CDQ groups, the Bristol Bay Economic Development Association (BBEDC), the Central Bering Sea Fishermen's Association (CBSFA), the Coastal Villages Region Fund (CVRF), the Norton Sound Economic Development Corporation (NSEDC), and the Yukon Delta Fisheries Development Association (YDFDA) hold, either directly or through wholly owned subsidiaries, ownership interest in catcher vessels or catcher processors that have participated or are participating in the rationalized BSAI crab fisheries. The sixth CDQ group, the Aleutian Pribilof Island Community Development Association (APICDA) does not directly or through subsidiaries hold ownership interest in any catcher vessels or catcher processors participating in the rationalized BSAI crab fisheries.

[73] See Table 8-12 for a one-year example (2024) of community attributions of CVs and CPs owned by CDQ groups (or their wholly owned subsidiaries).

Table 8-12 CDQ Ownership of BSAI Rationalized Crab Catcher Vessels and Catcher Processors, 2024

Group*	Vessels	Type	Ownership Percentage	Ownership Address Community
BBEDC	Aleutian Mariner	CV	100%	Dillingham**
	Bristol Mariner	CV	100%	Dillingham**
CBSFA	Early Dawn	CV	83%	Wasilla
	Fierce Allegiance	CV	30%	Seattle MSA
CVRF	Arctic Sea	CV	100%	Anchorage
	North Sea	CV	100%	Anchorage
NSEDC	Aleutian #1	CV	50%	Seattle MSA
	Patricia Lee	CV	50%	Seattle MSA
YDFDA	Courageous	CP	85%	Seattle MSA
	Kiska Sea	CV	45%	Seattle MSA
	Baranof	CP	41%	Seattle MSA

*Includes wholly owned subsidiaries.
**Dillingham does not appear as an CV ownership community in previous tables of CVs active in the CR fisheries as these vessels have not participated in the fisheries under BBEDC ownership and an associated Dillingham address in the years covered by the data used for this analysis.
Source: Personal communication, 5/1/24, 5/2/24, and 5/3/24.

8.2.6 Distribution of CV and CP Quota Shares

Another important indicator of community engagement in the rationalized BSAI crab fisheries is through local ownership of vessel owner and/or vessel crew quota shares. Table 8-13 provides information on the distribution of CVO, CVC, CPO, and CPC QS units by community of ownership address resulting from CR Program initial allocations (i.e., the 2005/2006 fishing season). Allocations to CDQ groups are attributed to the CDQ groups themselves (and to the Alaska total) rather than the community of ownership address as shown in the data used in for this analysis as CDQ ownership benefits are shared across Alaska regions encompassing multiple communities (except for the CBSFA, which is affiliated with St. Paul only).

Table 8-13 Crab Fisheries Community Engagement Summary: CV and CP QS Units Distribution, 2005/2006 (Initial Allocations)

Community	CVO, CVC, CPO, and CPC QS Ownership Combined		CVO QS Ownership		CVC QS Ownership		CPO QS Ownership		CPC Ownership	
	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held
Kodiak	47	146,220,494	22	141,728,947	27	4,490,363	--	--	2	1,184
Anchorage	17	47,587,153	8	41,790,198	9	1,039,096	1	4,732,120	1	25,739
Homer	8	28,276,099	3	26,039,313	6	2,236,786	--	--	--	--
Wasilla	1	105,222	--	--	1	105,222	--	--	--	--
Petersburg	4	15,201,889	3	14,882,334	1	319,555	--	--	--	--
Kenai	2	192,218	--	--	2	192,218	--	--	--	--
Unalaska/Dutch Harbor	3	5,409,814	2	5,029,800	2	380,014	--	--	--	--
Yakutat	1	4,098,229	1	4,098,229	--	--	--	--	--	--
Sand Point	2	253,569	1	208,284	2	45,285	--	--	--	--
King Cove	7	2,973,739	3	2,155,596	4	818,143	--	--	--	--
Seldovia	1	6,654,936	1	6,654,936	--	--	--	--	--	--
Soldotna	1	286,797	--	--	1	286,797	--	--	--	--
Valdez	1	65,065	--	--	1	65,065	--	--	--	--
Western AK Tribal Entities	--	--	--	--	--	--	--	--	--	--
CDQ - CVRF (ANC)	1	1,899,351	1	1,899,351	--	--	--	--	--	--
CDQ - YDFDA (SMSA)	1	7,743,047	1	7,743,047	--	--	--	--	--	--
CDQ - CBSFA (SMSA)	1	9,081,760	1	9,081,760	--	--	--	--	--	--
CDQ - NSEDC	--	--	--	--	--	--	--	--	--	--
CDQ - BBEDC (ANC)	1	19,973,229	1	19,973,229	--	--	--	--	--	--
CDQ - APICDA	--	--	--	--	--	--	--	--	--	--
Alaska Total	**99**	**296,022,611**	**48**	**281,285,024**	**56**	**9,978,544**	**1**	**4,732,120**	**3**	**26,923**
Seattle MSA	264	1,070,694,953	149	924,293,375	106	28,123,524	12	116,505,534	13	1,772,520
Other Washington	46	177,423,693	21	131,245,484	24	5,014,191	1	40,067,083	4	1,096,935
Washington Total	**310**	**1,248,118,646**	**170**	**1,055,538,859**	**130**	**33,137,715**	**13**	**156,572,617**	**17**	**2,869,455**
Oregon Total	**51**	**199,450,857**	**36**	**195,210,176**	**16**	**4,240,681**	**--**	**--**	**--**	**--**
Other U.S. Total	**25**	**44,829,432**	**9**	**41,525,020**	**16**	**2,756,697**	**--**	**--**	**4**	**547,715**
Unknown	--	--	--	--	--	--	--	--	--	--
GRAND TOTAL	***485***	***1,788,421,546***	***263***	***1,573,559,079***	***218***	***50,113,637***	***14***	***161,304,737***	***24***	***3,444,093***

Note: CDQ groups holdings are attributed to the CDQ groups themselves (and to the Alaska total) rather than the community of ownership address as shown in the data used in for this analysis as CDQ ownership benefits are shared across Alaska regions encompassing multiple communities (except for the CBSFA, which is affiliated with St. Paul only). Community abbreviations shown in parentheses after each CDQ group acronym shows the community of ownership addresss as listed in the data used for this analysis, which sometimes, but not always, corresponds to the location of the group's corporate business/adminstrative office (ANC = Anchorage, SMSA =Seattle MSA).
Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2223cratqsunits.csv

Table 8-14 provides information on the 2023/2024 CVO and CPO QS distribution by community of ownership address for communities, CDQ groups, and western Alaska Tribal entities.[74] The table also shows changes in the distribution of QS units among communities, CDQ groups, and western Alaska tribal entities compared to initial allocations by means of color coding. Green shaded cells indicate higher values than those at initial allocation (2005/2006 fishing season, as shown in the previous table), orange cells indicate values lower than at initial allocation, and blue cells indicate values that are equal to those at initial allocation.

[74] Western Alaska tribal entity acquisition of ownership interest in LLCs that, in turn, own QS units in the BSAI rationalized crab fisheries is described in Section 8.3.4. A total of 35 Tribal entities are involved, including Tribes affiliated with all 20 CDQ communities in the CVRF region and with 15 of the 17 communities in the BBEDC region.

Table 8-14 Crab Fisheries Community Engagement Summary: CV and CP QS Units Distribution, 2023/2024 (most recent year, with directional change from initial allocation shown)

Community	CVO, CVC, CPO, and CPC QS Ownership Combined		CVO QS Ownership		CVC QS Ownership		CPO QS Ownership		CPC Ownership	
	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held	Unique Owners	Quota Units Held
Kodiak	45	151,216,950	35	144,686,434	16	6,374,111	1	33,960	4	122,445
Anchorage	21	101,393,719	14	57,719,324	9	3,485,607	1	39,993,149	1	195,639
Homer	12	21,683,351	7	18,772,118	6	2,840,531	--	--	1	70,702
Wasilla	6	11,118,774	5	11,102,514	1	16,260	--	--	--	--
Petersburg	3	9,325,732	3	9,325,732	0	0	--	--	--	--
Kenai	2	7,567,618	1	7,549,411	1	18,207	--	--	--	--
Unalaska/Dutch Harbor	5	5,947,205	4	5,766,244	1	180,961	--	--	--	--
Yakutat	1	4,014,849	1	4,014,849	--	--	--	--	--	--
Sand Point	1	216,749	1	208,284	1	8,465	--	--	--	--
King Cove	1	32,053	1	32,053	0	0	--	--	--	--
Seldovia	0	0	0	0	--	--	--	--	--	--
Soldotna	0	0	--	--	0	0	--	--	--	--
Valdez	0	0	--	--	0	0	--	--	--	--
Western AK Tribal Entities	35	76,050,724	35	76,050,724	--	--	--	--	--	--
CDQ - CVRF (ANC)	1	92,839,222	1	79,441,943	--	--	1	13,397,279	--	--
CDQ - YDFDA (ANC)	1	82,630,961	1	53,454,049	--	--	1	29,176,912	--	--
CDQ - CBSFA (SNP)	1	53,245,826	1	40,027,319	--	--	1	13,218,507	--	--
CDQ - NSEDC (ANC)	1	47,395,074	1	38,143,271	--	--	1	9,251,803	--	--
CDQ - BBEDC (DLG)	1	45,686,716	1	45,686,716			--	--		
CDQ - APICDA (JNU)	1	5,167,767	1	5,167,767	--	--	--	--	--	--
Alaska Total	**110**	**715,533,290**	**85**	**597,148,752**	**35**	**12,924,142**	**6**	**105,071,610**	**6**	**388,786**
Seattle MSA	212	855,734,506	160	769,097,333	56	22,426,478	13	63,682,172	5	528,523
Other Washington	35	106,697,419	25	96,579,087	10	3,708,062	3	4,466,098	5	1,944,172
Washington Total	**247**	**962,431,925**	**185**	**865,676,420**	**66**	**26,134,540**	**16**	**68,148,270**	**10**	**2,472,695**
Oregon Total	**44**	**182,277,145**	**27**	**171,828,330**	**20**	**9,860,743**	**2**	**224,816**	**4**	**363,256**
Other U.S. Total	**43**	**109,174,542**	**31**	**102,836,591**	**18**	**4,989,167**	**1**	**937,289**	**4**	**411,495**
Unknown	**3**	**239,843**	--	--	**2**	**59,179**	--	--	**1**	**180,664**
GRAND TOTAL	***447***	***1,969,656,745***	***328***	***1,737,490,093***	***141***	***53,967,771***	***25***	***174,381,985***	***25***	***3,816,896***

Notes: (1) Green shaded cells indicate higher values than those at initial allocation (2005/2006 fishing season), orange cells indicate values lower than at initial allocation, and blue cells indicate values that are equal to those at initial allocation.

(2) Communities that had no initial allocation of quota shares in 2005/2006 and held no quota shares in 2023/2024, including communities that may have held shares in intermmediate years, are not listed in this table.

(3) CDQ groups holdings are attributed to the CDQ groups themselves (and to the Alaska total) rather than the community of ownership address as shown in the data used in for this analysis as CDQ ownership benefits are shared across Alaska regions encompassing multiple communities (except for the CBSFA, which is affiliated with St. Paul only). Community abbreviations shown in parentheses after each CDQ group acronym shows the community of ownership addresss listed in the data used for this analysis, which sometimes, but not always, corresponds to the location of the group's corporate business/adminstrative office (ANC = Anchorage, DLG = Dillingham, JNU = Juneau, SNP = St. Paul).

(4) "Western AK Tribal Entities" are Tribes in the BBEDC and CVRF regions that have some percentage of ownership interest in one or more of the Mariner LLCs that own rationalized BSAI crab fisheries CVO quota shares. As information on ownership percentages by individual LLC by individual Tribal and CDQ entities is not currently available, all Mariner LLC QS holdings are attributed to all involved Tribal entities combined. This overstates ownership interest in these QS holding LLCs by Tribes and understates CDQ ownership interest in these same LLCs, but the combined total for the two involved CDQ groups and the 35 involved Tribal entities is accurate. See text for additional detail.

Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2223cratqsunits.csv

Several trends of change are apparent in the table. First, combined CVO, CVC, CPO, and CPC QS holdings in Alaska have increased and those in Washington have decreased over time. Alaska combined QS unit holdings more than doubled from initial allocation to 2023/2024. At initial allocation, Alaska accounted for 17 percent and Washington accounted for 70 percent of all CVO, CVC, CPO, and CPC QS share units for all geographies combined. By 2023/2024, Alaska accounted for 36 percent of the total and Washington accounted for 49 percent of the total.

Second, combined CDQ and western Alaska Tribal entity CVO and CPO QS holdings have increased over time. At initial allocation CDQ groups held approximately 13 percent of all CVO and CPO QS units attributed to Alaska. In 2023/2024, CDQ groups and Western Alaska Tribal entities together held

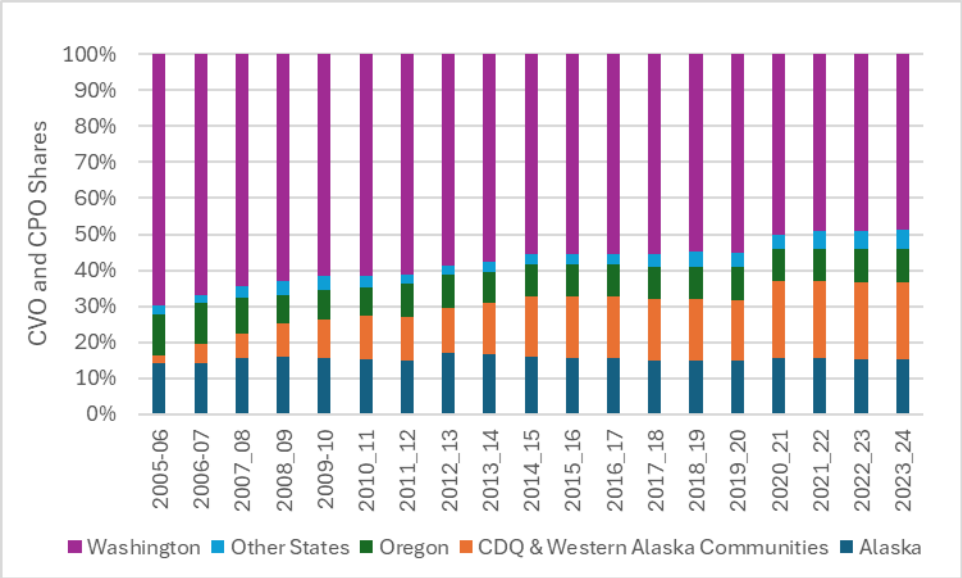
approximately 56 percent of all CVO and CPO QS units attributed to Alaska. It is known that this is an understatement of combined CDQ holdings as ownership decomposition information is not available for some of the QS unit holding entities that are, in turn, owned in whole or in part by CDQ groups or their subsidiaries. It is known from a combination of available data and interviews, for example, that in 2023/2024 four of the five unique CVO QS holders attributed to Wasilla are CBSFA related entities and of the 14 unique CVO QS quota holders attributed to Anchorage two are CVRF related entities and one is an NSEDC related entity, which has resulted in an overstatement of non-CDQ QS holdings in these two communities and an understatement of total combined CDQ and western Alaska Tribal entity holdings.

Third, within Alaska, fewer communities are participating in the BSAI rationalized fisheries than were at initial allocation as measured by local ownership address of combined CVO and CVC QS holdings, but there are differences between the holdings of CVO and CVC QS units. Of the nine Alaska communities that had CVO shares at initial allocation, one has retained the same number of QS units (Sand Point), four have seen a decrease QS units held but some have remained in the community (Homer, Petersburg, Yakutat), and in one case all QS units have left the community (Seldovia). Of the five Alaska communities that gained in the number of CVO QS units held (Unalaska/Dutch Harbor Kodiak, Anchorage, Wasilla, and Kenai), all are relatively large by Alaska standards with four having over 5,000 residents and one (Unalaska/Dutch Harbor) having over 4,000 residents in 2020 (Table 8-29).

Of the 11 Alaska communities that had local address ownership of CVC shares at initial allocation, three (Kodiak, Anchorage and Homer) increased with respect to CVC quota share units held. Of the eight others, four decreased but retained some shares (Sand Point, Unalaska/Dutch Harbor, Kenai, and Wasilla) and in the remaining four (King Cove, Petersburg, Soldotna, and Valdez) all CVC QS holdings have exited the community.

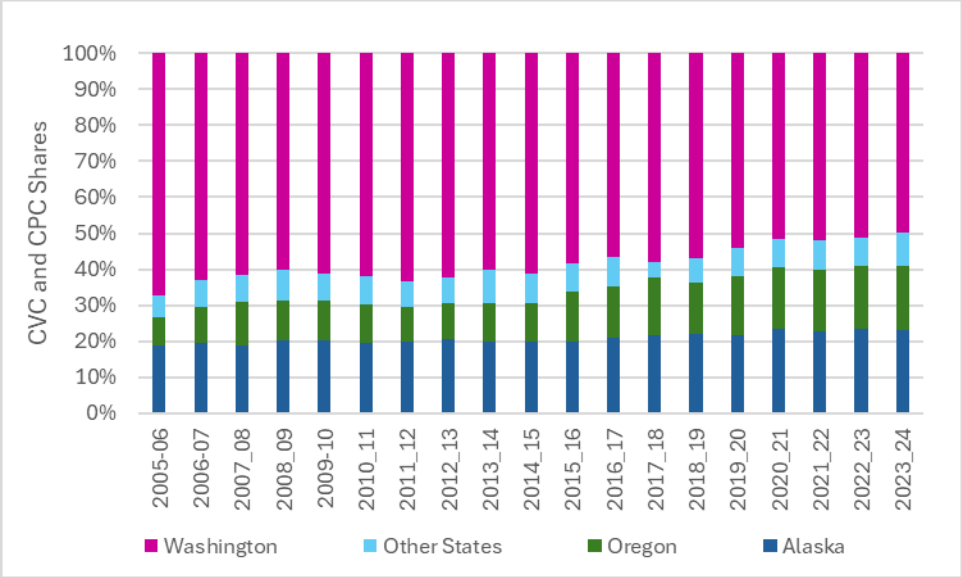
State level trends can be seen in the following two figures. Figure 8-2 tracks state level ownership address changes for CVO and CPO QS units on an annual basis from initial allocation (2005/2006) through 2023/2024. Figure 8-3 does the same for CVC and CPC QS units.

Figure 8-2 CVO and CPO QS Units Held by Year by State based on Ownership Address.



Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2223cratqsunits.csv

Figure 8-3 CVC and CPC QS Units Held by Year by State based on Ownership Address.



Source: https://www.fisheries.noaa.gov/sites/default/files/akro/2223cratqsunits.csv

8.2.7 Distribution of Processors

This section contains subsections quantitative indicators of engagement in and dependency on all CR program fisheries of shore-based processors operating in Alaska communities and of processors and custom processors on individual CR program crab fisheries. It also contains a section of CR Program ROFR protections and movement of PQS between communities.

8.2.7.1 Shore-based Processors in Alaska Accepting BSAI Rationalized Crab Fisheries Deliveries

The following tables provide a series of quantitative indicators of sector engagement in and dependency on the rationalized BSAI crab fisheries, by community and/or regional geography depending on data confidentiality constraints, for shore-based processors operating in Alaska, as noted in the following paragraphs. The same type of information for other processing sectors (catcher processors, floating processors, and domestic motherships) not typically continuously associated with a single community are also presented in each of the tables for comparative purposes. Overall community shore-based processor dependency (as measured in percentage of total first wholesale gross revenue from deliveries in all fisheries made to the relevant processors) is also shown to the extent possible within data confidentiality constraints.

Table 8-15 provides information on the distribution of relevant shore-based processors in Alaska communities active in the period 1998-2022.[75] For the purposes of this portion of the analysis, relevant shore-based processors are defined as those shore-based entities (as identified by F_ID [intent to operate] and SBPR [shore-based processor] codes in AKFIN data) accepting deliveries of BSAI crab species included in the CR Program. As shown, five Alaska communities were the locations of relevant shore-based processing on a continuous basis (Unalaska/Dutch Harbor, Akutan, King Cove, and St. Paul) or

[75] Calendar years are used for processor data because of the varying fishing years of different species processed at typical multi-species processing plants engaged in the CR Program fisheries.

nearly continuous basis (Kodiak)[76] over this period, each of which is an Eligible Crab Community. Adak, also an Eligible Crab Community, was more intermittent in its shore-based processing and less stable in the ownership continuity of local shore-based processing operations. Since the implementation of the CR Program, no shore-based processing of rationalized BSAI crab has occurred outside of these six communities. It is important to note that the processing history that qualified the other three Eligible Crab Communities (False Pass, Port Moller, and St. George) was earned on floating processors and, as described in Section 8.2.7.3, no shore-based processing and no known floating processor-based processing (with one or two transient exceptions noted in that same section) of rationalized crab has occurred in these three communities since the implementation of the CR Program. It is also important to note that shore-based processing of BSAI crab species that would later be incorporated into the CR Program occurred in Sand Point in three of the four years immediately preceding implementation of the CR Program. While Sand Point did not qualify as an Eligible Crab Community, it is the only Alaska community other than the Eligible Crab Communities that engaged in shore-based processing in more than one of the 1998-2005 pre-rationalization years.

[76] Shore-based processing of CR Program crab occurred in Kodiak all years 1998-2021 but not in 2022.

Table 8-15 Number of processors by community for all CR Fisheries, 1998- 2022 (calendar years)

Community	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Annual Average (number)	Annual Average (percent)	Unique Processors (number)
Unalaska/Dutch Harbor	9	12	9	8	8	9	7	8	6	5	5	4	3	6	4	4	4	3	3	3	3	3	3	3	2	5.4	25.0%	21
Akutan	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	5.0%	3
Subtotal Unalaska/Akutan	**10**	**12**	**9**	**9**	**9**	**10**	**8**	**9**	**7**	**6**	**7**	**6**	**4**	**7**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	6.4	29.7%	23
Kodiak	3	3	8	8	5	4	4	3	3	5	4	4	4	4	3	3	2	2	2	2	1	2	2	--	1	3.3	15.3%	17
King Cove	1	1	2	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	5.4%	5
Subtotal Kodiak/King Cove	**4**	**4**	**10**	**9**	**7**	**7**	**5**	**4**	**4**	**6**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**1**	**2**	4.4	20.7%	22
St Paul Island	2	2	2	3	3	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1.5	7.1%	5
Adak	--	--	3	4	3	3	2	1	1	1	1	1	--	--	1	2	1	1	1	2	1	1	1	--	--	1.2	5.8%	11
Sand Point	--	--	--	--	1	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1	0.6%	1
Cordova	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Kenai	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Ninilchik	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Nome	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Sitka	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Wasilla	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.2%	1
Floating Catcher Processor	3	--	10	9	14	9	10	8	5	5	5	5	3	3	3	2	2	2	2	2	2	2	3	2	1	4.5	20.9%	27
Inshore Stationary Floating Proc.	--	--	8	6	8	9	8	5	2	2	1	2	2	2	2	1	1	1	--	--	--	--	1	--	1	2.5	11.6%	20
Floating Domestic Mothership	--	--	1	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1	0.4%	2
Unknown/Missing Value	43	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.9	13.6%	49
Subtotal All Other	**47**	**31**	**22**	**22**	**26**	**21**	**21**	**16**	**9**	**9**	**9**	**9**	**6**	**6**	**7**	**6**	**5**	**5**	**4**	**5**	**4**	**4**	**5**	**3**	**3**	12.2	57.0%	83
Grand Total	**53**	**41**	**36**	**38**	**37**	**33**	**32**	**27**	**19**	**21**	**19**	**19**	**15**	**17**	**16**	**15**	**13**	**12**	**11**	**12**	**10**	**11**	**12**	**8**	**8**	21.4	100.0%	105

Note: Floating Catcher Processor counts for 2001 and 2002 are higher in this table (9 versus 8 and 14 versus 11, respectively) than those in a table in the Catcher Processor Distribution discussion above. To err on the side of inclusiveness, this table count includes CPs that harvested and processed even minimal volumes in the BSAI crab fisheries that were later rationalized.

Source: FT_CRAB_EXTRACT.xls.

Table 8-16 provides BSAI rationalized crab fishery annual average shore-based processor counts by community of operation for groupings of Alaska communities with any shore-based processors active in 1998-2005, 2006-2010, and 2011-2015 for: Unalaska/Dutch Harbor and Akutan; Kodiak and King Cove; and Other Alaska. For 2016-2022, annual counts, an annual average, and percentages of the grand total are provided, along with a count of unique processors. This demonstrates an overall decrease in active processors during the 2016-2022 period with an average of 10.3 processors across five communities, relative to the previous timeframe, which had an average of 14.6 processors across six communities.[77]

Table 8-16 Processors of Rationalized Crab by Community of Operation, 1998-2022 (number of processors)

Community	1998-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (number)	Annual Average 2016-2022 (percent)	Unique Processors 2016-2022 (number)
Unalaska/Dutch Harbor	8.8	4.6	4.2	3	3	3	3	3	3	2	2.9	27.78%	3
Akutan	1.0	1.4	1	1	1	1	1	1	1	1	1.0	9.72%	1
Subtotal Unalaska/Akutan	9.5	6	5.2	4	4	4	4	4	4	3	3.9	37.50%	4
Kodiak	4.8	4	2.8	2	2	1	2	2	0	1	1.4	13.89%	2
King Cove	1.5	1	1	1	1	1	1	1	1	1	1.0	9.72%	1
Subtotal Kodiak/King Cove	6.3	5	3.8	3	3	2	3	3	1	2	2.4	23.61%	3
St Paul Island	2.3	1.6	1	1	1	1	1	1	1	1	1.0	9.72%	1
Adak	2.0	0.8	1	1	2	1	1	1	0	0	0.9	8.33%	1
Sand Point	0.4	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Cordova	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Kenai	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Ninilchik	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Nome	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Sitka	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Wasilla	0.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Floating Catcher Processor	7.9	4.6	2.4	2	2	2	2	3	2	1	2.0	19.44%	3
Inshore Stationary Floating Proc.	5.5	1.8	1.4	0	0	0	0	1	0	1	0.3	2.78%	1
Floating Domestic Mothership	0.3	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Unknown/Missing Value	9.1	0	0	0	0	0	0	0	0	0	0.0	0.00%	0
Subtotal All Other	25.8	8.4	5.8	4	5	4	4	5	3	3	4.0	38.89%	6
Grand Total	37.1	18.6	14.6	11	12	10	11	12	8	8	10.3	100.00%	13

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

Table 8-17 provides information on the first wholesale gross revenues associated with BSAI rationalized crab deliveries to shore-based processors by community grouping for 2001-2005,78 2006-2010, and 2011-2015, and by year, annual average dollars, and annual average percent. Clearly shown is the prominence of the Unalaska/Dutch Harbor and Akutan grouping, which accounts for over 60 percent of all first wholesale gross revenues in this sector. The predominance relative to other shore-based

[77] Note that the use of calendar years for processors results in not seeing the effects of the recent BSS crash in the 2022/2023 fishing season, which will show up in the 2023 calendar year data rather than in 2022 calendar data.

[78] In this table and the two following tables, the bracket of pre-rationalization years is different from the 1998-2005 bracket used in the tables in other community and social sections because processing sector first wholesale gross revenue data of comparable quality to those of more recent years are not available for 1998, 1999, or 2000.

processing communities is even more apparent when one considers that the "Other" grouping includes catcher processors and floating processors.

Table 8-17 Processors First Wholesale Value of Rationalized Crab by Community of Operation, 2001-2022 (millions of 2022 dollars)

Community	2001-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016	2017	2018	2019	2020	2021	2022	Annual Average 2016-2022 (dollars)	Annual Average 2016-2022 (percent)
Unalaska/Akutan	131.5	176.7	241.4	263.1	178.9	149.0	176.0	177.7	217.3	89.6	178.8	61.99%
Kodiak/King Cove	29.4	37.3	39.2	43.5	24.6	*	21.9	20.2	*	*	23.9	8.28%
Other*	112.2	116.8	178.8	99.9	72.7	*	92.8	88.4	*	*	85.7	29.73%
Grand Total	273.0	330.8	459.4	406.6	276.1	223.0	290.7	286.4	417.9	118.1	288.4	100.00%

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

* Other includes St. Paul, Adak, Sand Point, Cordova, Sitka, Floating Catcher Processors, Inshore Floating Processors, Floating Domestic Mothership. After 2005, this category includes only St. Paul, Adak, Floating Catcher Processors, and Inshore Floating Processors.

Table 8-18 provides information on average annual shore-based processor dependency on BSAI rationalized crab compared to all area and species fisheries landings processed by those same processors as measured by percentage of total first whole gross revenue on an annual average basis for the years 2001-2005, 2006-2010, 2011-2015, and 2016-2022. As shown, the Unalaska/Dutch Harbor and Akutan group, consisting of large, multi-species plants, have increased their dependency on what are now rationalized BSAI crab fisheries since the implementation of the CR Program during which time the relevant crab fisheries have accounted for roughly a quarter of average annual first wholesale gross revenue. It is important to note, however, that individual operations have their own distinct processing portfolios and annual rounds of fisheries in which they participate. Also of note is the decrease in relative dependency of those in the "Other" sector. Based on a general knowledge of the fishery, this is likely influenced by a combination of multiple factors, including the central focus of St. Paul shore-based operations on BSAI crab fisheries, the intermittent operation of the Adak plant, and the aggregation of BSAI crab processing onto fewer catcher processor and floating processor platforms.

Table 8-18 First Wholesale Value Diversification for Processors of Rationalized Crab, 2001-2022 (rationalized crab as a percent of total revenue)

Community	2001-2005 Annual Average	2006-2010 Annual Average	2011-2015 Annual Average	2016-2022 Annual Average
Unalaska/Akutan	16.03%	23.95%	28.12%	25.46%
Kodiak/King Cove	9.64%	9.60%	10.32%	9.00%
Other*	38.38%	89.44%	81.11%	77.93%
Grand Total	19.26%	26.32%	31.49%	26.77%

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

* Other includes St. Paul, Adak, Sand Point, Cordova, Sitka, Floating Catcher Processors, Inshore Floating Processors, Floating Domestic Mothership. After 2005, this category includes only St. Paul, Adak, Floating Catcher Processors, and Inshore Floating Processors.

Table 8-19 provides information on average annual total shore-based processor dependency on BSAI rationalized crab (all shore-based processors in the communities that had at least one shore-based processor that accepted BSAI rationalized crab deliveries, not just the shore-based processors that participated in those fisheries) compared to all area and species fishery landings processed by all processors in the community(ies) for the years 2001-2005, 2006-2010, 2011-2015, and 2016-2022, within the constraints of confidentiality restrictions, as measured by first wholesale gross revenue associated with those landings.

Table 8-19 First Wholesale Value Diversification for Communities with Processors of Rationalized Crab, 2001-2022 (2022 real dollars)

Years	Community	Annual Average Number of Processors Participating in Rationalized Crab	Annual Average Number of All Commercial Processors in those Same Communities	Annual Average Rationalized Crab First Wholesale Value (millions 2022 dollars)	Annual Average Total First Wholesale Value from All Areas, Gears, and Species Fisheries for the Community (millions 2022 dollars)	First Wholesale Value of Rationalized Crab as a Percentage of Total Community Wholesale Value Annual Average
2001-2005	Unalaska/Akutan	9.5	10.2	131.5	915.3	14.36%
	Kodiak/King Cove	6.3	11.8	29.4	398.0	7.39%
	Other*	25.8	136.1	112.2	974.5	11.51%
	Total	37.1	158.0	273.0	2287.8	11.93%
2006-2010	Unalaska/Akutan	6.0	9.2	176.7	980.8	18.02%
	Kodiak/King Cove	5.0	14.0	37.3	545.1	6.84%
	Other*	8.4	93.4	116.8	993.2	11.76%
	Total	18.6	116.6	330.8	2519.1	7.75%
2011-2015	Unalaska/Akutan	5.2	10.8	241.4	1104.2	21.86%
	Kodiak/King Cove	3.8	15.0	39.2	625.0	6.28%
	Other*	5.8	141.8	178.8	1923.9	9.30%
	Total	14.6	167.6	459.4	3653.0	12.58%
2016-2022	Unalaska/Akutan	3.9	13.8	178.8	1117.4	16.00%
	Kodiak/King Cove	2.4	11.1	23.9	524.1	4.55%
	Other*	4.0	134.4	85.7	1984.1	4.32%
	Total	10.3	159.3	288.4	3625.6	7.95%

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

* Other includes St. Paul, Adak, Sand Point, Cordova, Kenai, Ninilchik, Nome, Sitka, Wasilla, Floating Catcher Processors, Inshore Floating Processors, Floating Domestic Mothership, Unknown/Missing Value. After 2005, this category includes only St. Paul, Adak, Floating Catcher Processors, and Inshore Floating Processors.

8.2.7.2 Shore-based and Custom Processors in Alaska Accepting BSAI Rationalized Crab Fisheries Deliveries by Species and Community

The tables in the previous section (Section 8.2.7.1) focused on shore-based processors with physical plants in the communities when showing indicators of sector-based community engagement in and dependency on all rationalized BSAI crab fisheries combined. A summary of processor participation data for the CR Program fisheries by species is presented in this section using AKFIN summaries of fishticket data. These data provide estimates of the number of active processors, including entities having their crab custom processed by others, by community, over the years 1998 through 2022 for all CR Program fisheries. Counts of processors in terms of active plants plus persons having their crab custom processed, pounds processed, and first wholesale value (2022 dollars) by community grouping for the BBR and BSS is provided in Table 8-20 and Table 8-21, respectively. Table 8-22 shows similar information for the AIG fishery.

It is important to note that custom processing often results in more processors listed than were active in the port. For example, Community A may only have one active processor, but it serves as the custom

processor for three other entities that year. The three other entities may not be located in Community A but the processor counts for that community will count all four ADF&G Processor Codes. If the IPQ holder also processed crab in their home community, they would be included in the processor counts for its home community in addition to the community where their custom processor was located. The pounds processed and value of that product are attributed to the location of the plant processing the crab.

A concern of harvesters is the steady decline in the number of active processors in total and the number of communities that have active crab processors. In 2022 eight processors with physical plants were actively processing CR Program crab as reported in the data. This is the lowest number of active processing plants over the 2003 through 2022 period.

In the years leading up to the rationalization program, a total of 28 or fewer active processors participated in the BBR fishery and 20 or fewer participated in any community grouping (Table 8-20). From 2006 to the most current year of data, as many as 16 active processors were active in any year. Numbers of active processors declined to between eight and 10 from 2016 through 2020, following the trend of decreases in the TAC. From 2013 through 2020 no community grouping had more than four active processors or fewer than two.

A total of 44 or fewer active processors participated in the BSS fishery with no more than 38 in any community port grouping (Table 8-21). From 2006 to the most current year of data, as many as 16 processors were active in any year. The numbers of active processors declined to seven or eight from 2016 through 2022. Again, following the trend of decreases in the TAC.

From three to eight active processors were active in the AIG fisheries since the CR Program was implemented (Table 8-22). As many as nine processors were active going back to 1998. Because relatively few active processors were active in the fishery, it limits the information that may be released concerning the volume of processing in those fisheries by community grouping used for BBR and BSS.

The distribution of processing activity by community during the 2001 to 2004 period indicates that Akutan and Unalaska/Dutch Harbor shore plants attracted most landings in the BBR fishery and BSS fishery. The remainder of BBR landings were divided primarily among Adak, King Cove, floating processors, and St. Paul, with smaller volumes processed in Kodiak and other communities. In the BSS fishery, Akutan/Unalaska/Dutch Harbor represented the largest volume processed. In the two AIG fisheries, Unalaska/Dutch Harbor and Adak supported virtually all the processing in those years. Since the CR Program was implemented, Unalaska/Dutch Harbor remains the primary processing community for the two AIG fisheries. The remainder is processed in either Adak, Akutan, or both depending on the year. Confidentiality limitations prevent showing pounds and volume by community.

Table 8-20 Processing in the BBR fishery, 1998-2020

Year	Active Plants (Active Plants & Persons Using Custom Processing)			Pounds			First Wholesale Value (2022 $)		
	Unalaska/ Dutch Harbor and Akutan	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*	Unalaska/ Dutch Harbor and Akutan	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*	Akutan, Dutch Harbor, Unalaska	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*
1998	8 (8)	2 (2)	20 (20)	8,168,427	6,646,182		$50,571,138	$41,146,843	
1999	9 (9)	4 (4)	12 (12)	6,836,194	1,746,451	3,067,342	$84,960,899	$21,705,067	$38,121,232
2000	7 (7)	9 (9)	8 (8)	5,540,532	1,698,889	915,005	$42,099,894	$12,909,058	$6,952,692
2001	8 (8)	9 (9)	9 (9)	5,908,846	1,468,411	1,025,803	$54,604,801	$13,569,873	$9,479,646
2002	8 (8)	5 (5)	13 (13)	6,470,281	1,785,537	1,314,581	$77,016,652	$21,253,494	$15,647,640
2003	8 (8)	7 (7)	13 (13)	10,264,080	2,391,111	3,040,595	$101,208,888	$23,577,533	$29,981,766
2004	7 (7)	5 (5)	13 (13)	9,773,534	2,523,279	2,948,638	$88,948,966	$22,964,371	$26,835,564
2005	5 (5)	4 (4)	7 (7)	12,494,810	3,768,931	2,045,590	$101,863,520	$30,859,566	$16,763,093
2006	6 (6)	4 (6)	4 (4)	10,931,424	3,282,032	1,403,366	$67,421,361	$20,143,153	$8,604,746
2007	6 (9)	5 (5)	4 (5)	15,644,050	3,293,840	1,428,190	$114,473,906	$24,132,092	$10,463,536
2008	6 (8)	5 (6)	4 (4)	15,368,484	3,559,654	1,401,276	$130,782,283	$30,300,546	$11,927,965
2009	4 (6)	5 (6)	4 (6)	10,316,056	2,801,701	2,814,905	$82,144,524	$21,986,978	$22,363,144
2010	4 (6)	5 (7)	4 (6)	9,607,490	2,616,233	2,610,126	$111,236,064	$30,686,227	$30,220,187
2011	5 (8)	5 (6)	4 (5)	5,251,734	1,352,802	1,229,076	$87,096,838	$22,435,405	$20,383,483
2012	5 (9)	4 (5)	3 (4)	5,991,364	1,363,042	495,438	$74,018,229	$16,839,230	$6,120,717
2013	4 (9)	3 (5)	3 (4)	6,609,850	1,461,076	529,541	$72,568,678	$16,040,962	$5,813,761
2014	3 (9)	3 (5)	3 (4)	7,782,585	1,704,925	499,492	$77,918,064	$17,069,451	$5,000,838
2015	4 (8)	3 (4)	3 (4)	7,711,989	1,695,522	562,455	$88,999,628	$19,567,044	$6,490,970
2016	4 (10)	3 (4)	3 (4)	6,416,216	1,580,715	469,778	$94,394,999	$23,255,388	$6,911,347
2017	4 (10)	3 (4)	3 (4)	5,109,341	1,150,337	341,258	$65,741,818	$14,801,370	$4,230,511
2018	4 (9)	2 (3)	3 (4)	3,346,167	961,779		$46,165,547	$12,797,179	
2019	3 (8)	3 (4)	2 (3)	2,944,039	847,541		$45,144,604	$13,081,319	
2020	4 (10)	3 (4)	2 (3)	2,028,907	617,975		$32,716,714	$10,157,401	

*Includes Alaska communities other than those specified in other columns, catcher processors, floating processors, and domestic motherships.

Notes: Floating processors may be reported in more than one community during a year so summing community processor counts may yield a number greater than participated in total that year.

Fishery closed during the years 2021 and 2022.

Source: 2023 Economic SAFE data for first wholesale value and AKFIN summary of CAS for other fields

Table 8-21 Processing in the BSS fishery, 1998-2022

Year	Active Plants (Active Plants & Persons Using Custom Processing)			Pounds			First Wholesale Value (2022 $)		
	Unalaska/ Dutch Harbor and Akutan	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*	Unalaska/ Dutch Harbor and Akutan	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*	Akutan, Dutch Harbor, Unalaska	Kodiak and King Cove	St. Paul, Adak, Floaters, Other Alaska*
1998	10 (10)	3 (3)	38 (38)	66,158,197	15,557,440	170,381,540	$146,881,184	$34,539,865	$378,272,739
1999	12 (12)	2 (2)	29 (29)	54,373,866	139,990,003		$170,423,501	$438,769,361	
2000	6 (6)	5 (5)	19 (19)	12,143,258	21,148,086		$44,691,895	$77,833,151	
2001	7 (7)	2 (2)	16 (16)	8,310,142	16,931,219		$31,751,189	$64,690,390	
2002	6 (6)	5 (5)	16 (16)	12,335,383	2,227,718	18,039,191	$44,174,219	$7,977,677	$64,600,116
2003	7 (7)	2 (2)	12 (12)	11,412,939	16,903,985		$49,267,189	$72,970,848	
2004	7 (7)	3 (3)	13 (13)	9,473,382	2,115,169	12,353,822	$44,150,398	$9,857,678	$57,574,598
2005	7 (7)	2 (2)	11 (11)	10,804,830	14,454,331		$39,064,344	$52,258,940	
2006	6 (8)	3 (3)	8 (9)	16,323,189	2,240,187	19,827,407	$41,239,354	$5,659,670	$50,092,506
2007	5 (9)	3 (3)	7 (12)	17,217,249	2,629,866	15,362,928	$60,069,462	$9,175,370	$53,599,900
2008	6 (8)	4 (4)	7 (11)	28,109,453	4,681,852	30,000,489	$95,540,645	$15,913,051	$101,968,049
2009	6 (6)	3 (3)	7 (12)	19,744,509	4,247,024	34,154,328	$56,353,308	$12,121,540	$97,480,741
2010	4 (5)	2 (2)	5 (10)	18,411,619	29,966,123		$51,875,584	$84,430,931	
2011	5 (6)	4 (4)	5 (9)	21,104,950	3,860,840	29,439,657	$104,874,721	$19,185,287	$146,291,549
2012	5 (9)	3 (3)	5 (10)	37,493,645	5,714,743	45,659,729	$144,694,211	$22,054,144	$176,208,487
2013	5 (8)	3 (3)	4 (9)	27,318,853	4,682,328	39,186,046	$108,136,947	$18,534,184	$155,111,175
2014	4 (7)	2 (2)	4 (9)	21,459,050	34,169,946		$85,893,994	$136,771,810	
2015	4 (8)	2 (2)	4 (9)	27,650,831	33,832,583		$94,455,380	$115,572,276	
2016	4 (7)	1 (2)	3 (8)	18,122,574	21,822,033		$83,891,032	$101,016,161	
2017	4 (9)	1 (1)	3 (8)	10,540,544	11,030,464		$57,565,411	$60,241,026	
2018	4 (8)	1 (1)	3 (8)	8,893,508	10,119,813		$47,315,849	$53,840,120	
2019	4 (8)	1 (1)	3 (8)	11,703,169	15,825,151		$61,171,183	$82,716,331	
2020	4 (8)	1 (1)	3 (8)	15,703,744	18,320,827		$90,905,153	$106,054,809	
2021	4 (9)	1 (2)	3 (8)	16,497,300	28,503,888		$113,085,532	$195,388,176	
2022	3 (6)	1 (1)	3 (7)	2,458,287	3,089,958		$21,230,647	$26,685,983	

*Includes Alaska communities other than those specified in other columns, catcher processors, floating processors, and domestic motherships.

Notes: Floating processors may be reported in more than one community during a year so summing community processor counts may yield a number greater than participated in total that year.

Fishery closed during the 2022/23 season.

Source: 2023 Economic SAFE data for first wholesale value and AKFIN summary of CAS for other fields

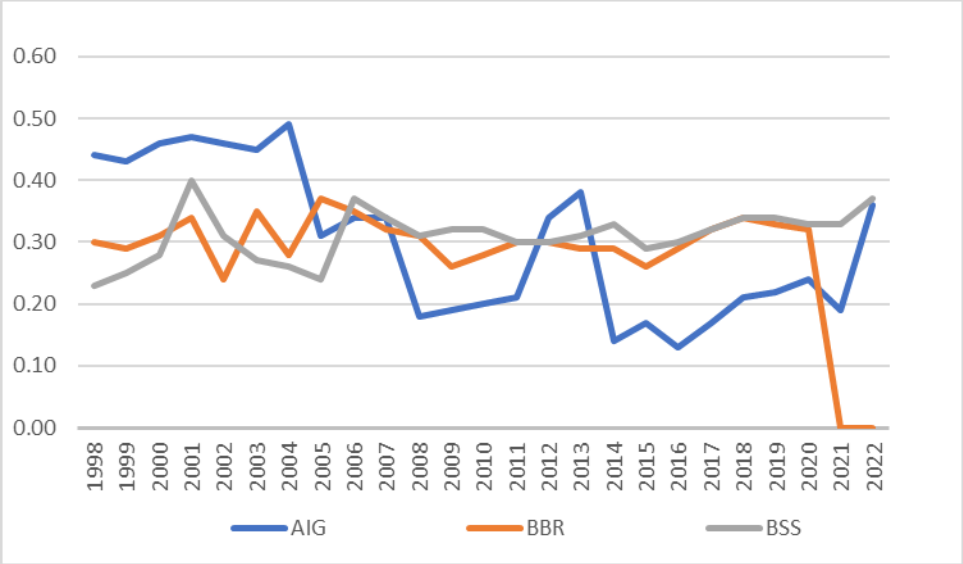
Table 8-22 Processing in AIG fishery, 1998-2022

Year	Active Plants (Active Plants & Persons Using Custom Processing)	Pounds	First Wholesale Value (2022$)
1998	9 (9)	5,383,355	$17,442,070
1999	8 (8)	5,026,435	$25,081,911
2000	7 (7)	5,887,703	$31,381,457
2001	7 (7)	6,458,335	$34,229,176
2002	7 (7)	5,628,522	$29,437,170
2003	6 (6)	5,961,087	$31,772,594
2004	5 (5)	6,100,109	$29,707,531
2005	7 (6)	4,382,618	$16,653,948
2006	8 (6)	4,827,289	$13,081,953
2007	6 (5)	5,176,764	$15,633,827
2008	7 (7)	5,471,169	$24,073,144
2009	6 (9)	5,256,684	$17,347,057
2010	5 (9)	5,895,120	$29,534,551
2011	8 (14)	5,748,021	$34,315,685
2012	8 (14)	5,721,807	$28,208,509
2013	7 (13)	5,723,101	$29,016,122
2014	5 (11)	5,842,278	$29,094,544
2015	4 (8)	5,598,685	$29,449,083
2016	5 (10)	5,432,102	$35,091,379
2017	6 (12)	5,365,940	$35,146,907
2018	5 (10)	6,216,433	$44,261,003
2019	4 (10)	6,480,720	$47,114,834
2020	5 (11)	5,533,322	$45,151,908
2021	4 (10)	5,495,911	$71,941,475
2022	3 (9)	3,916,305	$36,891,593

Source: AKFIN summary of ADF&G Fish tickets. (FT_CRAB_EXTRACT.XLS) and Economic SAFE Data.

Figure 8-4 shows the Gini coefficient calculated for the BBR, BSS, and AIG fisheries for the years 1998 through 2022. The Gini coefficient ranges between 0, where there is no concentration of processing capacity and 1 where there is total concentration at one plant. The figure indicates that after the CR Program was implemented processing became less concentrated in the AIG fishery and was relatively stable in the BBR and BSS fisheries. There are two important considerations that should be kept in mind when reviewing the figure. The first is that the Gini coefficient is based on crab buyers and not the actual processors of crab. If the coefficient was based on the processors of crab it could result in larger Gini coefficients. Second, recent changes (2023 and 2024) are not reflected in the figure. These two factors may dampen the visibility of the trends in consolidation of the crab processing sector that can be seen through the Gini ratios.

Figure 8-4 Gini ratios of AIG, BBR, and BSS crab buyers



Source: 2022 Crab Economic SAFE

8.2.7.3 Right of First Refusal and Movement of PQS Between Communities

Included in the suite of community protections in the CR Program was the requirement that holders of PQS enter into agreements granting community designated entities a ROFR on transfers of assets subject to ROFR. Based on the qualifying criteria, eight communities, all of which are Eligible Crab Communities,[79] were qualified to have representative entities receive ROFR in the different fisheries governed by the CR Program. The ROFR is structured so that PQS, IPQ, and "other goods" were required to be initially utilized in the community that gave rise to the underlying history for those shares. CDQ and non-CDQ communities have the ROFR to acquire processor quota and/or assets in the community if that business wants to leave the community. Should the community elect not to acquire the processor's assets the ROFR still requires the community representative and the PQS holder to discuss the sale of the PQS, providing potentially critical information to the community. It is also worth noting that intra-company transfers within a region are exempt from ROFR. To be exempt from the ROFR, IPQ must be used by the same company that holds the PQS.

Amendment 44 to the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs revised regulations to reflect that a ROFR may continue with the current or a new ROFR holder when PQS is transferred. It also requires PQS holders to certify that the PQS holder and the Eligible Crab Communities entity listed in the application have in place at the time of this application a current ROFR contract that includes all the ROFR contract terms specified in Chapter 11 section 3.4.4.1.2 of the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs.

The governing body of the Eligible Crab Community must designate a non-profit organization which must be approved by NMFS as an Eligible Crab Community Entity. The Eligible Crab Community Entity

[79] Adak is the only Eligible Crab Community not included under the ROFR provision. Adak was not provided a ROFR for PQS or IPQ associated with that community because the CR Program incorporates other provisions to protect the community of Adak, as described in the final rule implementing the CR Program (March 2, 2005, 70 FR 10174).

has the authority to exercise the ROFR of transfer of crab PQS or IPQ outside the Eligible Crab Community. For Eligible Crab Communities that are also CDQ communities, the Eligible Crab Community Entity is the CDQ group. The governing bodies and Eligible Crab Community Entity for each Eligible Crab Community for 2024 are listed in Table 8-23.

Table 8-23 Eligible Crab Communities and ROFR Governing Bodies and Eligible Crab Community Entities, 2024

Elligible Crab Community	CR Program ROFR Governing Body	CR ROFR Eligible Crab Community Entity*
Adak	None**	None**
Akutan	APICDA	APICDA
False Pass	APICDA	APICDA
King Cove	City of King Cove and Aleutians East Borough	Aleutia, Inc.
Kodiak	City of Kodiak and Kodiak Island Borough	Kodiak Fishery Development Association
Port Moller	Aleutians East Borough	Aleutia, Inc.
Saint George	APICDA	APICDA
Saint Paul	CBSFA	CBSFA
Unalalaska/Dutch Harbor	City of Unalaska	Unalaska Crab, Inc.

*Termed an Eligible Crab Community Organization in some sources.
**As noted in the text of this CR Program Review, Adak was not provided a ROFR for PQS or IPQ associated with that community because the CR Program incorporates other provisions to protect the community of Adak. The Adak Community Development Association is the non-profit entity that holds the CR Program Adak Community Allocation of 10 percent of the WAG fishery, but WAG PQS is not subject to CR Program ROFR restrictions.

As shown in Table 8-24, the distribution of rights differs across fisheries, with Akutan, Unalaska, King Cove, St. Paul, and St. George all starting the CR Program with rights of approximately 10 percent or more of the PQS in at least one fishery. As shown in that same table, in the BBR and BSS fisheries, following some volatility in the first one to four years of the program depending on the community, the values shown for all communities in both north and south regions were unchanged from 2009/2010 through 2022/2023, with some changes occurring for all communities except Kodiak between 2022/2023 and 2023/2024. In the EAG fishery, no changes are seen after the first three program years. In the SMB fishery, no changes are seen for any community over all of the program years, except in Unalaska, where a change is seen between 2011/2012 and 2012/2013 only.

Table 8-24 Distribution of rights of first refusal (% of total PQS by species) by fishery, community, and fishing year 2005/06 through 2023/24

Fishery and Region	ROFR Beneficiary	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014_/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024
BBR North	St Paul	2.56	2.56	2.68	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.56
BBR North	None	0	0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0
BBR South	Akutan	19.89	19.88	20.82	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.73	19.88
BBR South	False Pass	3.74	3.74	3.92	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.74
BBR South	King Cove	12.77	12.76	9.84	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.47
BBR South	Kodiak	3.78	3.78	3.96	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
BBR South	Port Moller	3.5	3.49	3.66	3.47	3.47	3.47	3.47	3.47	3.47	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89
BBR South	Unalaska	51.09	51.06	51.47	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	50.68	51.06
BBR South	None	2.67	2.72	3.63	12.22	12.22	12.22	12.22	12.22	12.22	13.81	13.81	13.81	13.81	13.81	13.81	13.81	13.81	13.81	13.18
BSS North	St George	9.73	9.66	9.66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BSS North	St Paul	36.59	36.32	36.32	36.32	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	30.93	31.17
BSS North	None	0.65	1	1	10.66	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	16.04	15.81
BSS South	Akutan	9.79	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.79
BSS South	King Cove	6.32	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.32
BSS South	Kodiak	0.14	0.14	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
BSS South	Unalaska	35.31	35.04	35.04	35.04	35.04	35.04	35.04	35.04	35.04	35.04	35.04	35.04	35.05	35.05	35.05	35.05	35.05	35.05	35.31
BSS South	None	1.46	1.85	1.85	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.59
EAG South	Akutan	1.03	1.03	0	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
EAG South	Unalaska	98.06	98.06	98.32	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16	91.16
EAG South	None	0.91	0.91	1.68	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83
SMB North	St Paul	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77	13.77
SMB North	None	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57	64.57
SMB South	Akutan	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73
SMB South	Unalaska	17.57	17.57	17.57	17.57	17.57	17.57	17.57	15.81	15.81	15.81	15.81	15.81	15.81	15.81	15.81	15.81	15.81	15.81	15.81
SMB South	None	0	0	0	0.04	0.04	0.04	0.04	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11

Source: NMFS annual list of PQS holders https://www.fisheries.noaa.gov/sites/default/files/akro/2324cratpqsunitswithserial.csv

Tracking the existence of rights is complicated, as reporting requirements established under the original rule provided insufficient information for NMFS to actively monitor rights. Only if the lapse of rights was voluntarily reported to NMFS were those lapses recorded in NMFS data. It is possible unreported lapses of rights have occurred in addition to those shown. Since implementation, community representatives and fishery participants have suggested that some aspects of the ROFRs as initially implemented may have inhibited their effectiveness in protecting community interests. In response, Amendment 44 was implemented to improve the transparency and effectiveness of the right of first refusal program.

Since implementation of the BSAI CR Program there have been several instances of PQS moving among Eligible Crab Communities, but there are no known cases of holders of the ROFR exercising their right to purchase quota shares specifically following the formal procedures established under the CR Program. However, all the Eligible Crab Community Entities except Unalaska Crab, Inc. currently hold, or have held, CR Program PQS shares that were obtained after the implementation of the CR Program. In two cases, PQS was acquired by the two relevant Eligible Crab Community Entities (Aleutia and APICDA) when, due to a change in corporate ownership, the initial allocation recipients were forced to divest some of their PQS to stay under ownership caps. In a third case, the Kodiak Fishery Development Association acquired PQS from a willing seller that was subject to the northern Gulf of Alaska ROFR "sweep-up" feature without ROFR being triggered based on a proposal from the Kodiak Fishery Development Association. In all three cases, the involved Eligible Crab Community Entities credit the fact that ROFRs existed as a positive influence on their ability to reach PQS acquisition agreements without a ROFR being triggered. In the case of Unalaska Crab Inc., when that entity was presented an opportunity to exercise its ROFR in 2008, it waived that right, which allowed those shares to be obtained by another Eligible Crab Community Entity (APICDA). CBSFA is the only Eligible Crab Community Entity that holds PQS acquired after initial allocation where none of those acquisitions were due to, or influenced by, their being the ROFR holder or stepping in after another ROFR holder waived their rights.

The following are summaries of known movement of PQS among Eligible Crab Communities and the holding of PQS by Eligible Crab Community Entities in the absence of transfer through the ROFR process.

- **Adak**. Although Adak was not provided a ROFR for PQS or IPQ associated with the community, Adak has been the beneficiary of three community protection features under the CR Program related to fostering benefits from local landings and processing: (1) a direct Adak community allocation[80] of 10 percent of WAG fishery TAC (see Section 8.3.1 for details), (2) a requirement that 50 percent of the WAG TAC be processed in a West region defined as west of 174° West longitude in the North Pacific Ocean/Bering Sea (as detailed in 50 CFR 680.40(e)(2)[81]) unless the cities of Atka and Adak (the only two Alaska communities west of 174° West longitude[82]) approve a waiver in a given year, and (3) a requirement that 50 percent of the CVO QS that is issued in the WAG crab QS fishery be initially issued with a West regional designation, which

[80] The Adak Community Development Association (ACDC) is the non-profit entity that holds the CR Program Adak Community Allocation of 10 percent of the WAG fishery. Adak is the only Alaska Community Quota Entity (CQE) community outside of the Gulf of Alaska and while ACDC does not hold any CR Program PQS, CVO QS, or CPO QS, as a CQE it does hold quota shares in other federally managed fisheries for the benefit of the community of Adak.

[81] https://www.ecfr.gov/current/title-50/part-680/section-680.40#p-680.40(e)(2)

[82] Both communities have also had processing capacity in the years covered by this 17-year CR Program Review. Adak has an intermittent history of processing crab species included in the CR Program and along with multiple changes of processing operation ownership over that time. Atka Pride Seafoods, a 50/50 partnership between APICDA Joint Ventures and the Atka Fishermen's Association has a shoreplant in Atka that would need to be modified to accommodate regular deliveries crab.

applies to QS for delivery west of 174° West longitude. That 50 percent initial designation is subject to a series of adjustments (as detailed in 50CFR 680.40(c)(4)[83]) that each year from 2005/2006 through 2023/2024 have resulted in 26.94 percent of WAG CVO QS ultimately being given a West regional designation. Together, these requirements have the potential to result in community effects like that of a ROFR. Due to multiple ownership changes and intermittent operation of the local shore-based processor in Adak (and lack of crab processing capacity in Atka) however, the potential of these community protection measures to benefit Adak and/or Atka have not been fully realized.[84]

- **St. George**. Qualifying crab processing history associated with St. George resulted exclusively from floating processors operated by two different entities (Snopac and Peter Pan Seafoods) that that had exited the community before the implementation of the CR Program due to several factors, including storm damage to the St. George harbor. Crab processing has not returned to St. George since that time but APICDA, the St. George Eligible Crab Community Entity, was able to obtain ownership[85] of the PQS of one of the two relevant processing entities (Snopac[86]) before the 2008/2009 season. While processing has not returned to St. George,[87] meaning the community does not benefit from local fish taxes on landings or from other local economic activities brought about by having local processing take place and vessels making local landings, the community has derived benefits from APICDA ownership of the (former Snopac) processor quota tied to St. George through APICDA initiatives funded in part by St. George linked processing history. It has also benefitted from the CR Program regionalization community protection feature that created the northern region[88] designation, which until recently has served to help keep a shore-based processor operating in St. Paul which, with support from APICDA, provided St. George fishermen with a relatively near market for the local small boat halibut fleet. The shore-based processor in St. Paul has also until recently provided a market for APICDA-owned north-designated shares.

- **King Cove and Unalaska/Dutch Harbor.** An increase in common ownership between several processors (including Westward Seafoods, Peter Pan Seafoods, and Alyeska Seafoods, all owned by Maruha-Nichiro) triggered the requirement for divestiture of some crab processor quota among

[83] https://www.ecfr.gov/current/title-50/part-680/section-680.40#p-680.40(c)(4)

[84] It is also important to note that WAG PQS and IPQ is not subject to ROFR restrictions in any community. However, as discussed below, APICDA and Atxam (the ANCSA village ANCSA corporation for Atka, the other community in the CR Program designated west region) have ownership of the nearly 90 percent of the WAG PQS.

[85] APICDA ownership of PQS described in this section of the analysis is held by APICDA Joint Ventures, Inc., a subsidiary of APICDA.

[86] Included in APICDA's acquisition of Snopac's PQS were shares in the BBR, BSS, EBT, PIK, SMB, and WBT fisheries, which account for all APICDA PQS holdings in these fisheries as of 2023/2024. BSS shares account for about 80 percent of the total shares held, BBR and EBT about 10 percent each, and PIK and SMB less than two percent each. While most of Snopac's total allocation of PQS was based on processing history earned in St. George, it also included PQS with processing history earned in Port Moller (e.g., roughly one-third of the Snopac BBR PQS holdings).

[87] According to APICDA senior staff as cited in the 10-year CR Program review, the only crab processing related local fish tax revenues received in St. George in [then] recent years were generated by the Icicle Seafoods floater R.M. Thorstenson processing while anchored off St. George "for a couple of weeks" [in the early 2010s] when its usual destination, St. Paul, was iced in. No floating processors have operated in the crab fisheries included in the CR Program in any year since the 10-year CR Program Review, apart from a Trident floating processor (the Bountiful) that operated off St. Paul in 2020 and 2022.

[88] The northern share landing/processing region was defined for the purposes of this community protection measure as being north of 56º 20' North latitude in the Bering Sea.

the group, which could have included PQS moving from either King Cove (Peter Pan Seafoods), Unalaska/Dutch Harbor (Alyeska Seafoods and/or Westward Seafoods), or both.

- **King Cove**-based processor shares of BBR were acquired in 2008 from Peter Pan Seafoods, Inc. by Aleutia, the Eligible Crab Community Entity for the City of King Cove and the Aleutians East Borough. While this acquisition was not specifically made under the CR Program ROFR process, the existence of that process, according to key individuals involved, clearly influenced their acquisition by Aleutia and kept the processing of the resulting IPQ in King Cove.
    - Over the long term, however, the economics of ownership of this PQS did not pencil out for Aleutia, despite favorable tax rebate initiatives by the Aleutians East Borough.[89] In 2021, Aleutia sold its King Cove qualifying history PQS to Peter Pan Seafood Company LLC.
    - Peter Pan Seafood Company LLC is the entity that in 2021 bought Peter Pan Seafoods and certain assets, including the processing plants in King Cove and Port Moller, from Maruha-Nichiro (the firm that also originally owned the PQS purchased by Aleutia in 2008).
    - The portion of the CR Program initial allocation of Peter Pan Seafoods' King Cove PQS that was not purchased by Aleutia in 2008 (and then subsequently sold to Peter Pan Seafood Company LLC in 2021) remains in the hands of Maruha-Nichiro. This PQS was not a part of the 2021 sale of Peter Pan Seafoods and certain assets to Peter Pan Seafood Company LLC. Maruha-Nichiro holds this remaining quota under a corporation named Peter Pan Seafood Inc.
    - The ROFR for PQS with qualifying processing history accrued in King Cove was not triggered by Maruha-Nichiro's 2021 sale of Peter Pan Seafoods and certain assets to Peter Pan Seafood Company LLC, since the relevant PQS was not sold during that or any other transaction. The King Cove PQS owned by Peter Pan Seafood Company LLC and the King Cove PQS owned by Peter Pan Seafood Inc. has remained in King Cove to date (May 2024).
- In the case of **Unalaska/Dutch Harbor**, the species at issue were EAG, WAG, and WAI. These shares were acquired before the 2008/2009 fishing season by APICDA and/or Atxam (the Atka ANCSA village corporation).[90] While WAG and WAI are not subject to

[89] The primary reasons cited for the Aleutia ownership of PQS not penciling out was a combination of its debt service obligations (to Peter Pan Seafoods from whom it purchased the shares and financed that purchase) and market conditions for leasing out the associated IPQ.

[90] APICDA acquired PQS shares in the EAG fishery from Westward Seafoods deriving from processing history earned in Unalaska/Dutch Harbor. Westward Seafoods also divested of some PQS shares in the WAG fishery deriving from processing history earned in Unalaska/Dutch Harbor, as did Unisea and Royal Aleutian Seafoods at roughly the same time before the 2008/2009 fishing season. In this case, of the total combined PQS shares of WAG divested by these three companies, APICDA acquired PQS shares of WAG up to its ownership limit, which presented Atxam with the opportunity to acquire the balance of the combined total of PQS shares involved in the divestitures by the three different processing firms involved that would have otherwise put APIDCA over its ownership limit. Together, because of these transactions, APICDA and Atxam own approximately 87 percent of all WAG PQS. Atxam (but not APICDA) also acquired WAI PQS shares from Westward deriving from processing history in Unalaska/Dutch Harbor at this same time. The PQS shares described as acquired by APICDA and Atxam through these transactions that occurred before the 2008/2009 fishing season are the only PQS shares in these same fisheries held by APICDA and Atxam as of 2023/2024. The

ROFR restrictions, EAG is subject to those restrictions and APICDA was not the ROFR holder for the relevant EAG PQS. The ROFR holder (Unalaska Crab, Inc.) provided a waiver that allowed the transaction to occur, as described in the 10-year CR Program Review SIA. This represents the only known case of PQS moving between communities after having gone through even a preliminary/first stage of the ROFR process following the implementation of the BSAI crab rationalization program. At roughly this same time, divestitures of WAG PQS shares with qualifying history earned in Unalaska/Dutch Harbor by two processing firms that were not triggered by Maruha-Nichiro ownership-in-common considerations (Unisea, Inc. and Royal Aleutian Seafoods, Inc.) also resulted in APICDA being able to acquire additional WAG PQS shares.[91] While the IPQ resulting from divestitures of PQS with qualifying processing history earned in Unalaska/Dutch Harbor by the three involved processing companies that were acquired by APICDA and Atxam have at times been processed in Adak, the intermittent closures of that plant have also resulted in custom processing if the relevant IPQ occurring elsewhere, including Unalaska/Dutch Harbor and Akutan. Unalaska Crab, Inc. does not own, and has not owned, any PQS in any of the CR Program fisheries.

- **False Pass and Port Moller**. Qualifying crab processing history associated both False Pass and Port Moller, which are both located within the Aleutians East Borough, resulted exclusively from floating processors operating within those communities.
    - All **False Pass** associated PQS qualifying history was derived from the floating processor operations of a single firm (Peter Pan Seafoods). Since the implementation of the CR Program, processing of IPQ resulting from PQS with qualifying history in False Pass has not occurred in that community.
        - The processing of that IPQ was instead shifted to King Cove shoreplant without restriction as it was (1) an intra-company movement and (2) King Cove is within what was the cooling off boundary for False Pass, which was the Aleutians East Borough).
        - From an Aleutians East Borough perspective, it was a net zero move in terms of tax revenues but, as detailed in the 10-year CR Program Review SIA, for False Pass itself there was a locally important loss of support service business activity for the Isanotski Corporation (the False Pass ANCSA village corporation) and a decrease in crab related local tax and fee revenue[92] with the implementation of the CR Program. As a member community of the Aleutians East Borough, False Pass benefits from the borough-wide benefits that accompany BSAI crab landings and processing that occurs elsewhere in the borough, including landings

post-transaction holdings of WAG PQS by Westward, Unisea, and Royal Aleutian have also remained unchanged as of the 2023/2024 fishing season.

[91] See previous footnote.

[92] At the time of the 10-year CR Program review (2016), False Pass city officials contacted for the program review SIA could recall only one floating processor present in the community in the last five or six years, with that floater remaining in the community for a few days only, which nonetheless provided welcome direct economic benefits to the city in the form of fish tax revenues. It is not clear from the dataset used for the current program review analysis which floating processor that may have been (or if it was engaged in CR Program fisheries).

and processing associated with the PQS derived from False Pass processing activities during the qualification period.[93]

- In the case of **Port Moller**,[94] Peter Pan Seafoods was one of three firms with PQS qualifying history associated with the community. As was the case with False Pass, the Peter Pan Seafoods PQS linked to Port Moller has been processed at the Peter Pan shore-based facility in King Cove since the implementation of the crab rationalization program.
  - The Port Moller associated PQS owned at the time of CR Program implementation/initial allocations by one of the other firms, Snopac, was acquired by APICDA before the 2008/2009 fishing season.[95] The last year that a Snopac floating processor participated in the fisheries included in the CR Program (in Port Moller or elsewhere) was in 2004, a year before CR Program implementation.
  - The Port Moller associated PQS owned at the time of CR Program implementation/initial allocations by the third firm, Icicle Seafoods, was acquired by CBSFA (through its subsidiary 57 Degrees North) during the 2015/2016 fishing season.[96] The last year that an Icicle floating processor participated in the CR Program fisheries was in 2015, the last year covered by the 10-year CR Program Review SIA.[97]

- **Akutan and St. Paul.** Trident Seafoods owns and operates shore-based processing plants in both Akutan and St. Paul.[98] Trident's PQS shares in all CR Program fisheries are unchanged from initial allocation through 2023/2024 except for (1) increases in BBR, BSS, EBT, PIK, and WBT fisheries PQS (with associated qualifying history earned in Kodiak) due to the acquisition before

[93] As a member community of APICDA, False Pass may also indirectly benefit from the CR Program through APICDA initiatives funded in part by APICDA ownership of PQS with qualifying processing history accrued in other APICDA communities.

[94] Port Moller is unique among Eligible Crab Communities on two accounts: (1) it is not a year-round community and (2) it is not an incorporated municipality (nor is it treated as a community by the U.S. Census, the Alaska Department of Community and Economic Development, or other data sources). Additionally, it is one of two Eligible Crab Communities that does not have a local based Tribal entity (with the other being Adak, which at the time of ANCSA was the home of a military installation but not a civilian community). As an unincorporated community, Port Moller has never derived local tax benefits from processing in the community, including BSAI crab processing. Essentially a seasonal industrial enclave, Port Moller is located within the Aleutians East Borough and is the site of a Peter Pan Seafoods shore-based processing facility that operates seasonally.

[95] As noted earlier, Snopac PQS qualifying history was earned in more than one community and most of that qualifying processing history was accrued outside of Port Moller.

[96] Icicle Seafoods processing history that resulted in the company qualifying for an initial allocation PQS was earned in more than one community.

[97] Two Icicle Seafoods inshore stationary floating processors have participated in the CR Program fisheries since the implementation of the program, the R.M.Thorstenson (aka "the RMT" or "the Bob") that operated within the municipal boundaries but outside the harbor of St. Paul 2009-2012 and the Arctic Star that operated within the municipal boundaries of the City of Unalaska 2009-2015, first at a mooring in the Wide Bay portion of Unalaska Bay outside of developed harbor facilities before eventually moving to a dock at the head of Dutch Harbor.

[98] Trident's St. Paul shore-based processing facility is in mothballed status at that time of this writing (May 2024) due to BSS fishery disaster conditions. Trident used its inshore floating processor stationary floating processor Bountiful to process CR Program crab at St. Paul in 2020 and specifically BBR in 2022 when the BSS fishery was closed but has not otherwise processed crab species included in the CR Program with a Trident floating processor since the implementation of the CR Program, except for the Independence, and then for one year (2007) only.

the 2014/2015 fishing season of Alaska Fresh Seafoods PQS and (2) the dataset used for this analysis showing no Trident PQS in the EBT and WBT fisheries in 2023/2024.

- APICDA is the Eligible Crab Community Entity and ROFR holder for Akutan. It is known that at least in some years APICDA has had some of their south region IPQ resulting from PQS deriving from processing history originally affiliated with other communities processed in Akutan and has regularly had its north region PQS processed at the Trident shore-based plant in St. Paul when that is a possibility. There is no known instance of PQS subject to ROFR restrictions transferring out of Akutan to date.

- CBSFA is the Eligible Crab Community Entity and ROFR holder for St. Paul. Like APICDA, CBSFA did not qualify for an initial allocation of PQS but, through its wholly owned subsidiary 57 Degrees North, it has acquired PQS in the BBR, BSS, EAG, EBT, PIK, SMB, and WBT fisheries. There is no known instance of PQS subject to ROFR transferring out of St. Paul to date.

Kodiak. Movement of PQS shares with qualification history in Kodiak has been stable from an overall community perspective, although there has been movement of shares within entities that operate in the community. As noted above, Trident Seafoods acquired Alaska Fresh Seafoods (whose operations were adjacent to those of the Kodiak Trident plant) before the 2014/2015 fishing season. Included in that acquisition was the Alaska Fresh Seafoods portfolio of PQS shares in the BBR, BSS, EBT, PIK, and WBT fisheries, which were derived from its processing history in Kodiak. The Kodiak Fishery Development Association (KDFA), a non-profit entity of the City of Kodiak and the Kodiak Island Borough that is the ROFR Eligible Crab Community Entity for the city and the borough, has also played a role in retaining initial allocation PQS linked to Kodiak in the community through two different paths.

- Before implementation of the CR Program, Ocean Beauty Seafoods was required to effectively divest itself of IPQ A shares in the BBR, BSS, EBT, WBT, and SMB fisheries resulting from PQS with qualifying history accrued in Kodiak due to corporate acquisitions that resulted in Ocean Beauty Seafoods being a part of organizational structure that included vessel ownership interests. While Ocean Beauty has retained ownership of these shares, they have been leased to and controlled by KFDA since CR Program implementation.

    - The number of PQS share units involved have not increased or decreased in number in any of the individual fisheries from CR Program implementation through the 2023/2024 fishing season. KDFA has leased use of the IPQ it controls to processing firms other than Ocean Beauty (as it is not eligible to lease back its own shares) on an annual bid basis,[99] with a preference for processors operating in Kodiak.

    - In those years when Kodiak processors were not interested in leasing KDFA-controlled IPQ in one or more of the relevant fisheries, which have become more frequent over time, KFDA has tried to place the IPQ with processing entities outside of the community that provide a favorable market for Kodiak CVs.

[99] Details are described in the 10-year CR Program Review SIA.

- KFDA is also the beneficiary of a CR Program northern Gulf of Alaska region.[100] community protection "sweep up" feature designed to protect Kodiak Island communities. KDFA has ROFR on the sale of PQS with qualifying history accrued within the northern region of the Gulf of Alaska but otherwise not assigned to a community.[101] Until recently, KFDA had been banking their net revenue (i.e., the revenue coming in from leasing out the IPQ it controlled, minus the revenue out from making lease payments to Ocean Beauty, the owner of the PQS).
    - In 2023, however, KDFA reached an agreement to acquire the PQS owned by one of the entities covered by the northern Gulf of Alaska "sweep up" ROFR feature (Aquatech), although this agreement was reached without the ROFR process being triggered.
    - One of the challenges in reaching an agreement with Aquatech (or any of the other potentially interested northern Gulf of Alaska entities that had previously been approached previously by KFDA), according to a knowledgeable individual involved in the KFDA side of the process, was coming up with an appropriate value for the PQS, due to a lack of comparable transactions and, in recent years, adverse changes in the fishery.

8.3 CDQ, Adak, and Western Alaska Tribal Entity Participation in the CR Program Fisheries

Regulations establishing the CDQ Program were first implemented in 1992. The CDQ Program was incorporated into the MSA in 1996, through the Sustainable Fisheries Act (Pub. L. 104–297) and directly addresses National Standard 8 of the MSA at §305(i)(1). The CDQ Program is intended ---

> *"to provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the Bering Sea and Aleutian Islands Management Area; to support economic development in western Alaska; to alleviate poverty and provide economic and social benefits for residents of western Alaska; and to achieve sustainable and diversified local economies in western Alaska."*

Currently, 65 communities participate in the CDQ Program and approximately 30,000 people reside in those CDQ communities. CDQ communities have formed six non-profit corporations (CDQ groups) to manage and administer the CDQ allocations, investments, and economic development projects. The six CDQ groups are APICDA, BBEDC, CBSFA, CVRF, NSEDC, and YDFDA.

[100]The northern Gulf of Alaska region was defined for the purposes of this community protection measure as being that portion of the Gulf north of 56º 20' North latitude (the same latitude used for the northern share landing/processing region in the Bering Sea).

[101] These include several entities with relatively small initial allocations of PQS, including Aquatech (BSS, EBT, PIK, and WBT), Deep Creek Custom Packing, Inc. (BSS, EBT, and WBT), Douglas Steward (PIK), and John Whittier (BBR, EBT and WBT). Each of these people/entities applied for their PQS in each fishery listed for every season 2005/2006 thorough 2016/2017 with an unchanging amount of PQS units in each fishery, but none did so for the fishing seasons 2017/2018 through 2023/2024, with one exception (Douglas Steward who did so for all fishing seasons 2005/2006 through 2023/2024).

Before the implementation of the CR Program, the CDQ allocation was 7.5 percent of the relevant crab fisheries. Coincident with the implementation of the CR Program, the CDQ allocation was increased to 10 percent of the BSAI rationalized crab fisheries.[102]

An Adak community allocation was established during the implementation of the CR Program. The 10 percent Adak community allocation of WAG was intended to provide the community with a sustainable allocation of crab to aid in the development of local seafood harvesting and processing activities. Thus, the goal was to provide Adak with a means for sustainable participation in fisheries harvesting and processing within the community. Building on the concept of community development quotas, a community fishing quota, such as the allocation to Adak, was intended to be used to direct the flow of economic and social benefits from a fishery to a coastal community.[103] While the CDQ Program in general has been successful,[104] the Adak allocation (in addition to pollock and Pacific cod allocations) have been less successful in routinely providing economic benefits sufficient to sustain harvesting and processing operations within that community for multiple reasons, which are largely external to the CR Program.

In addition to CDQ/Adak community program allocations, these entities and their subsidiaries were allocated CR Program QS based on history assigned to LLP licenses they owned or have purchased interest in shares issued under the CR Program. Allowing for QS and PQS acquisition by CDQ groups was in line with the Program's intent to:

- *[Promote] economic stability for harvesters, processors, and coastal communities*
- *Address the social and economic concerns of communities*

This section of the document reviews the allocations and the harvest of these entities under the CDQ and CR programs.

8.3.1 Current CDQ and Adak Community Allocations

Table 8-25 shows the percentage of the CDQ and Adak allocations that is assigned to each CDQ group or the community of Adak. These allocation percentages have not changed since the Council's 10-year review of the CR Program.

[102] The only federally managed BSAI crab fisheries where the CDQ allocation was not increased to 10 percent were the Norton Sound red king crab and Pribilof Islands golden king crab fisheries. Neither of these fisheries were included in the BSAI crab rationalization program.

[103] In addition to the Adak allocation of 10 percent of the WAG fishery, there is a CR Program requirement that 50 percent of the WAG TAC be processed west of 174° West longitude (as detailed in 50 CFR 680.40(e)(2) https://www.ecfr.gov/current/title-50/part-680/section-680.40#p-680.40(e)(2)), unless the cities of Atka and Adak (the only two Alaska communities with shoreside processing capacity west of 174° West longitude) approve a waiver in a given year. There is also a separate CR Program requirement that 50 percent of the CVO QS that is issued in the WAG crab QS fishery be initially issued with a West regional designation, which applies to QS for delivery west of 174° West longitude. That 50 percent initial designation is subject to a series of adjustments, as detailed in 50CFR 680.40(c)(4) https://www.ecfr.gov/current/title-50/part-680/section-680.40#p-680.40(c)(4), that each year from 2005/2006 through 2023/2024 have resulted in 26.94 percent of WAG CVO QS ultimately being given a West regional designation.

[104] See the State of Alaska 2022 CDQ Decennial Review of the CDQ program and its determination that each CDQ entity has maintained or improved performance over the 2011-2020 evaluation period.
https://www.commerce.alaska.gov/web/cdqinformation.aspx

Table 8-25 CDQ Group and Adak Percentage of Total CDQ or Adak Allocation by Fishery

Species	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA	Adak	Total of CDQ or Adak Allocation*
BBR	17%	19%	10%	18%	18%	18%	0%	100%
BSS	8%	20%	20%	17%	18%	17%	0%	100%
EAG	8%	18%	21%	18%	21%	14%	0%	100%
EBT	10%	19%	19%	17%	18%	17%	0%	100%
PIK	0%	0%	100%	0%	0%	0%	0%	100%
SMB	50%	12%	0%	12%	14%	12%	0%	100%
WAG	0%	0%	0%	0%	0%	0%	100%	100%
WAI	8%	18%	21%	18%	21%	14%	0%	100%
WBT	10%	19%	19%	17%	18%	17%	0%	100%

*All CDQ groups combined are allocated 10 percent of all fisheries shown, except WAG. Additionally NSEDC and YDFDA are each allocated 50% of the Norton Sound red king crab fishery's 7.5% CDQ allocation of these fisheries, which are not a part of the CR Program. The Adak allocation is 10 percent of the WAG fishery only.
Source: https://www.fisheries.noaa.gov/s3/2023-04/2023annualmatrix.pdf

Table 8-26 shows the pounds of CDQ each crab species allocated to each CDQ group and the community of Adak based on the 2023/2024 TACs. A TAC set equal to 0 means the fishery was not opened to directed fishing that fishing season. The low TACs in the BBR and BSS fisheries make the 2023 fishery less representative of the pounds allocated under the CDQ Program in other years. These amounts do not account for harvesting or processing CR Program quota held by CDQ groups or the community of Adak.

Table 8-26 2023/2024 CDQ group and Adak community allocations (pounds)

Species	2023 TAC	Program Allocations	CDQ Reserve	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA	Adak
BBR	2,150,000	10.00%	215,000	36,550	40,850	21,500	38,700	38,700	38,700	0
BSS	0	10.00%	0	0	0	0	0	0	0	0
EAG	3,720,000	10.00%	372,000	29,760	66,960	78,120	66,960	78,120	52,080	0
EBT	760,000	10.00%	76,000	7,600	14,440	14,440	12,920	13,680	12,920	0
PIK	0	10.00%	0	0	0	0	0	0	0	0
SMB	0	10.00%	0	0	0	0	0	0	0	0
WAG	1,629,000	10.00%	0	0	0	0	0	0	0	162,900
WAI	0	10.00%	0	0	0	0	0	0	0	0
WBT	1,320,000	10.00%	132,000	13,200	25,080	25,080	22,440	23,760	22,440	0

Note: NSEDC and YDFDA were each allocated 14,719 lbs of Norton Sound red king crab (2022)
Source: https://www.fisheries.noaa.gov/s3/2023-04/2023annualmatrix.pdf

8.3.2 Harvest of CDQ and Adak Allocations

The RAM Division provides reports on the CDQ allocations and landings by fishery. Those reports are summarized in Table 8-27 for the fishing seasons 2013/14 through 2023/24 and indicate that participants in the CDQ Program continue to successfully harvest almost all their seasonal allocations of CR Program crab. Data that may be reported under confidentiality rules indicate that only the WBT fishery has been harvested at less than 100 percent over the years considered. It is not possible to provide a similar table for the harvest of Adak allocations due to confidentiality constraints based on the small number of

processing entities involved in all years in Adak. A general knowledge of the fishery would suggest, however, that the full or nearly full allocation has been successfully harvested each year.

Table 8-27 CDQ Landings, Catch, and Allocations, 2013/2014-2023/2024

Year	Fishery	Vessel Landings	Total Catch (lbs)	Allocation (lbs)	Remaining (lbs)	Percent Landed
2013/14	BBR	12	859,999	860,000	1	100
2013/14	BSS	42	5,398,495	5,398,300	-195	100
2013/14	EAG	7	331,546	331,000	-546	100
2013/14	EBT	10	146,290	146,300	10	100
2013/14	WBT	16	120,263	164,500	44,237	73
2014/15	BBR	15	999,072	998,600	-472	100
2014/15	BSS	48	6,796,032	6,795,000	-1,032	100
2014/15	EAG	4	331,011	331,000	-11	100
2014/15	EBT	14	847,826	848,000	174	100
2014/15	SMB	1	*	65,500	*	*
2014/15	WBT	13	615,188	662,500	47,312	93
2015/16	BBR	245	8,972,562	8,976,600	4,038	100
2015/16	BSS	497	36,550,080	36,549,900	-180	100
2015/16	EAG	37	*	2,979,000	*	*
2015/16	EBT	251	10,138,304	10,144,800	6,496	100
2015/16	SMB	21	*	369,900	*	*
2015/16	WAG	48	*	2,682,000	*	*
2015/16	WBT	275	7,539,381	7,556,400	17,019	100
2016/17	BBR	10	846,900	846,900	-	100
2016/17	BSS	21	2,156,988	2,157,000	12	100
2016/17	EAG	7	331,010	331,000	-10	100
2017/18	BBR	13	660,096	660,100	4	100
2017/18	BSS	24	1,896,102	1,896,100	-2	100
2017/18	EAG	8	331,000	331,000	-	100
2017/18	WBT	9	249,021	250,020	999	100
2018/19	BBR	10	430,724	430,800	76	100
2018/19	BSS	25	2,758,088	2,758,100	12	100
2018/19	EAG	8	385,602	385,600	-2	100
2018/19	WBT	9	243,836	243,900	64	100
2019/20	BBR	11	379,700	379,700	-	100
2019/20	BSS	34	3,401,890	3,401,900	10	100
2019/20	EAG	10	431,000	431,000	-	100
2020/21	BBR	10	264,138	264,800	662	100
2020/21	BSS	36	4,499,086	4,500,000	914	100
2020/21	EAG	9	365,000	365,000	-	100
2020/21	WBT	6	140,961	234,800	93,839	60
2021/22	BSS	11	560,000	560,000	-	100
2021/22	EAG	13	361,004	361,000	-4	100
2021/22	WBT	9	100,660	110,000	9,340	92
2022/23	EAG	7	332,000	332,000	-	100
2022/23	EBT	6	116,300	116,300	-	100
2022/23	WBT	5	85,000	85,000	-	100
2023/24	BBR	7	215,000	215,000	0	100
2023/24	EAG	11	371,990	372,000	10	100
2023/24	EBT	6	76,000	76,000	0	100
2023/24	WBT	1	*	132,000	*	*

*Indicates confidential data.

Source: https://www.fisheries.noaa.gov/alaska/commercial-fishing/fisheries-catch-and-landings-reports-alaska#bsai-crab

8.3.3 Other CDQ Group Participation in the CR Program Fisheries

CDQ groups are substantively engaged in the CR Program fisheries via multiple pathways outside of CDQ allocations. In summary, these include:

- Ownership in whole or in part of CVs and CPs that participate in the fishery as described in Section 8.2.5 (with current (2024) holdings shown in Table 8-12). As noted in that discussion patterns of CDQ ownership in CVs and CPs has been variable over the years, but five of the six CDQ groups (BBEDC, CBSFA, CVRF, NSEDC, and YDFDA) currently hold, either directly or through wholly owned subsidiaries, ownership interest in catcher vessels or catcher processors that have participated or are participating in the CR Program fisheries.

- Ownership of CVO and CPO QS as described in Section 8.2.6 (with current holdings shown in Table 8-14). Four CDQ groups (BBEDC, CBSFA, CVRF, and YDFDA) received initial allocations of CVO QS and none received initial allocations of CPO QS. Currently, all six CDQ groups hold CVO QS and all groups that received initial allocations have increased the number of CVO QS units held since initial allocation. Additionally, four CDQ groups currently hold CPO QS (CBSFA, CVRF, NSEDC, and YDFDA).

- Ownership of PQS as described in part in Section 8.2.7.3 (with current holdings shown in Table 7-3 and Table 7-4). The history of those holdings is as follows:

    - APICDA[105] acquired PQS in the BBR, BSS, EAG, EBT, PIK, SMB, WAG, and WBT fisheries before the 2008/2009 fishing season.[106] As of 2023/2024, the number of PQS units held by APICDA in each of those fisheries has remained unchanged.

    - CBSFA[107] first acquired PQS in the BBR, BSS, EAG, EBT, SMB, and WBT fisheries before the 2008/2009 fishing season and increased their holdings in each before the 2014/2015 fishing season. As of 2023/2024, the number of PQS units held by CBSFA in each of those fisheries has remained the same since the 2014/2015 fishing season. CBSFA acquired PQS in the PIK fishery in 2014/2015.[108] As of 2023/2024, the number of PQS units held by CBSFA in that fishery has remained unchanged.

[105] APICDA PQS holdings were acquired through and are held by its wholly owned subsidiary APICDA Joint Ventures Inc.

[106] APICDA acquired its PQS in the BBR, BSS, EBT, PIK, SMB, and WBT fisheries when Snopac, Inc. sold all its PQS. APICDA acquired its EAG PQS from Westward Seafoods, Inc. and its WAG PQS from Unisea Inc., Royal Aleutian Seafoods, Inc. and Westward Seafoods, Inc. These transactions resulted from CR Program required divestitures on the part of Westward and, in the case of Unisea and Royal Aleutian, according to Unisea senior personnel, business decisions made on market conditions at the time (i.e., ownership caps did not come into play). Atxam, the ANCSA village corporation of Atka, also acquired WAG and WAI PQS shares via an opportunity presented by APICDA's transactions with Westward, as described in Section 8.2.7.3.

[107] CBSFA PQS holdings were acquired through and are held by its wholly owned subsidiary 57 Degrees North LLC.

[108] Original CBSFA holdings in the BBR, EBT, and WBT fisheries were acquired from Highlight Light Seafoods LLC and Yardarm Knot LLC when both firms sold all their holdings in those fisheries to 57 Degrees North. Original CBSFA holdings in the BSS fisheries were acquired from Yardarm Knot (and increased in the 2009/2010 season with the acquisition of the balance of Yardarm Knot holdings in that fishery). Original CBSFA holdings in the EAG and SMB fisheries were acquired from Highland Light Seafoods when that firm sold all holdings in those fisheries to 57 Degrees North. CBSFA increases in holdings of PQS in the BBR, BSS, EAG, EBT, SMB, and WBT fisheries and original acquisition of PQS holdings in the PIK fishery before the 2014/2015 fishing season were due to CBSFA acquiring Icicle Seafoods Inc PQS units when Icicle sold all PQS holdings to 57 Degrees North.

- CVRF acquired PQS in the BSS fishery before the 2009/2010 fishing season.[109] As of 2023/2024, the number of PQS units held by CVRF in that fishery has remained unchanged.
- NSEDC[110] acquired PQS in the EAG fishery before the 2017/2018 fishing season.[111] As of 2023/2024, the number of PQS units held by NSEDC in that fishery has remained unchanged.

- Ownership interest in processing entities. At least some of the CDQ groups have acquired ownership interest in seafood processing entities participating in CR Program fisheries. While this is known to have occurred, the structure of ownership for processing entities is often complex, such that available information has not been sufficient to characterize patterns of CDQ ownership in the sector to date.

8.3.4 Western Alaska Tribal Participation in the CR Program Fisheries

In 2021, a total of 35 Tribal entities in western Alaska obtained ownership interest in multiple LLCs that own QS in multiple fisheries included in the CR Program. The relevant LLCs were part of set of transactions between CVRF, BBEDC, and the original owners of the Mariner LLCs that received initial allocations of crab QS. The transactions did not alter the corporate structure of the initial recipient LLCs, which have remained intact, and those same LLCs still hold the initial allocation issued quota shares. This means that the new owners of those LLCs are exempt from transfer limitation at 50 CFR 680.41(c), including the requirement that a corporation, partnership, or other entity must have at least one individual member who is a U.S. citizen and who: (1) owns at least 20 percent of the corporation, partnership, or other entity; and (2) has at least 150 days of sea time as part of a harvesting crew in any U.S. commercial fishery.

The original owners of the quota holding Mariner LLCs were interested in selling those LLCs (some of which owned only QS, and others that owned both QS and crab vessels) but no individual CDQ group could acquire the entire set of LLCs due to ownership and use caps shown in Table 2-3. However, in three-way negotiations, CVRF, BBEDC, and the original owners of the Mariner LLCs were able to reach agreement on two different but coordinated sets of transactions (one between the original owners and CVRF and one between the original owners and BBEDC) that would (1) allow the original owners of the quota owning Mariner LLCs to sell all of those LLCs to the CDQ groups and participating Tribes, (2) allow CVRF to increase its ownership interests of QS holding entities (i.e., to "buy up" in the relevant fisheries) but still remain under its ownership limits by diluting its holdings by offering any amount that would otherwise be over its cap limits to Tribal entities associated with CVRF communities (giving those interested Tribes the opportunity to "buy in" to the relevant fisheries through ownership in QS holding

[109] CVRF PQS holdings in the BSS fishery were acquired from Sanko Fisheries LLC, which only held those PQS for one year. Sanko, in turn, acquired the PQS from Judy Blais, who was the recipient of the original allocation of those PQS shares and held them from the 2005/2006 fishing season through the 2007/2008 fishing season.

[110] NSEDC PQS holdings were acquired through and are held by GKC Holdings LLC, which is 50 percent owned by NSEDC.

[111] GKC Holdings LLC holdings in the EAG fishing were acquired from Quota Share Leasing LLC, which sold half of its PQS to GKC Holdings and half to Ocean2Table Alaska LLC when it sold all its PQS holdings in the fishery.

LLCs) [112] and (3) allowing BBEDC and interested Tribal entities associated with BBEDC communities[113] to do the same as described for CVRF. The global closing of the transactions between all parties allowed the original owners of the Mariner LLCs to exit the fishery.

In both the CVRF and BBEDC cases, the CDQ groups offered Tribes associated with their constituent communities the opportunity to acquire ownership interest in the Mariner LLCs that they themselves were acquiring some ownership interest in and in both cases the Tribes made their own independent decisions on whether to acquire ownership interest one or more of those LLCs and, if so, the degree of that ownership interest. A total of 20 Tribes affiliated with CVRF communities decided to participate in the transactions, as did 15 Tribes affiliated with BBEDC communities.

8.4 CR Program in Relation to Crab Engaged and/or Dependent Communities

This section contains three subsections, covering overviews of crab community demographic, income, and institutional characteristics and summary outcomes for CR Program Elements that have functioned as community protection measures.

8.4.1 Community Demographic, Income, and Institutional Characteristics

This section provides an overview of previously compiled community profiles that are incorporated by reference into this CR Program Review and a series community institutional and demographic summary tables for Eligible Crab Communities and other Alaska communities engaged in the CR Program fisheries, CDQ groups, and CVRF and BBEDC region communities with affiliated Tribes with ownership interest in LLCs that hold CR Program QS.

8.4.1.1 Previously Compiled Community Profiles

As noted in Section 8.2.1, in the current 17-year CR Program Review SIA component (this Community and Social section), the approach used in the 10-year CR Program Review SIA is followed, where tables of quantitative indicators engagement and dependency like those used in the 5-year CR Program Review were updated and included in document but detailed community profiles similar to those used in the 5-year CR Program Review SIA are not included, given that the focus of this review is on CR Program community protection measure related changes that have occurred in the 7-year interval following the 10-year CR Program Review. This includes capturing any new types of impacts as well as following the threads of community and social impacts that were identified in the previous CR Program reviews. Links to the 3-year, 5-year and 10-year CR Program Review SIAs are provided in Table 1-1 as are separate links to Executive Summaries of the latter two SIAs.

As noted in previous CR Program reviews, the communities engaged in the CR Program fisheries are numerous and far-flung. Communities (and types of impacts) vary based upon the type of engagement of the individual community in the fishery, whether it is through being the community of ownership of a portion of the catcher vessel fleet, being the location of shore-based processing, being the base of catcher

[112] CVRF supported transfer of ownership in Arctic Mariner LLC, Cascade Mariner LLC, Northern Mariner LLC, and Western Mariner LLC, all of which own crab QS. Interested Tribal entities affiliated with CVRF member communities obtained ownership interest in one or more of these LLC entities. CVRF obtained direct ownership of several of the associated Mariner vessels but has since sold those interests.

[113] BBEDC supported transfer of ownership in Alaskan Mariner LLC, Aleutian Mariner LLC, Bristol Mariner LLC, Nordic Mariner LLC, and/or Pac Mariner LLC, all of which own crab QS. Interested Tribal entities affiliated with BBEDC member communities obtained ownership interest in one or more of these LLC entities. BBEDC obtained direct ownership of the associated Mariner vessels and has retained ownership of two of those vessels as of May 2024 (see Table 8-12).

processor or floating processor ownership or activity, the location of fishery support sector businesses, or the location of participation in the fishery through being the community of residence for crew members and/or holders of the various forms of quota shares issued under the crab rationalization program.

Chosen for the community-level analysis in previous CR Program reviews were those Alaskan communities characterized in the pre-BSAI crab rationalization *BSAI Crab Fisheries Final Environmental Impact Statement Social Impact Assessment*.[114] These were Unalaska/Dutch Harbor, Akutan, King Cove, Kodiak, Sand Point, Adak, St. Paul, and St. George.[115] Pre-rationalization crab fishery-oriented profiles for each of these communities were developed for the pre-implementation BSAI crab rationalization SIA. Updated, detailed profiles with a focus on crab dependence and BSAI crab rationalization impacts were provided in the BSAI crab rationalization 5-year program review for four of these communities. These are Unalaska/Dutch Harbor, St. Paul, King Cove, and Kodiak. Three of these profiles were updated through fieldwork for the 5-year CR Program review SIA (Unalaska/Dutch Harbor, King Cove, and Kodiak) while one (St. Paul) was updated through phone contacts and written correspondence. While at least some information was gathered for all eight communities previously analyzed, these four communities were chosen for more comprehensive data collection and profile updating in the 5-year program review based upon the results of the BSAI crab rationalization program review social impact assessment results.

Each of the profiles included in the 5-year program review explicitly builds upon the profiles of these communities developed for the pre-rationalization crab social impact analysis referenced above and, in the case of Unalaska/Dutch Harbor, King Cove, and Kodiak, on those contained in *Comprehensive Baseline Commercial Fishing Community Profiles: Unalaska, Akutan, King Cove, and Kodiak.*[116]. Post-BSAI crab rationalization profiles for the other four communities central to the current analysis (Sand Point, Adak, St. Paul, and St. George) were completed in June 2008 under the title *Comprehensive Baseline Commercial Fishing Community Engagement and Dependency Profiles: Adak, St. George, St. Paul, and Sand Point, Alaska.*[117] These profiles, funded by the NPFMC and the North Pacific Research Board explicitly built upon the community profiles contained in the *BSAI Crab Fisheries Final Environmental Impact Statement Social Impact Assessment* and contain, as part of the overall description of each commercial fishery-related sector in the community and where relevant, information on community-specific effects of crab rationalization. Additionally, the Baseline Commercial Fishing Community Profiles for Akutan and Unalaska/Dutch Harbor were updated, based in part on additional ethnographic fieldwork, in 2023.[118] As these comprehensive profiles remain readily available for review, they are incorporated here by reference.

[114] BSAI Crab Fisheries Final EIS (including Appendix 3: Social Impact Assessment Overview and Community Profiles), August 2004. Available at https://www.fisheries.noaa.gov/resource/document/bering-sea-aleutian-islands-crab-fisheries-final-environmental-impact-statement

[115] These communities were chosen for the pre-implementation crab rationalization social impact assessment based on then-current understandings of the level of engagement in, and dependence on, the BSAI crab fisheries being considered for inclusion in the rationalization program, consistent with National Standard 8 under the Magnuson-Stevens Act. Seven of these eight communities (all but Sand Point) were later determined to be "Eligible Crab Communities" (i.e., eligible for community protection measures under the rationalization program as implemented). Eligible Crab Communities were defined as those with 3 percent or more of the qualified landings in any fishery included in the program. In addition to the communities included in the earlier profiles, False Pass and Port Moller were also designated as Eligible Crab Communities.

[116] This document is available at: https://www.npfmc.org/wp-content/PDFdocuments/resources/AKCommunityProfilesVol1.pdf

[117] This document is available at: https://www.npfmc.org/wp-content/PDFdocuments/resources/AKCommunityProfilesVol2.pdf

[118] This document is available from: https://www.npfmc.org/wp-content/PDFdocuments/resources/Akutan_Unalaska_CommunityProfiles_2023.pdf

The Annual Community Engagement and Participation Overview (ACEPO) is an annual focusing on sustained participation of those fishing communities substantially dependent on or substantially engaged in the North Pacific groundfish and crab fisheries. The most recent version of that document (2023) is available here: https://meetings.npfmc.org/CommentReview/DownloadFile?p=6d14fc54-4e88-428b-8d49-278278b9cff5.pdf&fileName=D5%20ACEPO%20Report.pdf. Crab community harvesting and processing engagement is characterized though principal components factor analyses and regional quotient calculations. Information is also supplied for crab fishery taxes and school enrollments in crab communities. Updated ACEPO community sketches relevant to this CR Program Review include Seattle, Akutan, King Cove, Sand Point, Kodiak Island, St. Paul, and Unalaska. For each of the Alaska communities, these sketches include a suite of social indicators and ratings for climate change vulnerability and adaptive capacity for Alaska communities in addition to commercial and subsistence fishing data.

8.4.1.2 BSAI Crab Community Institutional and Demographic Summaries

This section contains three subsections of institutional and demographic summaries for Eligible Crab Communities and non-CDQ Alaska communities engaged in the CR Program Fisheries, CDQ groups, and communities in the CVRF and BBEDC regions with associated Tribal entities that have ownership interest in LLCs that own CVO QS.

Eligible Crab Communities and non-CDQ Alaska Communities Engaged in the CR Program Fisheries

Table 8-28 provides an institutional summary by community for those Alaska fishing communities noted in previous sections of the social and community component of this CR Program review being engaged in the fisheries included in the CR Program. Communities listed in this table include Eligible Crab Communities in the top (unshaded) portion of the table and any other Alaska communities that participated in one or more of BSAI crab fisheries incorporated into the CR Program through: (1) being the ownership address of active crab CVs during any year 1998-2022; (2) being the ownership address of CVO, CVC, CPO, or CPC QS during any year 2005/2006 through 2023/2024; or (3) being the location of any shore-based processors any year 1998-2022, with exception of four communities with minimal participation during the 1998-2005 pre-rationalization years.[119]

Table 8-29 provides a summary of population, demographic, and income information from the 2020 decennial census and the 2022 American Community Survey for the same communities listed in the previous table. Of note among the Eligible Crab Communities (i.e., those communities in the upper, unshaded portion of the table) is the high percentage of the population living in group quarters relative to other communities in the table, which is attributable to processor group quarters housing in those communities. Of note is that Akutan, St. George, and St. Paul have a meaningfully greater percentage of their population in the low-income category than the State of Alaska average.

Table 8-30 provides a summary of population and demographic information by housing type (non-group quarters and group quarters) for the Eligible Crab Communities, with group quarters being associated primarily with processing workers in most of these communities, especially Akutan, False Pass, King Cove, and Unalaska/Dutch Harbor. In both group and non-group quarters, populations in these

[119] The four exceptions are Anchor Point and Big Lake that were engaged in the relevant fisheries through being the local ownership address for one unique CV participating in each year 1998-2000 and one CV participating in 2004 only, respectively, and Ninilchik and Nome, that were each engaged in the fisheries through one shore-based plant in each community being active in the relevant fisheries in 2005 only.

communities have a meaningfully greater percentage of minority residents than does the state. In all cases except Kodiak, the percentage of Alaska Native residents higher in non-group quarters than in group quarters and is higher than the state in all cases except Kodiak (where processing workers tend to live elsewhere in the community rather than in group housing) and meaningfully greater than the state in Akutan, King Cove, St. George, and St. Paul.

Table 8-28 Alaska Rationalized Crab Fisheries Community Institutional Summaries

Community	Alaska Native Community Name (Language)	Borough	Municipal Government	Incorporation Type (and Date)	ANCSA Community	ANCSA Regional Corporation	ANCSA Village Corporation	Federally Recognized Tribe	CDQ Community (Group)	Eligible Crab Community (ECC)	ECC Governing Body/ECC Organization	Right of First Refusal
Adak	Adaax (Unangan Aleut)	Unorganized Borough	City of Adak	2nd Class City (2001)	No	Aleut Corporation	--	--	No (none)	Yes	City of Adak	No
Akutan	Achan-ingiiga (Unangan Aleut)	AEB	City of Akutan	2nd Class City (1979)	Yes	Aleut Corporation	Akutan Corporation	Native Village of Akutan	Yes (APICDA)	Yes	APICDA	Yes
False Pass	IsanaX (Unangan Aleut)	AEB	City of False Pass	2nd Class City (1990)	Yes	Aleut Corporation	Isanotski Corporation	Native Village of False Pass	Yes (APICDA)	Yes	APICDA	Yes
King Cove	Agdaagux (Unangan Aleut)	AEB	City of King Cove	1st Class City (1947)	Yes	Aleut Corporation	The King Cove Corporation	Agdaagux Tribe of King Cove Native Village of Belkofski	No (none)	Yes	City of King Cove and AEB	Yes
Kodiak	Sun'aq (Sugt'stun)	KIB	City of Kodiak	Home Rule City (1940)	Yes	Koniag, Inc.	Natives of Kodiak, Inc.	Sun'aq Tribe of Kodiak	No (none)	Yes	City of Kodiak and KIB	Yes
Port Moller	information unavailable	AEB	none*	n/a	No	Aleut Corporation	--	--	No (none)	Yes	AEB	Yes
St. George	information unavailable	Unorganized Borough	City of St. George	2nd Class City (1983)	Yes	Aleut Corporation	St. George Tanaq Corporation	Saint George Island**	Yes (APICDA)	Yes	APICDA	Yes
St. Paul	Tanax Amix (Unangan Aleut)	Unorganized Borough	City of St. Paul	2nd Class City (1971)	Yes	Aleut Corporation	Tanadgusix Corporation (TDX)	Saint Paul Island**	Yes (CBSFA)	Yes	CBSFA	Yes
Unalaska/ Dutch Harbor	Iluulux (Unangan Aleut)	Unorganized Borough	City of Unalaska	1st Class City (1942)	Yes	Aleut Corporation	Ounalashka Corporation	Qawalangin Tribe of Unalaska	No (none)***	Yes	City of Unalaska	Yes
Anchorage	Dgheyaytnu; Dgheyay Kaq' (Dena'ina)	Consolidated City-Borough	Municipality of Anchorage	Unified Home Rule Borough (1975)	No	Cook Inlet Region, Inc.	--	--	No (none)	No	not applicable	No
Cordova	information unavailable	Unorganized Borough	City of Cordova	Home Rule City (1909)	Yes	Chugach Alaska Corp.	The Eyak Corporation	--	No (none)	No	not applicable	No
Homer	information unavailable	KPB	City of Homer	1st Class City (1964)	No	Cook Inlet Region, Inc.	--	--	No (none)	No	not applicable	No
Kenai	Shk'ituk't (Dena'ina)	KPB	City of Kenai	Home Rule City (1960)	Yes	Cook Inlet Region, Inc.	Kenai Natives Association, Inc.	Kenaitze Indian Tribe	No (none)	No	not applicable	No
Petersburg	Seet Ka (Tlingit)	Peterburg Borough	none****	Home Rule Borough (2013)	No	Sealaska Corp.	--	Petersburg Indian Association	No (none)	No	not applicable	No
Sand Point	information unavailable	AEB	City of Sand Point	1st Class City (1978)	Yes	Aleut Corporation	Shumagin Corporation	Qagan Tayagungin Tribe of Sand Point Village; Pauloff Harbor Village	No (none)	No	not applicable	No
Seward	Qutalleq (Sugt'stun)	KPB	City of Seward	Home Rule City (1912)	No	Chugach Alaska Corp.	--	--	No (none)	No	not applicable	No
Sitka	Sheet'ká (Tlingit)	City and Borough of Sitka	na	Unified Home Rule Borough (1971)	Yes	Sealaska Corp.	Shee Atika, Inc.	Sitka Tribe of Alaska	No (none)	No	not applicable	No
Seldovia	Angagkitaqnuuq (Sugt'stun and Dena'ina)	KPB	City of Seldovia	1st Class City (1945)	Yes	Cook Inlet Region, Inc.	Seldovia Native Association, Inc.	Seldovia Village Tribe	No (none)	No	not applicable	No
Soldotna	Ts'eldat'nu (Dena'ina)	KPB	City of Soldotna	Home Rule City (1967)	No	Cook Inlet Region, Inc.	--	--	No (none)	No	not applicable	No
Valdez	Suacit (Sugt'stun)	Unorganized Borough	City of Valez	Home Rule City (1901)	No	Chugach Alaska Corp.	--	--	No (none)	No	not applicable	No
Wasilla	information unavailable	Matanuska-Susitna Borough	City of Wasilla	1st Class City (1974)	No	Cook Inlet Region, Inc.	--	Knik Tribe	No (none)	No	not applicable	No
Yakutat	Yaakwdáat (Tlingit)	City and Borough of Yakutat	none*****	Non-Unified Home Rule Borough (1992)	Yes	Sealaska Corp.	Yak-Tat Kawaan Incorporated	Yakutat Tlingit Tribe	No (none)	No	not applicable	No

* Port Moller is the location of a seafood processing plant that operates seasonally and has no residents otherwise.

**Listed as "Pribilof Islands Aleut Communities of St. Paul & St. George Islands" in the "Native Entities Within the State of Alaska Recognized by and Eligible To Receive Services From the United States Bureau of Indian Affairs" (86 FR 7554, published 1/29/2021)

*** Unalaska is a *ex-officio* member of APICDA

****The City of Peterburg ceased to exist as a separate administrative entity when Petersburg Borough (a non-Unified Home Rule Borough) was incorporated in 2013.

*****The City of Yakutat ceased to exist as a separate administrative entity when the City and Borough of Yakutat (a non-Unified Home Rule Borough) was incorporated in 1992.

Borough abbreviations: AEB = Aleutians East Borough; KIB = Kodiak Island Borough; KPB = Kenai Peninsula Borough

CDQ group abbreviations: APICDA = Aleutian Pribilof Island Community Development Association; CBSFA = Central Bering Sea Fishermen's Association

Source:Data in columns 2-9 are from the Alaska Department of Community and Regional Affairs Community Database https://dcra-cdo-dcced.opendata.arcgis.com/ accessed 3/20/2024.

Table 8-29 Selected BSAI Crab Communities and State of Alaska Demographic Indicators

Community	2020 Decennial Census Data				2022 American Community Survey Data				
	Total Population	Alaska Native/ American Indian* Residents (percent of total population)	Minority** Residents (percent of total population)	Residents Living in Group Quarters*** (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family House-holds	Median Family Income (dollars)	Low-Income**** Residents (percent of total population)
Adak	171	31.0%	66.1%	33.3%	$57,458	$90,114	26	$82,500	8.5%
Akutan	1,589	5.7%	90.8%	92.9%	$45,054	$28,750	39	$41,250	20.2%
False Pass	397	11.8%	55.7%	85.1%	$34,500	$62,083	16	$98,333	0.0%
King Cove	757	50.6%	72.5%	43.6%	$40,796	$79,844	177	$73,250	12.8%
Kodiak	5,581	15.2%	67.8%	1.6%	$36,227	$76,765	1,125	$95,739	9.0%
Port Moller	--	--	--	--	--	--	--	--	--
St. George	67	94.0%	97.0%	0.0%	$18,540	$92,500	8	$103,750	35.1%
St. Paul	413	90.6%	94.2%	9.0%	$31,903	$83,214	49	$83,250	27.8%
Unalaska/Dutch Harbor	4,254	7.7%	68.8%	60.6%	$46,296	$104,706	447	$119,375	8.0%
Anchorage	291,247	14.8%	45.7%	1.2%	$46,554	$95,731	68,213	$115,272	9.6%
Cordova	2,609	15.6%	38.0%	0.5%	$39,962	$79,526	663	$100,096	2.5%
Homer	5,522	9.4%	18.5%	1.5%	$42,604	$69,757	1,330	$96,923	12.7%
Kenai	7,424	19.3%	30.6%	0.5%	$37,409	$77,335	1,621	$89,688	15.7%
Petersburg	3,043	14.9%	29.1%	1.9%	$37,415	$77,670	837	$87,750	4.7%
Sand Point	578	65.2%	81.7%	8.1%	$40,288	$79,922	251	$91,250	8.9%
Seldovia	235	25.5%	34.0%	0.0%	$42,764	$84,375	53	$90,375	2.2%
Seward	2,717	18.8%	33.8%	4.7%	$34,044	$77,850	1,017	$113,750	6.1%
Sitka	8,458	24.4%	40.3%	2.5%	$43,964	$95,261	3,459	$107,896	6.9%
Soldotna	4,342	11.5%	23.5%	0.8%	$36,352	$67,365	1,017	$87,022	16.4%
Valdez	3,985	13.7%	27.1%	1.7%	$48,823	$89,255	1,018	$105,969	4.3%
Wasilla	9,054	14.6%	27.7%	0.8%	$38,415	$69,534	2,296	$95,753	12.9%
Yakutat	657	52.8%	62.6%	5.9%	$45,578	$76,875	160	$90,750	10.0%
State of Alaska	**733,391**	**21.9%**	**42.5%**	**2.2%**	**$42,828**	**$86,370**	**170,971**	**$104,081**	**10.5%**

*Defined as all persons self-identified as American Indian and Alaska Native alone, or in combination with one or more races.
**Defined as all persons other than those self-identied being in both "white" and "non-Hispanic" census categories.
***Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.
****Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2018-2022 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of $29,678 in 2022.
Source: US Census 2020; US Census 2022.

Table 8-30 Eligible Crab Communities Population by Housing Type, 2020

Community	Population NOT Living in Group Quarters			Population Living in Group Quarters			
	Total Population Living Outside of Group Quarters*	Alaska Native/ Native American** Residents (percent of total non-group quarters population)	Minority*** Residents (percent of total non-group quarters population)	Total Population Living in Group Quarters*	Alaska Native/ Native American Residents** (percent of total group quarters population)	Minority*** Residents (percent of total group quarters population)	Total Community Population (all housing types)
Adak	114	23.7%	62.3%	57	19.3%	73.7%	171
Akutan	113	43.4%	87.6%	1,476	0.5%	91.1%	1,589
False Pass	59	23.7%	79.7%	338	3.3%	51.5%	397
King Cove	427	71.0%	86.7%	330	7.3%	54.2%	757
Kodiak	5,491	10.4%	68.6%	90	23.3%	42.2%	5,581
Port Moller	--	--	--	--	--	--	--
St. George	67	89.6%	97.0%	0	0.0%	0.0%	67
St. Paul	376	90.7%	96.8%	37	45.9%	67.6%	413
Unalaska/Dutch Harbor	1,677	10.3%	65.2%	2,577	0.9%	71.2%	4,254

*Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.
**Defined as all persons self-identified as only American Indian and Alaska Native alone, not in combination with one or more races.
***Defined as all persons other than those self-identied being in both "white" and "non-Hispanic" census categories.
Source: US Census 2020.

CDQ Groups

Table 8-31 provides a summary of population, demographic, and income information from the 2020 decennial census and the 2022 American Community Survey for each of the CDQ groups, including all communities in each CDQ group, not just those communities that were considered potentially substantially engaged in or dependent on the CR Program fisheries for the purposes of this analysis. As shown, while there is considerable variation in the number of communities and the total population across the different CDQ regions, the percentage of minority and low-income residents for each of the CDQ regions is far greater than the analogous percentages for general population of the state of Alaska.[120] With one exception (APICDA) the percentage of Alaska Native/Native American residents in each CDQ region is more than double that of for the state, ranging between 74 and 97 percent of the total population. All CDQ groups have meaningfully greater percentages of their residents in the low-income category than Alaska as a whole and in one case almost twice as high and in three cases over twice as high.

[120] Multiple CDQ communities would also be considered “disadvantaged communities” as defined under EO 14008 and described in Section 8.1.5.2.

Table 8-31 CDQ Group and State of Alaska Selected Demographic Indicators

CDQ Group	Number of Communities	2020 Decennial Census Data			2022 American Community Survey Data		
		Total Population	Alaska Native/ Native American* Residents (percent of total population)	Minority** Residents (percent of total population)	Per Capita Income (dollars)	Number of Family Households	Low-Income*** Residents (percent of total population)
APICDA	6	2,186	14.6%	82.4%	$40,762	96	16.2%
BBEDC****	17	5,176	74.0%	79.2%	$35,447*****	1,084*****	15.8%*****
CBSFA	1	413	90.6%	94.2%	$31,903	49	27.8%
CVRF	20	9,691	97.4%	97.9%	$19,949	1,699	32.4%
NSEDC	15	9,207	82.6%	86.1%	$28,828	1,871	20.3%
YDFDA	6	3,284	96.8%	97.9%	$13,464	907	35.8%
All CDQ Groups	**65**	**29,957**	**82.6%**	**90.0%**	**$26,326**	**5,706**	**24.9%**
State of Alaska	--	**733,391**	**21.9%**	**42.5%**	**$42,828**	**170,971**	**10.5%**

*Defined as all persons self-identified as American Indian and Alaska Native alone, or in combination with on or more races.
**Defined as all persons other than those self-identied being in both "white" and "non-Hispanic" census categories.
***Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2018-2022 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of $29,678 in 2022.
****Census data do not include the community of Ekuk.
*****The 2018-2022 ACS does not include Portage Creek due to confidentiality constraints; Ugashik does not have a recorded population and no data are available.

Source: US Census 2020; US Census 2022

Communities in the CVRF CDQ Region with Associated Tribal Entity Ownership Interest in LLCs that own PQS

Table 8-32 provides an institutional summary by community for all CVRF communities. Indicated for each community is whether their associated Tribal entity opted to invest in those LLCs (Mariner LLCs) that CVO QS. As shown, Tribal entities associated with all 20 CVRF communities opted to obtain ownership interest in one or more of those LLCs, thereby becoming more directly involved in the CR Program fisheries.

Table 8-33 provides a summary of population, demographic, and income information from the 2020 decennial census and the 2022 American Community Survey for the same CVRF communities listed in the previous table. Of note is that for every community listed, the Alaska Native percentage of the total population is 94 percent or higher. Only two of the 20 communities have lower percentage of their population in the low-income category than does the state as a whole and 14 of the 18 remaining communities having a percentage of their population in the low-income category more than twice as high as the state.

Table 8-32 CVRF Region Community Institutional Summaries

Community	Alaska Native Community Name (Language)	Borough	Municipal Government	Incorporation Type (and Date)	ANCSA Community	ANCSA Regional Corporation	ANCSA Village Corporation	Federally Recognized Tribe	Tribal Ownership in Mariner QS Holding LLC(s)*
Chefornak	Cev'arneq (Central Yup'ik)	Unorganized Borough	City of Chefornak	2nd Class City (1974)	Yes	Calista Corporation	Chefarnrmute Incorporated	Village of Chefornak	Yes
Chevak	Cev'aq (Central Yup'ik)	Unorganized Borough	City of Chevak	2nd Class City (1967)	Yes	Calista Corporation	Chevak Company	Chevak Native Village	Yes
Eek	Ekvicuaq (Central Yup'ik)	Unorganized Borough	City of Eek	2nd Class City (1970)	Yes	Calista Corporation	Iqfijouaq Company	Native Village of Eek	Yes
Goodnews Bay	Mamterat (Central Yup'ik)	Unorganized Borough	City of Goodnews Bay	2nd Class City (1970)	Yes	Calista Corporation	Kuitsarak, Incorporated	Native Village of Goodnews Bay	Yes
Hooper Bay	Naparyaarmiut (Central Yup'ik)	Unorganized Borough	City of Hooper Bay	2nd Class City (1966)	Yes	Calista Corporation	Sea Lion Corporation	Native Village of Hooper Bay	Yes
Kipnuk	Qipnek (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Kugkaktlik, Limited	Native Village of Kipnuk	Yes
Kongiganak	Kangirnaq (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Qemirtalek Coast Corporation	Native Village of Kongiganak	Yes
Kwigillingok	Kuigilnguq (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Kwik Incorporated	Native Village of Kwigillingok	Yes
Mekoryuk	Mikuryar (Cup'ig)	Unorganized Borough	City of Mekoryuk	2nd Class City (1969)	Yes	Calista Corporation	Nima Corporation	Native Village of Mekoryuk	Yes
Napakiak	Naparyarraq (Central Yup'ik)	Unorganized Borough	City of Napakiak	2nd Class City (1970)	Yes	Calista Corporation	Napakiak Corporation	Native Village of Napakiak	Yes
Napaskiak	Napaskiaq (Central Yup'ik)	Unorganized Borough	City of Napaskiak	2nd Class City (1971)	Yes	Calista Corporation	Napaskiak, Incorporated	Native Village of Napaskiak	Yes
Newtok	information unavailable	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Newtok Native Corporation	Newtok Village	Yes
Nightmute	NegteMiut (Central Yup'ik)	Unorganized Borough	City of Nightmute	2nd Class City (1974)	Yes	Calista Corporation	Chinuruk Incorporated	Native Village of Nightmute	Yes
Oscarville	Kuiggayagaq (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Oscarville Native Corporation	Oscarville Traditional Village	Yes
Platinum	Arviiq (Central Yup'ik)	Unorganized Borough	City of Platinum	2nd Class City (1975)	Yes	Calista Corporation	Arviq Incorporated	Platinum Traditional Village	Yes
Quinhagak	Kuinerraq (Central Yup'ik)	Unorganized Borough	City of Quinhagak	2nd Class City (1969)	Yes	Calista Corporation	Qanirtuuq, Incorporated	Native Village of Kwinhagak	Yes
Scammon Bay	Marayaarmiut (Central Yup'ik)	Unorganized Borough	City of Scammon Bay	2nd Class City (1967)	Yes	Calista Corporation	Askinuk Corporation	Native Village of Scammon Bay	Yes
Tuntutuliak	Tuntutuliaq (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Tuntutuliak Land, Limited	Native Village of Tuntutuliak	Yes
Toksook Bay	Nunakauyaq (Central Yup'ik)	Unorganized Borough	City of Toksook Bay	2nd Class City (1972)	Yes	Calista Corporation	Nunakauiak Yupik Corporation	Nunakauyarmiut Tribe	Yes
Tununak	Tununeq (Central Yup'ik)	Unorganized Borough	none (unincorporated)	--	Yes	Calista Corporation	Tununrmiut Rinit Corporation	Native Village of Tununak	Yes

*Information on percentage ownership interest in one or more of the Mariner LLC(s) that hold rationalized BSAI crab fishery CVO QS units for individual Tribal entities is not currently available.
Source: DCRA Community Database, https://dcra-cdo-dcced.opendata.arcgis.com/ Accessed 04/20/2024. Data in last column from CVRF (personal communication 5/1/2024).

Table 8-33 CVRF Communities and State of Alaska Selected Demographic Indicators

Community	2020 Decennial Census Data				2022 American Community Survey Data				
	Total Population	Native American* Residents (percent of total population)	Minority** Residents (percent of total population)	Residents Living in Group Quarters*** (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family House-holds	Median Family Income (dollars)	Low-Income**** Residents (percent of total population)
Chefornak	506	96.4%	96.6%	0.0%	$12,776	$47,500	87	$50,750	21.2%
Chevak	951	97.5%	98.1%	0.0%	$75,144	--	49	--	28.4%
Eek	404	98.3%	98.5%	0.0%	$17,033	$48,750	91	$49,688	29.1%
Goodnews Bay	258	94.2%	95.0%	0.0%	$11,503	$27,708	27	$27,083	61.0%
Hooper Bay	1,375	97.2%	98.3%	0.5%	$15,903	$35,179	139	$40,893	37.2%
Kipnuk	704	97.3%	97.9%	0.0%	$11,924	$43,750	114	$60,278	33.2%
Kongiganak	486	98.4%	99.0%	0.0%	$10,137	$60,938	55	$66,250	13.3%
Kwigillingok	380	98.7%	99.2%	0.0%	$15,060	$61,500	115	$65,417	15.4%
Mekoryuk	206	95.1%	95.6%	0.0%	$18,889	$30,417	78	$56,250	18.4%
Napakiak	358	95.3%	96.1%	0.0%	$9,481	$23,889	144	$23,690	59.1%
Napaskiak	509	97.1%	97.6%	0.0%	$11,874	$34,569	111	$35,417	47.4%
Newtok	209	98.1%	98.1%	0.5%	$12,669	$34,583	16	$51,250	17.7%
Nightmute	306	97.1%	97.4%	0.0%	$14,097	$58,750	14	$58,333	7.1%
Oscarville	70	95.7%	98.6%	0.0%	$16,528	--	14	$111,250	22.7%
Platinum	55	96.4%	98.2%	0.0%	$35,878	--	3	--	0.0%
Quinhagak	776	98.1%	98.3%	0.0%	$13,783	$42,083	189	$48,750	34.3%
Scammon Bay	600	99.3%	99.3%	0.0%	$10,118	$36,250	102	$40,250	48.4%
Tooksook Bay	658	97.0%	97.3%	0.3%	$15,550	$49,167	163	$48,958	27.5%
Tuntutuliak	469	97.9%	98.3%	0.0%	$20,965	$43,000	110	$47,917	36.6%
Tununak	411	97.3%	97.3%	0.0%	$10,687	$38,750	78	$37,500	34.7%
State of Alaska	**733,391**	**21.9%**	**42.5%**	**2.2%**	**$42,828**	**$86,370**	**170,971**	**$104,081**	**10.5%**

*Defined as all persons self-identified as American Indian and Alaska Native alone, or in combination with one or more races.
**Defined as all persons other than those self-identied being in both "white" and "non-Hispanic" census categories.
***Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.
****Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2018-2022 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of $29,678 in 2022.
Source: US Census 2020; US Census 2022.

Communities in the BBEDC CDQ Region with Associated Tribal Entity Ownership Interest in LLCs that own PQS

Table 8-34 provides an institutional summary by community for all BBEDC communities. Indicated for each community is whether their associated Tribal entity opted to invest in those LLCs (Mariner LLCs) that CVO QS. As shown, Tribal entities associated with all 15 of the 17 communities opted to obtain ownership interest in one or more of those LLCs, thereby becoming more directly involved in the CR Program fisheries.

Table 8-35 provides a summary of population, demographic, and income information from the 2020 decennial census and the 2022 American Community Survey for the same BBEDC communities listed in the previous table. Of note is that for every community listed, the Alaska Native percentage of the total population is meaningfully greater than that of the state, with all but one (King Salmon) over 50 percent. Only four of the 15 communities with associated Tribes that opted in to investing in LLCs with CVO QS ownership have lower percentage of their population in the low-income category than does the state as a

whole and six of the 11 remaining communities in that category having a percentage of their population in the low-income category more than twice as high as the state.

Table 8-34 BBEDC Region Community Institutional Summaries

Community*	Alaska Native Community Name (Language)	Borough	Municipal Government	Incorporation Type (and Date)	ANCSA Community	ANCSA Regional Corporation	ANCSA Village Corporation	Federally Recognized Tribe	Tribal Ownership in Mariner QS Holding LLC(s)*
Aleknagik	Alaqnaqiq (Central Yupik)	Unorganized Borough	City of Aleknagik	2nd Class City (1973)	Yes	Bristol Bay Native Corporation	Aleknagik Natives Limited	Native Village of Aleknagik	Yes
Clarks Point	Saguyaq (Central Yupik)	Unorganized Borough	City of Clark's Point	2nd Class City (1971)	Yes	Bristol Bay Native Corporation	Saguyak Incorporated	Village of Clarks Point	Yes
Dillingham	Curyung (Central Yupik)	Unorganized Borough	City of Dillingham	1st Class City (1963)	Yes	Bristol Bay Native Corporation	Choggiung Limited	Curyung Tribal Council	Yes
Egegik	Igyagiiq (Central Yup'ik-Sugt'stun transition)	Lake and Peninsula	City of Egegik	2nd Class City (1985)	Yes	Bristol Bay Native Corporation	Becharof Corporation	Egegik Village	Yes
Ekuk	information unavailable	Unorganized Borough	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Choggiung Limited	Native Village of Ekuk	Yes
Ekwok	Iquaq (Central Yupik)	Unorganized Borough	City of Ekwok	2nd Class City (1971)	Yes	Bristol Bay Native Corporation	Ekwok Natives Limited	Native Village of Ekwok	Yes
King Salmon	information unavailable	Bristol Bay Borough	none (unincorporated)	--	No	Bristol Bay Native Corporation	None	King Salmon Tribe	Yes
Levelock	Liivlek ~ Elivelek (Central Yupik)	Lake and Peninsula	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Levelock Natives Limited	Levelock Village	Yes
Manokotak	Manuquutaq (Central Yupik)	Unorganized Borough	City of Manokotak	2nd Class City (1970)	Yes	Bristol Bay Native Corporation	Manokotak Natives Limited	Manokotak Village	Yes
Naknek	Nakniq (Central Yupik)	Bristol Bay Borough	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Paug-Vik Inc., Limited	Naknek Native Village	No
Pilot Point	Agisaq (Sugt'stun)	Lake and Peninsula	City of Pilot Point	2nd Class City (1992)	Yes	Bristol Bay Native Corporation	Pilot Point Native Corporation	Native Village of Pilot Point	No
Port Heiden	Masrriq (Sugt'stun)	Lake and Peninsula	City of Port Heiden	2nd Class City (1970)	Yes	Bristol Bay Native Corporation	Alaska Peninsula Corporation**	Native Village of Port Heiden	Yes
Portage Creek	information unavailable	Unorganized Borough	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Choggiung Limited	Portage Creek Village	Yes
South Naknek	Qinuyang (Central Yupik)	Bristol Bay Borough	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Alaska Peninsula Corporation**	South Naknek Village	Yes
Togiak	Tuyuryaq (Central Yupik)	Unorganized Borough	City of Togiak	2nd Class City (1969)	Yes	Bristol Bay Native Corporation	Togiak Natives Limited	Tradtional Village of Togiak	Yes
Twin Hills	information unavailable	Unorganized Borough	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Twin Hills Native Corporation	Twin Hills Village	Yes
Ugashik	Ugaasaq (Sugt'stun)	Lake and Peninsula	none (unincorporated)	--	Yes	Bristol Bay Native Corporation	Alaska Peninsula Corporation	Ugashik Village	Yes

*Information on percentage ownership interest in one or more of the Mariner LLC(s) that hold rationalized BSAI crab fishery CVO QS units for individual Tribal entities is not currently available.

**The Alaska Peninsula Corporation is associated with multiple villages (Kokhanok, Newhalen, Port Heiden, South Naknek, and Ugashik) rather than a single village.

Source: DCRA Community Database, https://dcra-cdo-dcced.opendata.arcgis.com/ Accessed 04/20/2024. Data in last column from BBEDC (personal communication 5/1/2024).

Table 8-35 BBEDC Communities and State of Alaska Selected Demographic Indicators

Community	2020 Decennial Census Data				2022 American Community Survey Data				
	Total Population	Alaska Native/ Native American* Residents (percent of total population)	Minority** Residents (percent of total population)	Residents Living in Group Quarters*** (percent of total population)	Per Capita Income (dollars)	Median Household Income (dollars)	Number of Family House-holds	Median Family Income (dollars)	Low-Income**** Residents (percent of total population)
Aleknagik	211	79.6%	82.0%	0.0%	$27,741	$85,000	30	$70,000	19.8%
Clarks Point	67	94.0%	94.0%	0.0%	$11,397	$23,333	4	--	72.4%
Dillingham	2,249	67.3%	74.7%	2.3%	$40,299	$92,578	490	$94,375	11.2%
Egegik	39	61.5%	64.1%	0.0%	$84,070	--	5	--	0.0%
Ekuk	--	--	--	--	--	--	--	--	--
Ekwok	111	88.3%	91.9%	0.0%	$18,020	$39,063	13	$48,125	11.8%
King Salmon	307	31.3%	42.0%	1.3%	$49,567	$115,625	94	$112,222	1.1%
Levelock	69	97.1%	98.6%	0.0%	$33,282	--	11	--	39.3%
Manokotak	488	95.7%	96.7%	0.4%	$20,928	$51,875	126	$48,750	23.1%
Naknek	470	57.2%	65.3%	5.5%	$43,602	$88,333	80	$93,750	14.2%
Pilot Point	70	84.3%	85.7%	0.0%	$29,958	$59,375	19	$104,375	30.6%
Portage Creek	4	50.0%	50.0%	0.0%	--	--	2	--	0.0%
Port Heiden	100	86.0%	86.0%	0.0%	$19,516	--	19	--	46.0%
South Naknek	67	67.2%	76.1%	0.0%	$31,058	$46,667	5	--	5.7%
Togiak	817	94.5%	95.0%	0.6%	$29,901	$55,833	178	$57,955	16.0%
Twin Hills	103	95.1%	96.1%	0.0%	$18,294	--	8	--	47.2%
Ugashik	4	75.0%	75.0%	0.0%	--	--	0	--	--
State of Alaska	**733,391**	**21.9%**	**42.5%**	**2.2%**	**$42,828**	**$86,370**	**170,971**	**$104,081**	**10.5%**

*Defined as all persons self-identified as American Indian and Alaska Native alone, or in combination with one or more races.
**Defined as all persons other than those self-identied being in both "white" and "non-Hispanic" census categories.
***Defined as "other noninstitutional facilities," which excludes institutionalized populations, college/university student housing, and military quarters.
****Defined as those persons living below the poverty threshold by the U.S. Census Bureau in the 2018-2022 American Community Survey. As a point of reference, a family of four (two adults and two children) had a poverty threshold of $29,678 in 2022.

Source: US Census 2020; US Census 2022.

8.4.1.3 Summaries of Community Engagement Outcomes by Sector and CV/CP QS Units

The following two tables represent a summary of community CR Program fishery engagement outcomes by sector and CV (CVO and CVC) and CP (CPO and CVC) QS unit holdings. Table 8-36 provides information for the Eligible Crab Communities and Sand Point, along with notes on community impact concerns for these communities noted in previous CR Program reviews. Table 8-37 provides similar information for other communities, groups, and states, but without individual community notes.

Table 8-36 Summary of Community Engagement Outcomes, Eligible Crab Communities and Sand Point

Community	Local Ownership Address Active Catcher Vessels	Local Operating Active Processors	Local Ownership Address CVO Shares	Local Ownership Address CVC Shares	Local Ownership Address CPO Shares	Local Ownership Address CPC Shares	Community Impact Concerns Noted in Previous CR Program Reviews
Kodiak	Continuous Pre- and Post-Rationalization Decline in Number 2016-2022	Continuous Pre- and Post-Rationalization Decline in Number 2016-2022	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Decrease in the number of active crab vessels in the community, loss of crew jobs, length of seasons and leasing of quota decreasing the attractiveness of crew jobs, decrease in the amount of BSAI crab processed in the community (including CVs returning from the BSAI with "last load" of the season becoming less common).
Unalaska/ Dutch Harbor	Pre-Rationalization & First 3 CR Years or Less	Continuous Pre- and Post-Rationalization Decline in Number 2016-2022	Gain in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	None	None	Increase in efficiency for the large processors, impacts uneven in support service sector businesses during adaptation to change, decrease in the number of seasonal support service jobs but better job quality for the remaining jobs, overall stabilitzed the fishery resulting in positive benefits at the community level.
King Cove	Pre-Rationalization & First 3 CR Years or Less	Continuous Pre- and Post-Rationalization Stable Number (1) 2016-2022	Decline in Number of QS Units Since Initial Allocations	Loss of All QS Units Since Initial Allocations	None	None	Loss of local vessels from the community during buy-backs and after implementation of rationalization, loss of crew jobs, length of seasons and leasing of quota decreasing the attractiveness of crew jobs, loss of easy movement between fluctuating fishery opportunities makes an employment and income plurality approach less feasible, decreasing quality of life and time for family and subsistence activities, loss of direct fishery support service business income, loss of business activity from vessels from outside the community prepping for openers.
Akutan	Pre-Rationalization Only	Continuous Pre- and Post-Rationalization Stable Number (1) 2016-2022	None	None	None	None	Loss of crew jobs, length of seasons and leasing of quota decreasing the attractiveness of crew jobs, loss of easy movement between fluctuating fishery opportunities makes an employment and income plurality approach less feasible, decreasing quality of life and time for family and subsistence activities.
St. Paul	None	Continuous Pre- and Post-Rationalization Stable Number (1) 2016-2022	None	None	None	None	Overall, community of St. Paul was seen as benefitting from the increase in stability of processing operations in the community resulting from the CR Program which also served to stabilize the opportunities for the local small boat halibut fleet.
Adak	None	Intermittent Operating Most Years Pre- and Post-Rationalization	None	None	None	None	Given a ramping up of crab processing activity in Adak in the years immediately preceding the implementation of the CR Program (but partially after the period to qualify for processing history for initial allocation PQS shares had passed), the CR Program was seen as reduction in opportunity in some respects, despite multiple community protection measures specific to the West region in general and the community of Adak in particular.
False Pass	None	Pre-Ratonalization (on ISFP) Only	None	None	None	None	Loss of support service business activity and local tax revenues.
Port Moller	None	Pre-Ratonalization (on ISFP) Only	None	None	None	None	None noted.
St. George	None	Pre-Ratonalization (on ISFP) Only	None	None	None	None	Loss of support service business activity and local tax revenues.
Sand Point	Pre-Rationalization Only	Pre-Rationalization Only	Stable Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	None	None	Loss of local vessels from the community during buy-backs and after implementation of rationalization, loss of crew jobs, length of seasons and leasing of quota decreasing the attractiveness of crew jobs. Sand Point described as by community leadership on multiple occasions as being relatively little affected by crab rationalization compared to King Cove.

Table 8-37 Summary of Community Engagement Outcomes, Other Communities, Groups, and States

Community	Local Ownership Address Active Catcher Vessels	Local Operating Active Processors	Local Ownership Address CVO Shares	Local Ownership Address CVC Shares	Local Ownership Address CPO Shares	Local Ownership Address CPC Shares
Anchorage MSA	Continuous Pre- and Post-Rationalization Number Fluctuated 2016-2022	None	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations
Homer	Continuous Pre- and Post-Rationalization Decline in Number 2016-2022	None	Decline in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	None	Gain in Number of QS Units Since Initial Allocations
Seldovia	Continuous Pre- and Post-Rationalization Stable in Number (1) Until 2022 (0)		Loss of All QS Units Since Initial Allocations	None	None	None
Kenai	Intermittent, Pre- and Post-CR, 6 yrs only,none since 2016	Pre-Rationalization Only	Gain in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	None	None
Petersburg	Pre-Rationalization Only	None	Decline in Number of QS Units Since Initial Allocations	Loss of All QS Units Since Initial Allocations	None	None
Yakutat	Pre-Rationalization Only	None	Decline in Number of QS Units Since Initial Allocations	None	None	None
Ketchikan	Pre-Rationalization & First 3 CR Years or Less	None	None	None	None	None
Cordova	Pre-Rationalization Only	None	None	None	None	None
Seward	Pre-Rationalization Only	None	None	None	None	None
Sitka	Pre-Rationalization Only	None	None	None	None	None
Soldotna	None	None	None	Loss of All QS Units Since Initial Allocations	None	None
Valdez	None	None	None	Loss of All QS Units Since Initial Allocations	None	None
Western AK Tribal Entities	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	None	not applicable
CDQ - CVRF	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable
CDQ - YDFDA	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable
CDQ - CBSFA	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable
CDQ - NSEDC	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable
CDQ - BBEDC	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	None	not applicable
CDQ - APICDA	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	not applicable	None	not applicable
Alaska Total	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations
Seattle MSA	not applicable	not applicable	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations
Other Washington	not applicable	not applicable	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations
Washington Total	not applicable	not applicable	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations
Oregon Total	not applicable	not applicable	Decline in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations
Other U.S. Total	not applicable	not applicable	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Gain in Number of QS Units Since Initial Allocations	Decline in Number of QS Units Since Initial Allocations

Not captured in summary tables by community are some larger perspective social and community issues associated with the CR Program. First, for the residents of at least some communities, the CR Program has been perceived to make crab crewing less compatible with other fishing and non-fishing opportunities in the community that are considered by some as an important part of an integrated yet diversified employment and income strategy (which, in turn, is consistent with preferred family/social arrangements and obligations, including subsistence pursuits). This "employment pluralism" strategy may be seen as an adaptive approach to fishing (and non-fishing) employment and income opportunities that vary considerably over time based on both short- and long-term resource fluctuations (as well as political/economic fluctuations that, in turn, result in fluctuations in various employment-producing opportunities such as major construction project funding). This is especially true for the relatively small, Aleutians East Borough communities of King Cove, Sand Point, and Akutan, where alternative employment options are limited by small-scale, relatively undiversified economies and subsistence pursuits are of relatively high importance (for cultural as well as sustenance reasons). It is also true, however, for communities like Kodiak, where crew members may use economic returns from one fishery to capitalize relatively small-scale owner-operator participation in other fisheries, with seasonal (and multi-season) fluctuations again influencing changes in relative dependence on individual fisheries.

An "income pluralism" strategy, if not an employment pluralism strategy, has also proven important over time for vessel owner/operators, particularly in communities with long-established commercial fishing traditions. The ability of vessel owners to move between commercial fisheries in response to both short- and long-term resource and economic fluctuations has been noted as an integral part of an adaptive approach to earning a living in a number of these communities for generations. There have been concerns expressed in at least some communities (including King Cove and Sand Point) that fishery management programs that may serve to limit this type of flexibility, such as the CR Program, may not be in the long-term best interests of communities that are dependent on an established residential fleet that is proportionately large compared to other local economic sectors. This would appear to be of particular concern in those communities that are neither CDQ communities nor sizable enough to support a large vessel fleet with greater effective fishing ranges (and therefore at least some greater degree of spatial adaptability) and where relatively fluid lateral movements such as between salmon and crab fisheries and between salmon and halibut fisheries, even on a weekday/weekend switch basis during seasons, are well-remembered.

Another social impact issue not well captured in a review focused on what has happened at the community level in the previous seven years is the level of uncertainty that communities are currently experiencing with CR Program fishery conditions that are unprecedented in the history of the program, including low TACs, stock collapses, and major fishery closures. Some of the largest uncertainties are occurring in Akutan, King Cove, and St. Paul. Regarding Akutan, a planned move of operations of the current shore-based processor in the community to Unalaska/Dutch Harbor has been announced but is currently on indefinite hold pending developments in overall fishery conditions. At the same time, the shore-based processor in King Cove has ceased operations and the shore-based processing plant in St. Paul is currently in mothballed status due to the collapse of the BSS fishery, which is also the same plant that is essential for the local small boat halibut fisheries in St. Paul (and St. George). Akutan, King Cove, and St. Paul are, absent processing workforces, relatively small communities with predominantly Unangan populations that are currently experiencing levels of uncertainty (due to factors outside of the CR Program) that have not occurred during the history of the CR Program to date.

8.4.2 Summary Outcomes for CR Program Elements that have Functioned as Community Protection Measures

This section summarizes the outcomes of four CR Program elements that were designed as, or have functioned as, community protection measures over the course of the program to date. They include regionalization, rights of first refusal, CDQ and Adak allocations, and ownership and use caps.

8.4.2.1 Regionalization

Three CR Program elements involve regional designations that function as community protection measures.

- The creation of a North region for QS designations in several of the crab fisheries was designed to help keep shore-based processing activity occurring in the North region (see Table 2-6), within which there are two communities, St. Paul and St. George. Since the implementation of the CR Program, the North region program element has helped to ensure sustained participation of the community of St. Paul in the fishery through the occurrence processing of CR Program crab at shore-based processing facility in that community, or the use floating processing capacity outside of St. Paul's harbor in 2020 and 2022, except for occasional periods when exemptions to North region landings and processing requirements were triggered by ice conditions. While the overall viability of the shore-based processor operating in St. Paul depends on CR Program fisheries, it has also provided a market for local small boat halibut fleets in both St. Paul and St. George until recently. The St. Paul shore-based plant has been in mothballed status since the 2021/2022 crab fishing season (the most recent year the BSS fishery was open). Halibut catches of the St. Paul or St. George local fleets have not been processed in the facility since 2019, when the last halibut season before the Covid pandemic occurred. Following the resumption of local halibut fishing after a hiatus during pandemic conditions, local St. Paul and St. George small boat catches of halibut have been tendered to Unalaska/Dutch Harbor for processing. The economic activity fostered by the local shore-based processor and the vessels that deliver to the processor has also served to generate support service activity and harbor infrastructure development in the community that has had resulted in a range of community and social benefits for St. Paul.

- The creation of a West region for WAG QS designations was designed to help keep shore-based processing activity occurring in the West region, within which there are two communities, Adak and Atka. Since the implementation of the CR Program, shore-based processing of WAG has occurred in Adak, but the West region program element has been less successful in helping to foster sustained participation of the community of Adak in CR Program fisheries than has been the case for the North region program element for St. Paul. This has been due to multiple factors, including the intermittent operation of Adak processing facilities by a succession of multiple processing firms, all of which are largely external to the CR Program (see Section 8.3.2 and the Adak discussion in Section 8.2.7.3).

- The creation of a northern Gulf of Alaska region for a community protection "sweep up" feature was designed to protect Kodiak Island communities. This is a ROFR element specific to the sale of PQS with qualifying history accrued within the northern region of the Gulf of Alaska but otherwise not assigned to a community. This feature is discussed in the ROFR section below.

8.4.2.2 Rights of First Refusal

Since implementation of the BSAI CR Program there have been several instances of PQS moving among Eligible Crab Communities, but there are no known cases of holders of the ROFR exercising their right to purchase quota shares specifically following the formal procedures established under the CR Program. However, all the Eligible Crab Community Entities except Unalaska Crab, Inc. currently hold, or have held, CR Program PQS shares that were obtained after the implementation of the CR Program.

- In two cases, PQS was acquired by the two relevant Eligible Crab Community Entities (Aleutia and APICDA) when, due to a change in corporate ownership, the initial allocation recipients were forced to divest some of their PQS to stay under ownership caps. In a third case, the Kodiak Fishery Development Association acquired PQS from a willing seller that was subject to the northern Gulf of Alaska ROFR "sweep-up" feature based on a proposal from the Kodiak Fishery Development Association without ROFR being triggered. In all three cases, the involved Eligible Crab Community Entities credit the fact that ROFRs existed as a positive influence on their ability to reach PQS acquisition agreements without a ROFR being triggered.

- In the case of Unalaska Crab Inc., when that entity was presented an opportunity to exercise its ROFR in 2008, it waived that right, which allowed those shares to be obtained by another Eligible Crab Community Entity (APICDA). CBSFA is the only Eligible Crab Community Entity that holds PQS acquired after initial allocation where none of those acquisitions were due to, or influenced by, their being the ROFR holder or stepping in after another ROFR holder waived their rights.

- While the CR Program ROFR element has functioned to help keep PQS in the community where its qualifying history was accrued, this has not happened in all cases. In St. George, False Pass, and Port Moller, all CR Program PQS qualifying history was earned on floating processors rather than in shore-based processing plants. Processing of BSAI crab has not occurred in any of these communities since the implementation of the CR Program (see Section 8.2.7.3).

- One challenge reported by the Eligible Crab Community Entities that hold ROFR contracts is that the contracts typically include, in addition to processing shares, other goods/assets. To date, no Eligible Crab Community Entity has indicated they have the capacity to acquire not only processing shares, but also the processing operation goods/assets that are typically part of such agreements and to take over operational responsibility for those goods/assets.

8.4.2.3 CDQ and Adak Allocations

The increase of CDQ program allocations from 7.5 percent to 10 percent of the TAC and the waiver of sea time eligibility requirements for the purchase of owner QS for CDQ groups in eligible communities have been successful in markedly increasing in engagement in the CR Program fisheries through expansion of CDQ ownership of CVO and CPO shares. In addition to increasing existing CDQ interests in these fisheries, these program features have also led to the acquisition Tribal ownership interest in LLCs that, in turn, own QS, which first occurred in 2021.

The Adak Community Allocation has provided the community of Adak with resources to use toward building sustained participation in the CR Program fisheries. This allocation, however, has not been as successful as it potentially could be, due to multiple factors, including the intermittent operation of Adak

processing facilities by a succession of multiple processing firms, all of which are largely external to the CR Program (see Section 8.3.2 and the Adak discussion in Section 8.2.7.3).

8.4.2.4 Ownership and Use Caps

Ownership and use caps, particularly in conjunction with ROFR program elements, have functioned as CR Program community protection measures (see Section 8.2.7.3) through facilitating Eligible Crab Community Entity ownership of PQS in several instances.

9 MANAGEMENT, MONITORING, AND ENFORCEMENT

The MSA directs LAPPs to include an effective system of management, monitoring, and enforcement. CR Program specialized management, monitoring, and enforcement element requirements present unique challenges to NOAA Fisheries RAM, ADF&G, Alaska Department of Public Safety's Division of Alaska Wildlife Troopers (AWT), NOAA OLE, and the USCG in successfully administering this program. Each of these elements are discussed in this section with particular focus on noted challenges that have arisen since the previous review. Noted potential future actions are also included.

9.1 Management

The CR Program is primarily administered through NOAA NMFS' RAM. Specifically, RAM:

- administered the application process to receive initial QS and PQS at the onset of the program;
- continues to process applications for annual IFQ and IPQ and transfers of QS or PQS;
- assesses annual active participation requirements for Crew shareholders;
- calculates and issues annual IFQ and IPQ to eligible QS/PQS holders or cooperative;
- facilitates and works with the crab industry for share matching purposes;
- identifies the QS use and vessel use caps for the year given the TAC;
- receives applications for and issues hired masters permits;
- receives applications for and issues registered crab receiver (RCR) permits;
- receives applications for and issues federal crab vessel permits (FCVP);
- processes annual crab cooperative applications and receives information on cooperative membership and cooperative contacts;
- issues evidentiary notices, Initial Administrative Decisions & Rights to Appeal notices (IADs) related to adjudication of NMFS decisions for various crab applications, working with the National Appeals Office as needed; and
- produces a wide range of in-season and post-season fisheries reports and program overviews.

While representatives of RAM noted a smooth process with limited management challenges in the previous program review, several issues have since been flagged regarding administration of program monitoring and management. Some issues have been addressed by the Council through amendments to the BSAI crab FMP, while others are novel and may require future action. Amendments implemented since the previous review are listed in Table 2-7.

9.1.1 Management Challenges

Aging computer infrastructure: Legacy computer systems used by RAM in administering the CR Program, such as the NOAA Fisheries Alaska Regional Office's Alaska Data Entry and Retrieval System (ALDERS), have technical limitations and an aging technology backbone. NMFS is actively developing a new and more advanced fisheries management and permitting application known as the Integrated Fisheries Application (IFA) that will offer an opportunity to reinvent solutions to known issues and improve many of RAM's annual permitting processes. However, this project is still in development and will take many years to reach fruition. The CR program may not see direct benefits from IFA development for several years. In addition to internal process improvements, RAM is considering

enhancements to open up many of their permit application processes to industry and the public through an external web version of this newly developed application.

Online Tracking: Industry participants, most commonly C shareholders, are increasingly requesting more online options to track application status and participation requirements for IFQ and IPQ. However, submitted evidence including ADF&G fish tickets and affidavit letters from vessel owners and/or other verifiable sources, requires manual tracking on a case-by-case basis by RAM. Thus, there is currently no method for industry to track status of IFQ or IPQ applications and participation online in real time. In recent years, RAM has provided more options for the online submission of applications and forms to expedite the permitting and reporting process to create benefits from both an administrative and applicant perspective. Currently, many applications are still submitted by mail or fax, which can slow down application processing.

Stranded CVC and CPC Shares: When participation requirements are not met, the Regional Administrator will withhold or revoke all C shares held by an individual. When revocations or withholdings of C shares are carried out, some IFQ could potentially be stranded for the entire season. In recent years, Industry has requested NMFS to "top up" stranded IFQ from administrative withholdings or revocations after an annual season's issuance of IFQ to the remainder of qualified fishery participants for that fishing year. However, withholdings and revocations strand IFQ by nature, and the subject IFQ being withheld for the season cannot be issued to the remainder of participants proportionally while in dispute. There are currently no administrative procedures or technical capability to redistribute stranded IFQ to other C shareholders in good standing. In 2023, due to a lengthy audit of past administrative inconsistencies regarding CVC and CPC applications, participation requirements and other due process considerations, eight IFQ appeals were not addressed until after the season opening in October of that year, stranding the associated QS.

Timely IFQ issuance: While the crab fishing year is defined within federal regulations as the period from July 1 of one calendar year through June 30 of the following calendar year (50 CFR 680.2), the BSAI Crab FMP authorizes the State to make in-season adjustments to TACs and fishing period lengths within those dates. If the season is set to begin before payment of cost recovery is due on July 31, this discrepancy could cause administrative difficulties with preseason IFQ issuance. For example: the WAG and EAG fishery season is from August 1 to April 30. However, the State has the authority to open the season on or after July 15 to accommodate survey and stock assessment needs (5 AAC 34.610(b)(2)). Earlier season openings can truncate IFQ holders' ability to pay bills before issuance of IFQ for the upcoming season. Additionally, NMFS must annually calculate, issue, and collect bills before the season starts, a process taking months to complete. If the season extends up to or past the RCR ex-vessel volume and value report due date on May 31 (the last time a season was extended through May 31 was in 2011/12), the timely release of IFQ for the AIG fishery (WAG/EAG) season beginning in August would be impacted (50 CFR 680.5(m)(3)). Agency staff are required to find and contact individual QS holders and acquire all relevant information and bill payments before any Crab IFQ can be issued.

State regulations for Tanner crab species taken in Registration Area J (Bering Sea) or a portion of that area, allow vessels a buffer of 24 to 72 hours to land crab after the season closure dependent on the port of delivery (5 AAC 35.556). BSS deliveries occurred in early June for the 2020/21 and 2021/22 seasons due to some vessels fishing up to and delivering past the state regulatory closure of May 31. In a few instances, information came in late due to fishing vessels delivering crab after the ex-vessel volume and value reports from CR Program RCRs are due before May 31 (50 CFR 680.5(m)(3)). The reporting date for volume and value reports was implemented through amendment 31 in 2015 to ensure individuals holding C shares are active in the CR Program fisheries and to ensure that the application deadlines

provide adequate time to resolve disputes (80 FR 15891, 03/26/2015). While this issue has only occurred in this one fishery thus far, more flexibility in volume and value report due dates could alleviate administrative issues caused by vessel deliveries past May 31.

In contrast, if the State sets the opening date of the AIG fishery on or before cost recovery fee payments are due on July 31, IFQ issuance would be delayed. IFQ can only be issued after all involved QS holders have paid all associated cost recovery fees. The Board of Fisheries (BOF) has previously considered a proposal to set fishing season dates for AIG to span two federal crab fishing years from March 1 to October 31, which would further create administrative challenges for NMFS in issuing timely IFQ (ADF&G, 2020). The proposal was not passed, but the underlying problem remains: increasing operating costs for processing plants makes landing GKC during the traditionally slow periods in November, December, and January cost prohibitive. However, the federal system is based on the assumption that there is no CR fishing in June or July, the timeframe NMFS uses to calculate and determine cost recovery. Regulatory clarification and coordination with the BOF may be needed to address these challenges in the future.

IFQ deduction and landing reports mismatch: Processors submit both landing reports and IFQ reports simultaneously through the eLandings Electronic Reporting System (eLandings). Occasionally, errors are observed after report submittal regarding entered weight, area fished, or the RCR number. The individual who submitted the reports can then go back and correct the landing report in eLandings, but is unable to edit or correct an erroneous IFQ report due to current eLandings system constraints. To correct the IFQ report, the individual must contact OLE for approval to manually correct the document. Currently, if discrepancies are found by NMFS staff, then staff will contact the submitter, who then must determine if the IFQ report or the landing report is correct. If the IFQ report is incorrect, the submitter must then edit the data using a series of emails, phone calls or faxes with OLE. If the landing report is incorrect, the submitter must edit the report directly in eLandings. Because landing reports are simpler for submitters to correct than IFQ reports, an individual may correct one of the reports but fail to correct the other, which occasionally results in a mismatch between the final landing report and IFQ report. The incorrect harvest information in one of the reports could then lead to inaccurate cost recovery billing. An update to the eLandings program where submitters could send a request and rationale to OLE to then allow for the submitter to apply the correction online could perhaps ease the administrative burden, if implemented in the future.

Mixed landings reporting: Federal regulation allows vessels to fish for multiple crab species during the same trip within the CR Program as long as that vessel has IFQ for both species, and both species are deducted from the appropriate IFQ permits (and IPQ permit if A share). In contrast, state regulation allows vessels to retain certain percentages of Tanner crab (C. bairdi) or snow crab (C. opilio) as incidental harvest during select targeted crab fisheries in the Bering Sea, regardless of IFQ holdings for incidentally harvested and retained species (5 AAC 35.506). Vessels are required to report retained incidental catch of crab on ADF&G fish tickets, but if the vessel does not possess IFQ for that species then the retained incidental catch is not reported because there is no IFQ permit for them to debit. If a vessel does not have IFQ for the incidental crab species, then it is not permitted under federal regulation to retain those species which creates a conflict between State and federal regulation. While eLandings data is used for overall ACL reporting, if these incidental catch landings are not reported via an IFQ permit, then there are no cost recovery calculations for that catch and those crab are unaccounted for, potentially raising issues for how the CR Program is designed to work. The CR Program could benefit from federal and state regulation alignment regarding future incidental catch landings.

Active Participation Requirements: The Council intended that individuals holding CVC QS and CPC QS be active participants in CR Program fisheries during the crab fishing year, July 1–June 30 (80 FR 15891, 3/25/2015). QS holders who are no longer active in the fishery would divest their QS to allow for new entrants to participate in CR Program fisheries. Since June 2018, regulations have required CVC QS and CPC QS holders to meet participation requirements by participating as crew in at least one delivery in a CR program crab fishery in the three crab fishing years preceding the crab fishing year for which the holder is applying for IFQ. If the individual was an initial recipient of C shares, they could meet requirements by having participated as crew in at least 30 days of fishing in a commercial fishery managed by the state of Alaska or in the federal waters off Alaska in the three crab fishing years preceding the crab fishing year for which the holder applied for QS (50 CFR 680.40(g)(2)). Failure to meet the participation requirement for three consecutive years would result in withholding of the C shareholder's IFQ, and after four years, their QS would be revoked.

Participation requirements have served as a mechanism for a portion of crab QS to stay in the hands of active fishery participants and provide opportunities for new entrants into the fishery. However, submitted participation evidence can be difficult to verify, assess, and track over time due to administrative backlogs, as this data must be manually tracked over time by the Agency. The Council has recognized that some fishery participants struggled to maintain active participation during the COVID–19 pandemic and the reduced harvest opportunities due to the closure of the BSS fishery since 2022 and BBR only being open in once in three of the most recent crab fishing years (2021–2023) due to low abundance and stock health concerns. Amendment 54 was proposed to address these constrained participation requirements, provide additional flexibility to existing C shareholders and continue to ensure that C shares are held by active fishery participants (89 FR 16510, 3/07/2024). Changes to the annual crab IFQ application form through Amendment 54 implementation will improve tracking ability, but application administration may remain burdensome due to manual review and verification by RAM.

9.1.2 Entry Barriers

The BSAI crab fisheries were rationalized in 2005 with crab resources being allocated among harvesters, processors, and coastal communities dependent on historical landings made during qualifying years. This LAPP was implemented to increase resource conservation, improve economic efficiency, and improve safety concerns with the previous derby style fishery (70 FR 10174, 3/2/2005). Allocating harvesting and processing privileges to select groups inherently limits access to the fishery among other groups, with the high cost of QS, limited vessels participating in CR fisheries, and CVC/CPC share participation requirements serving as a substantial barrier to overcome for potential entrants. While this topic was highlighted in the previous program review and has been discussed before the Council regarding IFQs, many challenges remain unique to the CR Program (NPFMC, 2019).

C Shares: Entry requirements for new participants to obtain CPC or CVC QS (C shares) remains high. Individuals submitting transfer applications must be a U.S. citizen, who has worked at least 150 days of sea time as part of a harvesting crew in any US commercial fishery, and has participated as crew in at least one delivery of crab in any CR crab fishery in the 365 days before submission of application for eligibility (50 CFR 680.41(c)). By nature of the rationalized crab fishery, there are limited vessels on which to work and thus limited opportunities to meet eligibility requirements. Of note, in recent years the Council recognized that some fishery participants struggled to maintain active participation during the COVID–19 pandemic and recent closures of crab fisheries due to low abundance, but wanted to retain a participation requirement. Amendment 54 was proposed to address participation limitations and, upon implementation, will provide additional flexibility to existing C shareholders and continue to ensure that C shares are held by active fishery participants (89 FR 16510, 3/7/2024).

9.1.3 Direct Marketing Barriers

Direct marketing: Since 2019, several CR Program crab harvesters have expressed an interest in selling their catch directly to consumers (direct market). CVO A shareholders are required to sell CR Program crab to a RCR with IPQ, while CVO B and CVC and CPC shareholders are required to deliver to a RCR. Individuals holding B and C shares may apply for an RCR permit and could sell catch directly to consumers, as long as RCR requirements are followed. However, RCR permit holders are required to submit Crab Monitoring Plans (CMPs) for each location or processing vessel where the RCR wishes to take deliveries of CR crab (50 CFR 680.23(g)). RCRs that process only CR crab harvested under a CPO or CPC IFQ permit are not required to prepare a CMP. Meeting all the required CMP performance standards and the additional reporting requirements when selling crab direct to consumer can dissuade potential participants, be difficult to achieve for new direct marketers and serve as a barrier for the practice. There is also ambiguity in the regulations as to the reporting requirements for a C/V serving as a RCR, as currently only floating processors and shoreside processors are required to submit an RCR ex-vessel volume and value report (50 CFR 680.5(m)).

9.1.4 Estate Planning and Beneficiary Issues

QS holder survivorship transfer privileges and associated information are specified in regulation at 50 CFR 680.41(g). A beneficiary from within a QS or PQS holder's immediate family can be designated by the QS or PQS holder in the event of the QS or PQS holder's death and in the absence of a surviving spouse. An application for transfer of crab QS/IFQ or PQS/IPQ from a surviving spouse or designated beneficiary will be approved by the Regional Administrator for three calendar years following the date of the death of an individual. After the three-year window is reached, the QS/IFQ or PQS/IPQ is redistributed throughout the remaining QS pool each crab fishing year. However, this provision is vague regarding C shares and there is currently no incentive or enforcement mechanism for beneficiaries to relinquish or divest shares after 3 calendar years. RAM has noted difficulties in administering beneficiary provisions, largely due to manual tracking of each individual case.

9.2 Monitoring

The CR Program fisheries contain several tools necessary for monitoring the various management objectives in the program including ensuring compliance with fisheries regulations and safety standards, providing USCG the ability to respond for search and rescue, and gathering important information central in evaluating the health of the target and non-target species. Monitoring of the program is a collaborative effort among federal and state agencies and includes the ADF&G, NOAA Fisheries, NOAA OLE, and the USCG. This section provides a brief overview of each entity's respective duties and the tools used to collect information to monitor CR Program fisheries, as well as an overview of observer coverage. Further information detailing the various monitoring tools can be found in the 10-year review (NPFMC, 2017a).

ADF&G staff conduct preseason vessel inspections when available and require vessel operators to register preseason to help coordinate observer coverage. Department staff, if available, will visit the vessel itself to complete the registration paperwork and complete a courtesy inspection of the fishing gear, USCG safety decal, CFEC triangle sticker, ask the vessel operator if they have contacted the USCG (if within 24 hours of departure) and if the Vessel Monitoring Systems (VMS) system is operational. This working relationship is encouraged by ADF&G and has been beneficial for both parties. ADF&G staff also conduct dockside interviews and sampling when available to collect data on crab average weights, size frequency, areas fished, effort, fishery performance, personal use pounds, number of lost or rail dumped pots, and gear information. Scales used to weigh CR crab delivered to RCRs are certified by the

Alaska Department of Transportation and Public Facilities' Weights and Measures Division. The bulk of biological data contributing to monitoring CR fisheries is collected through the ADF&G-run observer program.

In-season monitoring of the CR Program is largely overseen by ADFG using observers. Table 9-1 shows the target observer coverage rates for the CR Program fisheries. The table notes provide additional information on the source of funding used for each fishery. Observer costs by fishery have varied widely from 2020 through 2023 because of fishery closures. During the 2020 fiscal year observer deployment and program support costs funded with Bristol Bay test-fishery revenues were used to cover costs in the BBR and BSS fisheries. By the 2023 fiscal year those test fishery revenues were only used to fund EBT and WBT observer costs providing the opportunity to carry over some unused funds.121

Table 9-1 Observer coverage rates and funding for CR Program fisheries

Fishery	Preseason registration deadline [1]	Catcher vessels (C/V)		Catcher processors (C/P)	
		Observer coverage	Observer costs funded [2]	Observer coverage	Observer costs funded
Saint Matthew Island Section blue king crab (SMB)	none	100%	no	100%	no
Pribilof District red & blue king crab (PIK)	none	100%	no	100%	no
Bristol Bay red king crab (BBR)	24-Sep	20% [3]	yes	100%	20% [4]
Eastern Bering Sea Tanner crab (EBT)	24-Sep	30–100% [3]	yes	100%	30% [4]
Western Bering Sea Tanner crab (WBT)	24-Sep	30–100% [3]	yes	100%	30% [4]
Bering Sea snow crab (BSS)	24-Sep	30–100% [3]	yes	100%	30% [4]
Eastern Aleutian Islands golden king crab (EAG)	none	50% [5]	yes	100%	yes
Western Aleutian Islands golden king crab (WAG)	none	50% [5]	yes	100%	yes
Western Aleutian Islands red king crab west of 179° W long (WAI)	none	100%	no	100%	no

Source: https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/bering_aleutian/fy23_adfgreporttoCOOTF.pdf
Notes:
[1] When the preseason vessel registration deadline occurs on a weekend or holiday, the deadline is extended to the next business day.
[2] C/V observer coverage is funded with test-fishery revenues and federal crab rationalization funds.
[3] For Bristol Bay red king, Eastern and Western Bering Sea Tanner, and Bering Sea snow crab, C/V observer coverage is the percentage of randomly selected C/Vs preseason registered for each fishery where C/V observer deployment costs are paid with Bristol Bay red king crab test fishery revenues and federal crab rationalization funds.
[4] For C/Ps fishing Bristol Bay red king, Eastern and Western Bering Sea Tanner, and Bering Sea snow crab, a percentage of the C/P observer coverage is refunded through ADF&G contracts and paid with Bristol Bay red king crab test-fishery revenues.
[5] For Aleutian Islands golden king crab, coverage is set at a percentage of the harvest on each C/V during each of three trimesters where C/V observer deployment costs are paid with Aleutian Islands golden king crab test-fishery revenues.

Observer costs funded by the BBR test fishery, excluding observer program costs paid with crab rationalization federal fee reimbursements are shown in Table 9-2. Cost recovery fees paid under the

[121] See Table 1b. https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/bering_aleutian/fy23_adfgreporttoCOOTF.pdf

program are presented in Section 10. Note that the limited observer deployment costs for FY22 and FY23 in the BBR and BSS fisheries substantially reduced the total observer cost funded by the BBR test fishery.

Table 9-2 Observer deployment and program support costs funded with Bristol Bay test-fishery revenues

	Observer deployment costs				Program support costs				
Fiscal Year	BBR C/V	BSS C/V	EBT and WBT C/V	BBR, BSS, EBT, and WBT C/P	Office overhead	Admin	Cost recovery (personnel)	Office personnel	Total expenses
FY18	38,328	73,761	27,127	19,539	35,052	4,593	8,275	303,106	509,781
FY19	30,644	124,064	34,183	10,946	718	5,913	6,004	341,951	554,423
FY20	35,491	179,422	Closed	13,299	11,445	5,024	3,700	230,092	478,473
FY21	17,503	143,433	17,295	22,608	3,572	2,238	5,377	196,959	408,984
FY22	-	37,018	20,570	2,558	110	-	4,004	197,849	262,218
FY23	-	-	20,018	-	2,668	2,909	2,840	148,181	176,616

Source: Table 4 https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/bering_aleutian/fy23_adfgreporttoCOOTF.pdf

NOAA Fisheries implements tools in support of monitoring such as use of regulatory limits and caps on QS and PQS, VMS and certification of motion compensated scales aboard C/Ps. Federal regulation requires RCRs receiving unprocessed crab to operate under a CMP, detailing how and where crab are sorted and weighed. Federal record keeping and reporting requirements also support management and include the use of federal logbooks, product transfer reports, vessel activity reports, transshipment authorization, IFQ departure reports, landing reports, eligible crab community organization annual reports and RCR fee submission forms. Economic data is collected through EDR and ex-vessel volume and value reports.

Since its inception, submission of EDRs has served as the mandatory economic data collection program in the BSAI fisheries. EDRs are required to be submitted by owners or leaseholders of a catcher vessel, catcher processor, shoreside processor, or stationary floating crab processor to NMFS for each calendar year by July 31 of the following year (50 CFR 680.6). NOAA Fisheries does not issue individual IFQ without previous submission of EDRs. The EDR program collects production, cost, earnings, and employment information from the harvesting and processing sectors of crab fisheries. A third party, PSMFC, carries out EDR administration through a contract with the Alaska Fisheries Science Center.

A monitoring burden was identified for the entities required to submit EDRs early on in the program. In response to these concerns, Amendment 42 eliminated redundant reporting requirements, standardized reporting across participants, and reduced costs associated with data collection. In 2023, amendment 52 was implemented to reduce NMFS costs in administration of the EDR program and associated cost recovery fees paid by industry while maintaining data quality (88 FR 7586, 2/6/2023). EDR derived data are represented in the annual production of a Crab Economic SAFE report, allowing the stakeholders of the fishery and the Council to evaluate economic and socio-economic effects of the CR Program over time. EDR information is further complimented by data provided through the ex-vessel volume and value reports.

NOAA Fisheries also collects landings information through RCR ex-vessel volume and value reports. The reports include identifying information, location of facility or vessel, CR crab program, CR crab pounds purchased and the ex-vessel value. Ex-vessel volume and value reports must be submitted by CR RCRs that also operate as a shoreside processor or stationary floating crab processor and receive and purchase landings of CR crab no later than May 31 of the reporting period in which a RCR received CR crab (50 CFR 680.5(m)(1)).

The USCG encourages and facilitates pre-trip shoreside safety compliance checks for vessels registered in the CR fisheries. These checks provide a spot check of primary lifesaving equipment for vessels with a current Commercial Fishing Vessel Safety (CFVS) decal and ensure compliance with vessel stability specifications. CFVS exams are required for commercial fishing vessels operating in federal waters at least once every five years except for certain situations, although CFVS decals are valid for two years (46 U.S.C. Section 4502). It is not mandatory that vessels receive a safety compliance check, but the master of the vessel is required to notify the nearest USCG office within 24 hours of each trip before departure that they have loaded pots and will be commencing crabbing operations.

9.3 Enforcement (OLE)

Enforcement in the CR Program fisheries is a collaborative endeavor coordinated and carried out by the NOAA OLE, AWT, and USCG. A brief overview of enforcement responsibilities and challenges are included below. Enforcement challenges are largely the same as identified in the previous review, which can be referenced for more information (NPFMC, 2017a).

NOAA OLE enforces regulations governing allocation of CR Program QS and IFQ limits. OLE efforts are further aided by NMFS RAM, who issues and withholds QS permits resulting from sanctions, administers use and holdings caps, active participation requirements associated with C shares, and other elements of the program (see section 9.1). The USCG assists OLE with enforcement of on-the-water federal regulation compliance, although their primary role is maritime safety and emergency prevention and response. The USCG carries out their safety and prevention missions through mandatory (once every five years for commercial fishing vessels operating in federal waters) commercial fishing vessel safety examinations, preseason safety and compliance checks, and at-sea safety boardings. OLE efforts are reinforced through a partnership known as Joint Enforcement Agreements with the AWT, enabling AWT personnel to assist in enforcing CR Program requirements and other federal fishing regulations when needed. AWT generally enforces on-the-water compliance of fishing gear restrictions (properly marked buoys, legal tunnel dimensions, and other required escape mechanisms in pots) and species size restrictions. Compliance checks for documentation and licensing requirements can also be carried out by the AWT, as well as dockside inspections of crab offloads to look for undersized crab, female crab, or retention of crab of a closed species.

Many of the unique challenges faced by enforcement agents in CR program fisheries have been ongoing since implementation and generally have to do with tracking, assessing, and enforcing limits on QS and PQS in a climate of periodically changing, overlapping and often indirect entity interests. These interests create a complex regulatory environment that requires intimate knowledge and monitoring of harvesting and processing activities, as well as harvesting and processing QS use caps. Although the limited number of participants in the CR crab fisheries helps reduce the burden of these tasks, monitoring the various limitations on QS and PQS ownership interests remains a formidable challenge for the agencies involved.

There have been several amendments to the CR Program creating exemptions to regulatory limits, which in turn increase regulatory complexity for OLE to interpret and enforce. In 2017 an exemption became effective under amendment 47 applying to custom processing in the Bering Sea Tanner crab fishery (81 FR 92697, 1/19/2017). More recently, proposed amendment 55 would expand exemptions for custom processing from processor use caps and remove the processor facility use cap (89 FR 16510, 3/7/2024). This proposed amendment is intended to provide additional flexibility for IPQ holders, processing facilities, and harvesters that participate in crab fisheries during times of low crab abundance.

9.4 Potential Future Actions

The below topics are highlighted as areas that may benefit from future action. These are not all-encompassing and are purely for discussion and consideration.

AIG Season: A change to the AIG season was proposed at the BOF (proposal 266: 5 AAC 34.610) in 2020 regarding fishing seasons for Registration Area O (ADF&G, 2020). According to the proposal, Dutch Harbor processors' ability to process GKC in November, December, and early January has become an increasing problem over the last several years due in part to rising operating costs and reduced staff during that time. The proposal suggests a season beginning in early March and running through late October would be mutually beneficial to the processors and harvesters. However, the proposed season extension conflicts with federal regulations defining the crab year as July 1 through June 30, resulting in an interrupted crab year to comply with federal deadlines and QS issuance. NMFS would be unable to issue IFQ/IPQ outside of the federal crab year, resulting in a period of time where participants would have to stop fishing to comply with federal regulation and allow time for IFQ to be issued. This proposal was not passed, but the underlying issue remains. Any effort to address this issue would likely require coordination between the Council and the BOF.

Volume and Value Report Ambiguity: Overall, barriers to entry for new participants in the CR fisheries are substantial, from limited vessels to work on, high costs of owning QS and PQS, and regulatory barriers for harvesters to directly market catch. Harvester interest in direct marketing has increased in recent years, but there is no straightforward path to doing so. Aside from state licensing requirements, harvesters must comply with federal regulations in selling CR crab to a RCR. While CVO A QS holders are required to sell to a RCR with associated IPQ, CVO B, CVC and CPC QS holders could technically apply for and be granted a RCR permit and subsequently sell their catch directly to consumers. In this case, reporting requirements related to ex-vessel volume and value reports are ambiguous. A RCR that also operates as a shoreside processor or stationary floating crab processor and receives and purchases landings of CR crab must submit to NMFS a complete CR RCR ex-vessel volume and value report, yet C/Vs are not included (50 CFR 680.5(m)(1)). If this practice is allowed, associated regulations could be clarified to ensure proper reporting by these entities in the future. RCRs are also required by regulation to submit a Crab Monitoring Plan (CMP) which entails the use of a NMFS certified scale and provided test weights for calibration (50 CFR 680.23(g)). This and other associated RCR requirements make this practice prohibitive and daunting for interested C/Vs. Another option has been for C/Vs with associated QS to land and custom process crab with a RCR, but load a portion of that crab back onto the vessel for transport to a location where they can directly market their catch to consumers. This practice could be cost and time prohibitive.

10 COST RECOVERY

Section 303A(e) of the MSA requires that a Council develop a methodology and the means to identify and assess the management, data collection and analysis, and enforcement programs that are directly related to and in support of a LAPP. Section 304(d) (2) requires the collection of fees from LAPP holders to cover the costs of management, data collection and analysis and enforcement activities. Within those parameters, the Council could consider whether the methodologies currently employed meet its management, data collection, analysis and enforcement objectives.

Cost recovery fee collections are limited to 3% of the ex-vessel value of species allocated under the LAPP. That limit constrained the fee percentage during the first three years listed in Table 10-1. Fees charged in the previous year, that generated funds greater than necessary to cover costs resulted in a 0% fee charged during two of the years. The percentage of the ex-vessel value collected each year depends on the recoverable costs incurred by the management and enforcement agencies and the ex-vessel value of the harvest. The largest direct CR Program costs are, typically, incurred by the OLE and the ADF&G, respectively. The BSAI CR Program fisheries direct costs and cost recovery fee percentages are presented in Table 10-1. More detailed information on the agency costs can be found in the annual cost recovery reports (see source listed under table).

Table 10-1 CR Program cost recovery fees for the 2005/06 through 2022/23 fishing years

Fishing Year	Fishery Value	Total Program Costs	Annual fee % applied to next fishing year
2005/2006	$138,888,840	$4,270,881	3.00
2006/2007	$119,652,929	$3,939,841	3.00
2007/2008	$202,719,417	$2,133,758	3.00
2008/2009	$212,412,973	$3,195,760	1.05
2009/2010	$147,188,073	$3,927,062	0
2010/2011	$261,747,837	$3,210,189	2.67
2011/2012	$286,752,062	$3,364,442	1.23
2012/2013	$231,535,032	$3,516,592	0
2013/2014	$209,386,273	$3,095,352	0.69
2014/2015	$229,198,504	$3,392,286	1.48
2015/2016	$227,733,902	$3,650,178	1.60
2016/2017	$188,017,358	$2,950,043	1.57
2017/2018	$163,998,853	$3,038,830	1.85
2018/2019	$177,868,964	$3,017,069	1.70
2019/2020	$199,226,271	$2,616,001	1.31
2020/2021	$218,768,971	$2,387,593	1.09
2021/2022	$116,366,089	$2,594,226	2.23
2022/2023	$48,717,841	$2,888,997	3.00

Notes: Fishery Value is the projected ex-vessel value of the catch subject to the crab cost recovery fee liability for the current year. Fee liability percentages are noted here for the crab fishing year from which they were derived. The fee percentage was applied to the following crab fishing year. Due to a revenue surplus, no billing/collection occurred in the 2009/10 and 2012/13. Billed percentages for 2005/2006, 2006/2007, and 2007/2008 were limited by the Magnuson-Stevens Act statutory three percent cap. Source: https://www.fisheries.noaa.gov/s3/2023-02/crab-cost-recovery-fee-report-2021-2022-akro.pdf. The 2022/2023 fee percent was calculated at 5.93% or about double the maximum allowable fee percentage.

Crab fee percentages are set a year in advance with the amount collected from industry varying significantly from reimbursable agency costs, a known variable for the crab program. When the value of the fishery is low, the agency is unable to recoup all associated costs (Table 10-2). Over the time span of the rationalization program, the agency has collected less than what total costs are. If CR crab fisheries continue exhibiting low TAC, the difference between collected amounts and program costs will likely continue to be negative in subsequent years. As such, partners should expect less reimbursement for their crab expenses for the 2024 season. NOAA will prorate the reduction across all management partners, both internal (Alaska Fisheries Science Center, Financial Systems Division, and OLE) and external (ADF&G and PSMFC). Expenses are expected to go down for OLE if there is no fishery. However, there are still associated management costs to manage the fishery and determine if the crab fisheries will open or not.

Table 10-2 CR Program costs and cost recovery funds collected from the fisheries.

Fiscal Year	Total Program Costs	Amount Collected from Fishery	Difference
2006	$4,270,881	$4,166,665	-$104,216
2007	$3,939,841	$4,103,194	+$163,353
2008	$2,133,758	$6,511,394	+$4,377,636
2009	$3,195,760	$2,028,968	-$1,166,792
2010	$2,548,834	$0	-$2,548,834
2011	$3,210,189	$7,434,978	+$4,224,789
2012	$3,364,442	$3,720,998	+$356,556
2013	$3,516,592	$0	-$3,516,592
2014	$3,095,352	$1,580,937	-$1,514,415
2015	$3,392,286	$1,669,120	-$1,723,166
2016	$3,650,178	$4,160,968	+$510,790
2017	$2,950,043	$3,345,472	+$395,429
2018	$3,038,830	$2,718,929	-$319,901
2019	$3,017,069	$3,748,990	+$731,921
2020	$2,616,001	$3,635,650	+$1,019,649
2021	$2,387,593	$3,651,764	+$1,264,171
2022	$2,594,226	$1,542,996	-$1,051,230
2023	$2,888,997	$1,099,994	-$1,789,003
TOTALS	**$55,810,872**	**$55,121,017**	**-$689,855**

Notes: Data provided by NOAA NMFS Alaska Region Operations Management Division

The CR Program cost recovery process is constrained by tight turnaround times that are further impacted whenever a crab fishing season is extended, making it problematic to meet the cost recovery deadline for determining the fishery. For example, RCR volume & value reports are due on May 31. These reports are then reviewed for errors and missing landing value information by the NOAA Fisheries Operations Management Division. The Operations Management Division staff then must reach out to receivers that fail to submit a report or need to make corrections to their report. Late reporters are referred to OLE for action by June 7 and permits are then issued. Fee liability summaries are due in the mail by July 1, with payments due by July 31.

11 FISHING VESSEL SAFETY

National Institute for Occupational Safety and Health (NIOSH) staff queried the Commercial Fishing Incident Database for incidents involving the BSAI crab fleet from 2016 through 2022. NIOSH routinely collects data on fatalities due to traumatic injuries (2000-2022) as well as nonfatal vessel disasters (2000-2019). From 2016 through 2022, NIOSH reported six fatalities from one sinking during February 2017. Nonfatal vessel disasters were not reported in the data for the BSAI crab fleet from 2016-2019. A vessel disaster is defined as a catastrophic event that occurs to a vessel that results in crewmember fatalities or the entire crew needing to abandon the vessel – sinkings, capsizings, and some fires and groundings. NIOSH staff noted that the fatalities on another vessel were attributed to the pot cod fishery. Although, NIOSH indicated that the vessel was reported to plan on fishing for crab after fishing pot cod.

NIOSH has not updated nonfatal injuries or vessel casualties as described in the report[122] generated as part of the 10-year CR Program review. Those data were collected specifically for that study and are not routinely collected by NIOSH as part of its surveillance activities.

In summary, no fatalities attributed to the crab fishery have been reported since February 2017, shortly after the 2016 CR Program review was completed. During the 1990's, the BSAI crab fleet was identified as the most hazardous commercial fishery in the United States (Lincoln et al., 2013). During that decade, 73 BSAI crab fishery crewmembers died because of vessel disasters, falls overboard, or on-board injuries (Lincoln et al., 2013). Although safety regulations in place at that time required vessels to carry lifesaving equipment, such as immersion suits and life rafts, the regulations did not address the problem of overloading vessels with crab pots, a major cause of vessel disasters and deaths. This gap in safety regulations was partially corrected by the Coast Guard in 1999 with the introduction of the "At-the-Dock Stability and Safety Compliance Check" program, in which Coast Guard personnel checked crab vessels in Dutch Harbor before departure to ensure that each was loaded in compliance with their stability instructions. The introduction of the At-the-Dock Stability and Safety Compliance Check program, along with other factors such as changes in safety culture, the number and rate of fatalities in the fleet decreased during the period 1999-2012 (Lincoln et al., 2013; Woodley et al., 2009). The BSAI CR Program was also credited with improving safety by extending the fishing seasons, smaller pot loads, and allowing for a more experienced and potentially less fatigued crew (Woodley et al., 2009). Changes associated with a consolidation of the fishing fleet, from an average of 243 vessels during 2001–2004 to typically less than 80 vessels may also contribute to improved safety.

[122] https://www.cdc.gov/niosh/docs/2016-112/pdfs/2016-112.pdf?id=10.26616/NIOSHPUB2016112

12 SIDEBOARD LIMITS IN OTHER FISHERIES

The flexibility provided by the CR Program was anticipated to allow crab fishermen to expand their fishing operations into other fisheries. To limit the impacts on participants in other fisheries, especially GOA fisheries, that were conducted concurrently with the Bering Sea snow crab from January through March the CR Program includes harvest limits on certain vessels. The purpose of the "sideboard" limits is to prevent Bering Sea snow crab QS recipients and persons holding that quota from increasing their participation in potentially vulnerable GOA groundfish fisheries. CR Program IFQ holders have expressed concern regarding fishing opportunity limitations caused by sideboard protections for GOA groundfish fisheries during shortened or closed crab seasons. Sideboard restrictions are implemented based on a vessel's fishing history and apply both to the fishing vessel itself and to any LLP license generated by that vessel's fishing history. Any change to the sideboards would impact participants in the sideboarded fisheries and those impacts would also need to be analyzed.

50 CFR 680.22 establishes groundfish catch limits for vessels with a history of participation in the Bering Sea snow crab fishery. The basis for these sideboard limits is described in detail in the final rules implementing the major provisions of the CR Program, including Amendments 18 and 19 to the Fishery Management Plan for BSAI King and Tanner Crabs (Crab FMP) (70 FR 10174, March 2, 2005), Amendment 34 to the Crab FMP (76 FR 35772, June 20, 2011), Amendment 83 to the GOA FMP (76 FR 74670, December 1, 2011), and Amendment 45 to the Crab FMP (80 FR 28539, May 19, 2015). These regulations were updated for non-American Fisheries Act (AFA) crab vessels when NMFS published a final rule (84 FR 2723, February 8, 2019) that implemented regulations to prohibit non-AFA crab vessels from directed fishing for all groundfish species or species groups subject to sideboard limits, except for Pacific cod apportioned to CVs using pot gear in the Western and Central Regulatory Areas (50 CFR 680.22(e)(1)(iii)). Based on that change, the GOA annual harvest specifications include non-AFA crab vessel groundfish sideboard limits for only Pacific cod apportioned to CVs using pot gear in the Western and Central Regulatory Areas.

12.1 GOA Groundfish Sideboard

CR Program sideboard limits currently prohibit non-AFA vessels from directed fishing for any GOA groundfish species other than Pacific cod and sablefish. AFA sideboard limits that apply to crab vessels that are also AFA qualified are presented in the annual specifications published at 88 FR 13256[123]. Sideboard limits are set in aggregate as a percentage of the available TAC. GOA groundfish CR Program vessels subject to the sideboard must carry a GOA groundfish LLP license authorizing their participation. The sideboard restrictions apply in the State of Alaska parallel groundfish fisheries to vessels with a Federal Fisheries Permit or LLP license. Since LLPs can move among vessels, it is possible that the sideboard limits on a vessel could differ from those associated with the license assigned to that vessel. In these cases, the more restrictive sideboard is applied.

12.2 GOA Pacific Cod and Pollock Sideboard Categories

Under the CR Program, 227 non-AFA crab vessels received an initial allocation of Bering Sea snow crab QS and are subject to the GOA groundfish sideboard limits; 137 of these vessels are prohibited from fishing for GOA Pacific cod; 81 vessels are subject to the GOA Pacific cod sideboard limits; 7 vessels are

[123] https://www.govinfo.gov/content/pkg/FR-2023-03-02/pdf/2023-04315.pdf

exempt from just the GOA Pacific cod sideboard limits; and 2 vessels are exempt from GOA Pacific cod and pollock sideboard limits.

Table 12-1 Vessels subject to the GOA Sideboard limitations based on crab LLP license restrictions

Sideboard types	60’ to <125'	>=125	Total
Subject to all GOA sideboards	60	21	81
GOA sideboards but exempt from Pacific cod and pollock sideboards	2	0	2
GOA sideboard & prohibited from fishing GOA Pacific cod	80	57	137
GOA sideboards but exempt from only Pacific cod sideboards	7	0	7
Total Vessels	149	78	227

Source: 2023 LLP crab license file

Groundfish LLP licenses (56) that originated on non-AFA crab vessels and are also subject to the GOA groundfish sideboard limits (Table 12-2). Eleven licenses are prohibited from use when directed fishing in the GOA Pacific cod fisheries; 37 licenses are subject to the GOA Pacific cod sideboard limits; 7 licenses are exempt from the GOA Pacific cod sideboard limits; and 2 licenses are exempt from the GOA pollock and GOA Pacific cod sideboard limits.

Table 12-2 Groundfish LLP licenses subject to GOA groundfish sideboards based on groundfish LLP license restrictions

GOA Sideboard restriction	Vessels
CR GOA Sideboard	37
CR GOA Sideboarded - except Pacific cod	7
CR GOA Sideboarded - except Pacific cod and Pollock	1
CR GOA Sideboarded - no GOA Pacific cod Fishing	11
Total	**56**

Source: 2023 Groundfish LLP license file

Amendment 83 to the GOA FMP (83 FR 8768, March 1, 2018) implemented regulations to simplify the annual sideboard specification process. Rather than continuing the annual process of calculating all sideboard limits and then closing most of the groundfish species with sideboard limits to directed fishing, the action revised regulations to prohibit directed fishing by non-exempt AFA Program and CR Program vessels for those groundfish species and species groups subject to sideboard limits that have not been opened to directed fishing and that are not expected to be opened to directed fishing in the foreseeable future. As a result of this action, GOA sideboard limits are currently on published for pot gear fisheries in the Western and Central GOA (Table 12-3). The result is an aggregate Pacific cod sideboard limit, by season, of about 10 percent and 5 percent in the Western and Central GOA pot catcher vessel (CV) fisheries, respectively.

Table 12-3 GOA Non-AFA crab vessel groundfish harvest sideboard limits for Pacific cod (mt), 2023

Species	Season	Area/gear	Ratio of 1996–2000 non-AFA crab vessel catch to 1996–2000 total harvest	Final 2023 TACs	Final 2023 non-AFA crab vessel sideboard limit
Pacific cod	A Season January 1–June 10	Western Pot CV.	0.0997	3,331	332
		Central Pot CV	0.0474	7,131	338
	B Season September 1–December 31	Western Pot CV	0.0997	1,894	189
		Central Pot CV	0.0474	3,991	189

Source: NMFS 2023 annual specifications

13 SUMMARY AND CONCLUSION

This summary and conclusion section focuses on two primary issues. First, the need for additional data is discussed, as required in program reviews. Section 4.3 also includes a summary of fishery data collections used for conservation and assessment that are a direct result of the CR Program. Second is the objectives that the Council was seeking to address when the CR Program was developed. Each of the Council's eight primary objectives will be discussed in terms of how well they have been addressed by the specific program provision.

13.1 Additional Data Needs

Data collected under the CR Program are detailed and relatively complete compared to other fisheries. Primary data sources include harvest activity from ADF&G Fishtickets/eLandings enhanced by Commercial Fisheries Entry Commission Gross Earnings files. Harvesting and processing privilege data (LLP licenses, QS, PQS, etc.) is housed by NOAA RAM Division, wholesale production values self-report by producers in COAR. Additional social and economic information is derived from the annually submitted crab EDRs. Data are primarily sourced and compiled by AKFIN and Alaska Fisheries Science Center staff (for example, through the Crab Economic SAFE). For this review, qualitative information was collected from relevant literature, records of public testimony, and solicited communication with stakeholders and community residents impacted by the CR Program fisheries.

Updates to the EDRs since they were first implemented have improved data quality (i.e., crew and lease data) and removed the collection of certain information that was determined to not be useful based on how it was being collected. Data that are not collected include certain fixed cost data, often because it is difficult to attribute to specific fisheries. Current market data is somewhat limited. Historical data is available in the economic SAFE and collected through EDR data and National level market reports. Current market data (more recent than 2022) was sourced with discussions between the authors and industry, persons that market vessels and quota, and available published data. Given the difficulty of collecting and maintaining close to real time data on seafood, quota, and vessel markets, no recommended changes to the current data collection system have been identified.

13.2 [Promote] Resource Conservation, Utilization, and [Address] Management Problems

13.2.1 Conservation

Preventing harvest targets from being exceeded was difficult under the derby-style fisheries due to the effort on the grounds and short seasons. The motivation to catch as much of the available harvest as possible to maximize gross revenue created incentives to set as many pots as could be taken to the fishing grounds. The large number of pots on the grounds lead to more lost pots than necessary, the lost pots would often rebait and continue to catch crab that would increase mortality. The excess pots that still needed to be retrieved after the fishery closed resulted in discarding entire pots (rail dumping).

Bycatch mortality for king crab is set at 20 percent during directed king crab fishing operations and at 25 percent during directed Tanner crab fishing operations. Improved understanding of handling mortality in Bering Sea snow and Tanner crab led to new calculations of handling mortality for stock assessments. Where a 50 percent mortality rate had been applied to the snow and Tanner crab fishery discards, the Tanner crab stock assessment has applied a handling mortality rate of 32.1 percent since 2014, and the snow crab stock assessment has applied a handling mortality rate of 30 percent since 2013. These

estimates are likely conservative and account for both short-term mortality and long-term effects that are not well understood (Section 4.8).

Since implementation of the CR Program, the TAC for these fisheries has never been exceeded. (Section 4.2). TACs are not exceeded because harvesters can estimate the number of pots needed to harvest the quota available and transfer IFQ within cooperatives to harvest small amounts of quota on a few vessels to more efficiently catch any TAC that remained unharvested. Harvesters can also rely on IFQ post-delivery transfers to account for small overages. Fewer pots deployed also resulted in fewer lost pots, less ghost fishing, and improved conservation. The requirement to utilize biodegradable pots also has reduced ghost fishing time. Under the CR Program, vessels may also form gear cooperatives allowing for gear sharing among vessels. This can reduce the overall amount of rail-dumping and helps vessels reach their quotas more efficiently.

Improved data collection and collecting needed data should be considered in Program Reviews. There have been increased agency/industry collaborative biological research programs to improve conservation of the resources that have been aided by the CR Program structure.

- New recordkeeping and reporting regulations implemented with the CR Program have improved in-season fishery data collection. All vessels are required to complete daily fishing logbooks. Registered Crab Receivers are required to use eLandings, which improves data quality.
- The slower pace contributes to data improvements since sampling paperwork is completed, entered, and edited more promptly.
- Longer seasons provide additional in-season opportunities to instruct dockside staff and vessel-based observers, which also contributes to higher quality data.
- The slower fishery pace of the fishery relative to the derby fishery has allowed observers to participate in data collection for special projects (i.e., recording male chela height to help inform size at maturity information used in stock assessments, mature female, and egg clutch collections for use in assessing reproductive potential, and collection of crab hemolymph, to assess bitter crab disease.

The CR Program fostered industry-funded research foundations starting with the BSFRF in 2003. Contributions have been severely impacted by the recent collapse of the snow crab fishery and closure of the BBR fishery. Recent BSFRF research projects include crab surveys, crab movement, bycatch, habitat, recruitment limitation, and predation. Tagging and movement research is a multi-year effort that is currently focused on BBR.

Other recent research collaborations have included:

- Growth rate of Tanner and snow crab.
- Management strategy evaluation of Tanner crab.
- Research of a doctoral student whose work supported findings that areas of higher abundance of BBR shifted seasonally and were different in the logbook data collected during fall harvest season than in the summer trawl data collected by NOAA annually. Temperature was found to be an important predictor for fall crab distribution and these results support the assumption that trawl closure areas are protecting red king crab.

In 2012, quota shareholders in the AIG fishery formed the AKCRF. The structure of the CR Program has promoted the development of a fishery-based cooperative survey for the AIG stock red king crab in the waters of the Adak District. To help gain biological information essential to understanding these crabs,

AKCRF has provided live golden king crab to the NOAA Fisheries lab in Kodiak for a variety of research, including handling mortality, ocean acidification impacts, and growth studies.

13.2.2 Utilization

Utilization of the crab TAC has been very high since the CR Program was implemented. For most years and fisheries 100 percent of the TAC, within rounding error, is harvested each year. The only exceptions since the 2015/16 fishing year were WBT (62 percent harvested) and WAG (94 percent harvested) during the 2020/21 fishing year. Catch that year may have been limited because of COVID-19 implications on fishery participants and markets. During years before the 2015/16 fishing year, less than 100 percent of the TAC was harvested some years in the EBT, WBT, WAG, and SMB fisheries.

13.2.3 Management Problems (NMFS)

Legacy computer systems used by RAM in administering the CR Program have technical limitations and an aging technology backbone. NMFS is actively developing a new and more advanced fisheries management and permitting application that will offer an opportunity to reinvent solutions to known issues and improve many of RAM's annual permitting processes. However, this project is still in development and will take many years to reach fruition.

Industry participants are increasingly requesting more online options to track application status and participation requirements for IFQ and IPQ. RAM has provided more options for the online submission of applications and forms to expedite the permitting and reporting process to create benefits from both an administrative and applicant perspective. Currently, many applications are still submitted by mail or fax, which can slow down application processing.

CVC and CPC Shares may be stranded when participation requirements are not met and the Regional Administrator withholds or revokes C shares held by an individual. Revocations or withholdings of C shares may result in some IFQ being stranded for the entire season. In recent years, Industry has requested NMFS to "top up" stranded IFQ from administrative withholdings or revocations after an annual season's issuance of IFQ to the remainder of qualified fishery participants for that fishing year. There are currently no administrative procedures or technical capability to redistribute stranded IFQ to other C shareholders in good standing.

The crab fishing year is defined within federal regulations as the period from July 1 of one calendar year through June 30 of the following calendar year and the BSAI Crab FMP authorizes the State to make in-season adjustments to TACs and fishing period lengths within those dates. If the season is set to begin before payment of cost recovery is due on July 31, this discrepancy could cause administrative difficulties with preseason IFQ issuance. If the season extends up to or past the RCR ex-vessel volume and value report due date on May 31, the timely release of IFQ for the WAG/EAG season beginning in August would be impacted. Agency staff are required to find and contact individual QS holders and acquire all relevant information and bill payments before any Crab IFQ can be issued.

State regulations for Tanner crab species taken in the Bering Sea allow vessels 24 to 72 hours to land crab after the season closure under certain conditions. BSS deliveries occurred in early June for the 2020/21 and 2021/22 seasons due to some vessels fishing up to and delivering past the state regulatory closure of May 31. The reporting date (May 31) for volume and value reports was implemented through amendment 31 in 2015 to ensure individuals holding C shares are active in the CR Program fisheries and to ensure that the application deadlines provide adequate time to resolve disputes. While this issue has only

occurred in this one fishery thus far, more flexibility in volume and value report due dates could alleviate administrative issues caused by vessel deliveries past May 31.

If the State sets the opening date of the AIG fishery on or before cost recovery fee payments are due on July 31, IFQ issuance would be delayed. IFQ can only be issued after all involved QS holders have paid all associated cost recovery fees. The BOF has previously considered a proposal to set fishing season dates for AIG to span two federal crab fishing years from March 1 to October 31, which would further create administrative challenges for NMFS in issuing timely IFQ. The proposal was not passed, but the underlying problem of prohibitive operating costs for processing plants during the traditionally slow periods in November, December, and January. NMFS uses the months of June or July to calculate and determine cost recovery. Regulatory clarification and coordination with the BOF may be needed to address these challenges in the future.

Processors submit both landing reports and IFQ reports simultaneously through the eLandings Electronic Reporting System (eLandings). Occasionally, errors are observed after report submittal regarding entered weight, area fished, or the RCR number. The individual who submitted the reports can then go back and correct the landing report in eLandings but is unable to edit or correct an erroneous IFQ report due to current eLandings system constraints. To correct the IFQ report, the individual must contact OLE for approval to manually correct the document. Because landing reports are simpler for submitters to correct than IFQ reports, an individual may correct one of the reports but fail to correct the other, which occasionally results in a mismatch between the final landing report and IFQ report. An update to the eLandings program where submitters could send a request and rationale to OLE and apply the correction online could perhaps ease the administrative burden, if implemented in the future.

Federal regulation allows vessels to fish for multiple crab species during the same trip within the CR Program if IFQ is available for both species, and both species are deducted from the appropriate IFQ permits (and IPQ permit if A share). In contrast, state regulation allows vessels to retain certain percentages of Tanner crab (C. bairdi) or snow crab (C. opilio) as incidental harvest during select targeted crab fisheries in the Bering Sea, regardless of IFQ holdings for incidentally harvested and retained species (5 AAC 35.506). Vessels are required to report retained incidental catch of crab on ADF&G fish tickets, but if the vessel does not possess IFQ for that species then the retained incidental catch is not reported because there is no IFQ permit for them to debit. If a vessel does not have IFQ for the incidental crab species, then it is not permitted under federal regulation to retain those species which creates a conflict between State and federal regulation. While eLandings data is used for overall ACL reporting, if these incidental catch landings are not reported via an IFQ permit, then there are no cost recovery calculations for that catch and those crab are unaccounted for, potentially raising issues for how the CR Program is designed to work. The CR Program could benefit from federal and state regulation alignment regarding future incidental catch landings.

Participation requirements serve to keep a portion of crab QS allocated to active fishery participants and provide opportunities for new entrants into the fishery. However, submitted participation evidence can be difficult to verify, assess, and track over time due to administrative backlogs, as this data must be manually tracked over time by the Agency. Amendment 54 was proposed to address constrained opportunities to meet the participation requirements, provide additional flexibility to existing C shareholders, and continue to ensure that C shares are held by active fishery participants. Changes to the annual crab IFQ application form through Amendment 54 implementation will improve tracking ability, but application administration may remain burdensome due to manual review and verification by RAM

13.3 [Reduce] Bycatch and its' Associated Mortalities, and Potential Landing Deadloss

National Standard 9 in the MSA states that conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

New discard systems on some vessels and a slower fishery have contributed to improved deck sorting methods to mitigate handling mortality. Other conservation issues included in the paper are also considered.

- There is a distinct increase in the average duration of pot soak time and CPUE after the implementation of the CR Program. While data may suggest a correlation between extended soak times and legal male catch as a proportion of total catch for some stocks, Table 4-3 through Table 4-8 indicate that discard rates under the program remain within the range of historic levels for most stocks.

- The CR Program management regime has created additional opportunities to high-grade, given the slower pace of fishing and the prescribed pounds of IFQ able to be harvested. High-grading results from the economic incentive to retain crab that generate the most revenue since each pound is deducted from a person's allocation. To discourage high-grading, ADF&G has reduced the TAC to account for discards of legal males.

- Deadloss has been reduced slightly in the BSS fishery under the CR Program when compared to years before implementation. No significant changes have been apparent in other CR Program fisheries.

13.4 [Reduce] Excess Harvesting and Processing Capacity, as Well as [Discouraging a System that Promotes] Low Economic Returns

Excess harvesting capacity was evident in the pre-CR Program fisheries as shown by the large number of vessels participating and the short seasons before the allowable catch was harvested. Table 6-9 shows substantial decline (80 percent) in active vessels from the year before the program was implemented (2004) to the most current year of data (2022) and decrease in active vessels since the last review in 2016 to 2022 (38 percent). The recent declines occurred primarily in the BBR, BSS, and WBT fisheries that experienced substantial TAC declines after 2015. The change in number of active vessels indicates crab harvesters can scale annual harvest capacity to the TAC under the CR Program. Reductions in the number of processors have also occurred. Section 8.2.7 provides data on changes in the active participation by the processing sector. Custom processing arrangements often make it difficult to clearly describe the changes in active processing. However, the reduction in active processors has been noted as a concern by some harvesters and associated communities. The reduction of processing plants can limit the market opportunities and competition that can be beneficial for harvesters that must share match A class IFQ. In addition, communities have been and could continue to be impacted by reductions in processing capacity through the regional employment, spending and tax revenue that operations have provided in the past. While custom processing arrangements may help resolve certain issues and the recent Council amendments to exclude custom processing from the calculation of processing caps helps, there remains uncertainty regarding the future size and structure of the processing sector under small TACs.

Consolidation of QS/PQS is more difficult to understand, as data on the number of QS/PQS holders and transfer of QS/PQS are complicated by the holder's business structures. The program includes QS and PQS use caps, which means that it was also intended that there would be limits on the amount of consolidation of holding shares. This concept, which inherently conflicts with the idea of reducing capacity, clearly demonstrate a desire to balance the production efficiency that could be gained through the types of cooperation and consolidation that the CR Program allows, with the types of social and economic benefits that come from having a larger and more diverse group of stakeholders participating in a fishery. Two examples of trying to balance these goals are exempting vessels from use caps when operating in a cooperative and not counting custom processing towards a processor use cap. In both cases, a cap was established to limit consolidation of quota, but provisions exempted certain types of activities from the caps when using the quota for efficiency reasons under changing fishery conditions.

Current conditions in the fishery have prompted more concerns about too little processing capacity rather than concerns about too much processing capacity. Processors have noted the high variable costs of gearing up their plants to process crab under small TACs relative to the expected returns given world market conditions. To the extent that processors are unable to cover variable costs it could create conditions where they may not apply for their annual allocation of quota. If these situations were to occur, the Council may need to consider alternatives for the share matching required for class A CVO shares as well as broader issues of how the CR Program could be restructured.

Comparing initial allocation of shareholdings with current owner QS holdings does not demonstrate a clear trend in a change in the number of owner QS holders or in median owner QS holdings. Patterns in QS transfers are difficult to understand given the structure of entities involved in the CR Program. However, looking deeper into the composition of QS ownership demonstrates that there has been an increase in crab QS held by CDQ and Non-profit groups as well as trust/estate entities and a decrease in QS equity held by individuals and non-divisible corporate entities (Table 6-8) Consolidation of owner shares may also be slowed because of the opportunities to lease IFQ. There are incentives to hold the quota and lease the annual allocation as this allows a person to divest from vessel ownership and the associated expenses, avoid large capital gains taxes, and continue to realize annual returns from the asset, if the fishery is open to directed fishing. Owner quota share sales have also slowed in recent years because of the uncertainty surrounding the fishery. QS owners do not want to sell shares at a discount and buyers are weary of overpaying. Stability in the fishery for consecutive years could send more obvious signals and strengthen the QS market.

Class C QS demonstrates a clearer trend of consolidation due to the requirement for individual use and the additional active participation requirements. One issue the data does not address well is the limited pool of available C share buyers in the market and how that has created weak demand for C shares. Like with the owner share market, uncertainty has hampered new entry because under current conditions repayment of loans to buy quota is not viable when the quota is either not currently generating a revenue stream or is generating a revenue stream that is less than other potential investments that have less risk. The active participation requirements and fishery uncertainty have constricted the pool of potential buyers.

13.5 [Promote] Economic Stability for Harvesters, Processors and Coastal Communities

13.5.1 Harvester and Processor Stability

Current fishery conditions make assessing the CR Program's impact on harvesting and processing sector stability challenging. While these conditions create uncertainty (e.g. TAC, prices, wholesale markets, costs, etc.) the program's design helps create a certain degree of stability and predictability for fishing operations.

For harvesters, cooperatives, quota allocations, extended seasons, binding arbitration, and transfer provisions have promoted some stability despite the challenges imposed by external forces. The Arbitration System, particularly share matching and the use of the lengthy season approach, allows harvesters to establish delivery arrangements in a timely manner and plan their seasons with more certainty. The system puts less pressure on pre-negotiation price and other terms of delivery, with an understanding that a binding arbitration opportunity could be triggered by CVO Class A shareholders. For processors, processing privileges (PQS), leasing/custom processing, and modification of processing caps have helped promote stability. Whether the CR Program can provide sufficient levels of stability, during highly uncertain times, for participants to remain in the fishery is open to debate. In particular, processor diversification and the status of other valuable species is important in a processor's ability to remain viable when crab TACs are low and markets are unstable.

13.5.2 Coastal Communities Stability

The CR Program included three main provisions to promote community stability. First it increased the CDQ allocation of CR Program fisheries from 7.5 percent to 10 percent of the available TAC. Adak was also granted an allocation of crab to provide direct economic benefits to the community with the objective of promoting economic stability. The ROFR was designed to ensure that communities were included in the discussion when PQS linked to their community was being transferred to a new entity. Regional designations assigned to certain quota limited its ability to be used outside a region. This provision was explicitly included in the program to protect communities in specific areas that may be at an operational disadvantage to communities in other regions.

The increase of CDQ program allocations from 7.5 percent to 10 percent of the TAC and the waiver of sea time eligibility requirements for the purchase of owner QS for CDQ groups have been successful in markedly increasing in engagement in the CR Program fisheries through expansion of CDQ ownership of CVO and CPO shares. In addition to increasing existing CDQ interests in these fisheries, these program features have also led to the acquisition Tribal ownership interest in LLCs that, in turn, own QS, which first occurred in 2021.

A North region QS designation for the EAG, BBR, BSS, PIK, and SMB crab fisheries was designed to help keep shore-based processing activity occurring in St. Paul and St. George. The North region program element has helped to ensure sustained participation of the community of St. Paul in the fishery through processing CR Program crab at the shore-based processing facility in that community or floating processing capacity outside of St. Paul's harbor. It has also helped to provide a market for local small boat halibut fleets in both St. Paul and St. George until recently when this support was curtailed by a combination of Covid pandemic conditions and subsequent BSS fishery closure. The economic activity fostered by the local shore-based processor and the vessels that deliver to the processor has also served to generate support service activity and harbor infrastructure development in the community that has had

resulted in a range of community and social benefits for St. Paul. St. George has not directly benefitted from processing CR Program crab since it was implemented.

The creation of a West region for WAG QS designations was designed to help keep shore-based processing activity occurring in Adak and Atka. Since the implementation of the CR Program, shore-based processing of WAG has occurred in Adak but not Atka. In Adak the West region program element has been less successful in helping to foster sustained participation of the community than the North region QS designation for St. Paul. Multiple factors have contributed to this outcome, including the intermittent operation of Adak processing and the problems with more fully utilizing the plant to process other species allocated to the community. Adak's success has also been hampered by a succession of processing firms being unable to profitably operate the plant. All these factors are largely external to the CR Program.

The northern Gulf of Alaska region community protection "sweep up" feature was designed to protect Kodiak Island communities. This is a ROFR element specific to the sale of PQS whose qualifying history occurred within the northern region of the Gulf of Alaska. Since implementation of the BSAI CR Program there have been several instances of PQS moving among Eligible Crab Communities, but there are no known cases of holders of the ROFR exercising their right to purchase quota shares specifically following the formal procedures established under the CR Program. However, in three quota transfers that involved Eligible Crab Community Entities, they credit the fact that ROFRs existed as a positive influence on their ability to reach PQS acquisition agreements.

While the CR Program ROFR element has functioned to help keep PQS in the community where its qualifying history was earned, this has not happened in all cases. In St. George, False Pass, and Port Moller, all CR Program PQS qualifying history was earned on floating processors rather than in shore-based processing plants. Processing of BSAI crab has not occurred in any of these communities since the implementation of the CR Program.

One challenge reported by the Eligible Crab Community Entities that hold ROFR contracts is that the contracts typically include, in addition to processing shares, other goods/assets. To date, no Eligible Crab Community Entity has indicated they have the capacity to acquire not only processing shares, but also the processing operation goods/assets that are typically part of such agreements and to take over operational responsibility for those goods/assets.

13.6 [Eradicate] the High Levels of Occupational Loss of Life and Injury

During the 1990's, the BSAI crab fleet was identified as the most hazardous commercial fishery in the United States (Lincoln et al., 2013). During that decade, 73 BSAI crab fishery crewmembers died because of vessel disasters, falls overboard, or on-board injuries (Lincoln et al., 2013). Although safety regulations in place at that time required vessels to carry lifesaving equipment, such as immersion suits and life rafts, the regulations did not address the problem of overloading vessels with crab pots, a major cause of vessel disasters and deaths. Safety regulations were strengthened by the Coast Guard in 1999 with the introduction of the "At-the-Dock Stability and Safety Compliance Check" program, in which Coast Guard personnel checked crab vessels in Dutch Harbor before departure to ensure that each was loaded in compliance with their stability instructions. The introduction of the At-the-Dock Stability and Safety Compliance Check program, along with other factors such as changes in safety culture, the number and rate of fatalities in the fleet decreased during the period 1999-2012 (Lincoln et al., 2013; Woodley et al., 2009).

The CR Program is credited with improving safety by extending the fishing seasons, incentivizing smaller pot loads, and allowing for a more experienced and potentially less fatigued crew (Woodley et al., 2009). Changes associated with a consolidation of the fishing fleet, from an average of 243 vessels during 2001–2004 to typically less than 80 vessels may also contribute to improved safety. Overall, the CR Program and other safety regulations have resulted in no reported loss of life when vessels were participating in the BSAI crab fisheries from 2016 through 2023.

13.7 Address the Social and Economic Concerns of Communities

The increased allocation to the CDQ groups has helped those groups both in providing direct benefits to communities they represent as well as additional revenue to support crab and other fishery investments. Expanding ownership in the CR Program is evident based on the number of QS and PQS held by CDQ groups and tribal entities when comparing the initial allocations to the current holdings.

The ROFR provisions have not been triggered in any quota transfers, but they have been credited with facilitating transfers that did occur. This has benefited some but not all communities in a region. NMFS and the Council have attempted to address some of the technical challenges of the ROFR provisions. For example, developing a better system for notifying ROFR holders when the ROFR was triggered and better way for NMFS to track the use and transfer of IPQ subject to the right were addressed in Amendment 44.

Overall, increasing processing costs, multi-species declines, challenging market conditions, and other factors have led to substantial challenges to community stability. The loss of a processing facility in a community has repercussions for residents, including those individuals not directly involved in CR Program crab fisheries. Support industries for the processing and harvesting sectors directly benefit communities by supplying support services that may not be economically viable without fishing and processing activities in the community.

13.8 Promote Efficiency in the Harvesting Sector

Technical efficiency in harvest sector is a measure of how well a vessel can produce the maximum output given input levels and technology. It can also measure how well a unit can use as few inputs as possible to produce a given output level. Before the implementation of the CR Program, revenue maximization before the fishery was closed was driven by how fast a vessel could harvest crab. The more crab a vessel could harvest, the greater the revenue generated. To increase harvest, vessel operators would purchase inputs beyond what was needed for the harvest sector to maximize its technical efficiency. For example, increasing the vessel's horsepower, number of pots fished, tank capacity, as well as other factors of production could increase a vessel's harvest capacity. Implementation of the CR Program changed the incentives to increase technical efficiency. Cooperatives were formed that allowed the harvest capacity to be reduced to better match the TAC available. Quota holders would assign their IFQ to cooperatives. Within the cooperative structure IFQ could be easily transferred between members. These transfers reduced the number of vessels needed and allowed the most efficient vessels to harvest the allocation and provided the ability to harvest shares with specific regional or class designations in a manner that reduced costs. For example, if a cooperative was allocated shares with a North or South designation the cooperative members could determine which vessels in the cooperative would harvest the North shares. Without that ability to transfer shares within the cooperative structure it could be extremely inefficient for vessel operators with small amounts of quota in a region to harvest those shares and it may lead to increased amounts of unharvested quota. Given that the TAC is fully harvested every year for BBR and

BSS, it is an indication that the cooperative structure and transfer rules developed under the program are effective.

While the CR Program is designed to encourage technical efficiency, factors outside the control of the CR Program impact whether a firm can be profitable under the program. It may be the case that a firm was more profitable before the CR Program was implemented but more technically efficient under the CR Program. Reasons for this outcome are the amount of TAC available, currency markets, and world markets for crab as discussed in Section 3.

13.9 [Promote] Equity Between the Harvesting and Processing Sectors, Including Healthy, Stable, and Competitive Markets

Equity between the harvesting and processing sectors was and continues to be an important issue within the program for participants in both sectors. Three of the primary components of the program that were implemented to address these issues were the issuance of processing shares, share matching, and binding arbitration. Processing shares were established based on experience with other catch share programs (e.g., halibut and sablefish IFQ) where processors felt harvesters gained a competitive advantage and direction from Congress. The share matching and binding arbitration components of the program were designed to foster communication between the sectors and if an agreement could not be reached to allow a third party to resolve the dispute. The terms of the share matching and arbitration process have never been fully embraced by both parties. Harvesters, in general, support the binding arbitration program. Processors have tended to express more concerns over how the program functions because the harvesters have typically prevailed in arbitration proceedings (Table 7-6). Delving into why specific outcomes were arrived at in past arbitrations is beyond the scope of this review.

The cost of operating the arbitration program is equally divided between the harvest and processing sectors. Over the past 7 years, since the last program review, the annual cost of the arbitration program requirements was about $110k. The cost of the arbitration system was raised as an issue of concern, especially since the costs must be incurred whether any arbitration is triggered during the year.

13.9.1 Barriers to Entry

Allocating harvesting and processing privileges creates a barrier to entry for persons that did not receive an initial allocation. Persons whose initial allocation was too small to efficiently harvest were provided the opportunity to join a cooperative and lease their allocation. Persons wanting to fish or process CR Program crab must acquire quota, usually at a substantial cost. Purchasing quota creates a financial risk, especially when TACs fluctuate dramatically. As described in Section 6.3, the BSS quota prices were high during 2021, but lower TAC and closed seasons have negatively impacted some buyer's ability to cover the debt service costs. Data shows lower transfer rates of both owner QS and C shares in recent years. C shares were included in the program to provide protection for crew and create ownership opportunities. The current weak market for these shares is driven by the decreased number of crew positions. There are fewer vessels fishing, making it difficult to meet the active participation requirements. In addition, there is a smaller pool of individuals able to receive a transfer of C shares, which requires recent participation as crew in at least one delivery of crab in a CR crab fishery in the 365 days before submission of the application Low TACs and overall uncertainty in the fishery have limited the ability/willingness of crew to access capital, while being fiscally prudent, to purchase C shares.

While cooperative members have implemented voluntary limits on lease rates, they remain a substantial cost to persons wanting to enter the fishery or increase the amount of crab they harvest. Depending on the fishery, lease rates typically run between 50 percent and 65 percent of the ex-vessel value of landings.

13.10 Crew Compensation

Changes in crew compensation in the BBR fishery declined in recent years both in terms of total payments and median shares paid to captains and crew (Section 6.8). Decreased demand for crew (fewer crew positions available) and increases in quota leasing may have played a role in the decline. Lease costs are typically deducted from gross revenue before calculating crew shares. Crew compensation in other fisheries has remained relatively stable except for the increases in the AIG crew per day rate before 2022. AIG crew pay per day in 2022 was lowest in all fisheries over the 2018 through 2022 period (Table 6-13). Changes in crew pay per day trends appear to follow ex-vessel price trends.

13.11 Lease Rates

In response to Council concerns about high lease rates, some harvest cooperatives request that their members voluntarily cap their lease rate at 65 percent of the adjusted gross revenues for BBR IFQ, and 50 percent of the adjusted gross revenues for BSS IFQ. Discussion with informed industry sources indicate that WBT lease rates have increased in recent years and are currently about the same rate as BBR crab. Industry sources have indicated that entities that charge lease rates above ensure the excess charge is not deducted from crew compensation.

This review does not analyze the direct effectiveness of the voluntary limit. However, data indicates that cooperative members, in general, have complied with the request.

13.12 Consolidation of Processing

Costs associated with processing crab, current world market conditions impact on first wholesale prices, and low TACs/closed seasons for major crab fisheries in addition to declines in other species have led to continued decline in the number of plants processing CR Program crab. Profitability remains a concern of active processors that have realized increasing costs and reduced revenue. CR Program amendments exempting custom processing from the processing use caps have provided some relief by reducing the number of plants that are required to process smaller TACs.

Limited available processors create several concerns from harvesters and associated communities. With limited unaffiliated processing plants, there is limited competition among processors, which may allow the remaining processors more leverage in price and terms of delivery (within arbitration constraints). It provides less flexibility for harvesters should the active processors be unavailable or at capacity at the time of delivery. Additionally, as occurred under recent events, some harvesters have expressed frustration with the requirements to share match with a processor, even if there is concern about the financial stability of an operation.

Costs associated with processing crab, current world market conditions impact on first wholesale prices, and low TACs/closed seasons for major crab fisheries in addition to declines in other species have led to continued decline in the number of plants processing CR Program crab. Profitability remains a concern of active processors that have realized increasing costs and reduced revenue. The plants that have left the fishery represent the owner leaving the fishery (or processing altogether) or consolidation of processing into fewer plants owned by the same firm. CR Program amendments exempting custom processing from the processing use caps have provided some relief by reducing the number of plants that are required to process smaller TACs while remaining under the use caps.

Limited available processors create several concerns from harvesters and associated communities. With limited unaffiliated processing plants, there is less competition among processors, which may allow the

remaining processors to offer lower prices and get better terms of delivery (within arbitration constraints). It provides less flexibility for harvesters should the active processors be unavailable or at capacity at the time of delivery. Additionally, as occurred under recent events, some harvesters have expressed frustration with the requirements to share match with a processor, even if there is concern about the financial stability of an operation.

The loss of a processing facility in a community has repercussions for residents, including those individuals not directly involved in CR Program crab fisheries. Support industries for the processing and harvesting sectors directly benefit communities by supplying services that may not be economically viable otherwise. Those services could be provided directly by the processor (e.g., fuel storage) or by companies not directly affiliated, but reliant upon the processor to operate a viable business.

The loss of a processor in a community may not impact tax revenues within a region because of regionalization of processing shares, but movement of processing within the region can impact landings tax revenues of individual communities. Because of the flexibility to move processing within freely within the region in the case of intra-company movements, not all communities benefited equally from the protections provided under the CR Program as processing consolidated.

14 LIST OF PREPARERS, CONTRIBUTORS and PERSONS CONSULTED

Preparers:

Darrell Brannan, Brannan & Associates LLC

Karla Bush, ADF&G

Mike Downs, PhD, Wislow Research Associates LLC

Michael Fey, AKFIN

Sarah Marrinan, NPFMC Staff

Calab Taylor, NOAA NMFS AKRO SFD

Contributors:

Brian Brown, NOAA NMFS AKRO RAM

Samantha Case, NIOSH

Ben Daly, ADF&G

Brian Garber-Yonts, NMFS AKFSC

Kendall Henry, ADF&G

Tyler Jackson, ADF&G

Krista Milani, NOAA NMFS AKRO SFD

Alicia Miller, NOAA NMFS AKRO SFD

Ethan Nichols, ADF&G

Katie Palof, ADF&G

Janis Shaishnikoff, ADF&G

Charmaine Weeks, NOAA NMFS AKRO OMD

Dana Whiteley, NOAA NMFS AKRO OMD

Bo Whiteside, ADF&G

Persons Consulted

Angel Drobnica, APICDA

Tom Enlow, Unisea Inc.

Mark Fina, Silver Bay Seafoods

Dave Fraser, Adak Community Development Association

Linda Freed, Kodiak Fishery Development Association

Jamie Goen, Alaska Bering Sea Crabbers

Daniel Hauser, NOAA OLE

Gretchen Herrington, NOAA NMFS AKRO SFD

John L. Iani, Perkins Coie

Jake Jacobsen, ICE Crab Cooperative

Jeff Kauffman, CBSFA

Frank Kelty, Independent Consultant

Nicole Kimball, PSPA

Simon Kinneen, NSEDC

Sherri McCann, NMFS

Phillip Null, NOAA OLE

Andrew Olson, NOAA NMFS AKRO SFD

Mateo Paz-Soldan, MPStrategies LLC

Edward Poulsen, Dog Boat Cooperative

Landry Price, YDFDA

Steven Ricci, BBEDC

Joe Sullivan, Joe Sullivan Law Office PLLC

Henry Tashjian, NOAA GC

Ernie Weiss, Aleutians East Borough

Paul Wilkins, CVRF

15 REFERENCES

Abbott, J.K., B. Garber-Yonts, and J.E. Wilen. 2010. Employment and remuneration effects of IFQs in the Bering Sea/ Aleutian Islands crab fisheries. Marine Resource Economics; 25(4), 333-354.

Barnard, D. R., and D. Pengilly. 2006. Estimates of red king crab bycatch during the 2005/2006 Bristol Bay king crab fishery with comparisons to the 1999-2004 seasons. Alaska Department of Fish and Game, Fishery Data Series No. 06-23, Anchorage.

Chilton, E.A., D. Urban, E. Krygier, A.W. Stoner. 2011. Reduction of bycatch mortality for non-target crab species in the commercial snow crab (Chionoecetes opilio) fishery. North Pacific Research Board Final Report 917, 16 p.

Garber-Yonts, B. and J. Lee. 2021. Stock assessment and fishery evaluation report for the king and Tanner crab fisheries of the Bering Sea/Aleutian Islands area: Economic status of the BSAI king and tanner crab fisheries off Alaska, 2019. Anchorage, AK: North Pacific Fishery Management Council.

Lincoln, J. M., O'Connor, M. B., Retzer, K. D., Hill, R. D., Teske, T. D., Woodward, C. C., . . . Conway, G. A. (2013). Occupational fatalities in Alaska: two decades of progress, 1990-1999 and 2000-2009. J Safety Res, 44, 105-110.

Kruse, G. H. and A. Kimker. 1993. Degradable escape mechanisms for pot gear: a summary report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 5J93-01, Juneau.

National Marine Fisheries Service [NMFS]/ North Pacific Fishery Management Council [NPFMC]. 2004. Bering Sea Aleutian Islands Crab Fisheries Final Environmental Impact Statement. National Marine Fisheries Service, Juneau, Alaska, August 2004. Available at: http://alaskafisheries.noaa.gov/sites/default/files/analyses/crabeis0804-chapters.pdf

North Pacific Fishery Management Council (NPFMC). 2007. 18-month Bering Sea and Aleutian Islands crab management. Anchorage, Alaska, March 2007.

NPFMC. 2008a. Gulf of Alaska rockfish pilot program review. Anchorage, Alaska, May 2008.

NPFMC. 2008b. Three- year review of the crab rationalization management program for Bering Sea and Aleutian Islands crab fisheries. Anchorage, Alaska, November 2008. Available at: http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/3yearreview1208.pdf

NPFMC. 2010. Five-year review of the crab rationalization management program for Bering Sea and Aleutian Islands crab fisheries. Anchorage, Alaska, December 2010. Available at: http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/5YearRev1210.pdf

NPFMC. 2012. Cooperative measures to address active participation and crew issues. Discussion paper for North Pacific Fishery Management Council. Anchorage, Alaska, October 2012. Available at: http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/CrabCoop1012.pdf

NPFMC. 2015a. Final Regulatory Impact Review and Initial Regulatory Flexibility Analysis for Amendment 31 to the Fishery Management Plan for Bering Seas and Aleutian Islands king and Tanner crabs: Active participation requirements for the acquisition and use of C shares. Anchorage, Alaska, March 2015. Available at: https://alaskafisheries.noaa.gov/sites/default/files/analyses/ktc31ririrfa0315.pdf

NPFMC. 2015b. Stock Assessment and Fishery Evaluation (SAFE) Report for the king and Tanner crab fisheries of the Bering Sea and Aleutian Islands Region, Complied by the Plan Team for the king and Tanner crab fisheries of the Bering Sea and Aleutian Islands. Anchorage, Alaska, September 2015. Available at: http://npfmc.legistar.com/gateway.aspx?M=F&ID=1c4ec7ac-2ef6-49db-aac1-387f25ded6e6.pdf

NPFMC. 2017. Consideration of Operational Costs in the Crab Arbitration System. Anchorage, Alaska, April 2017. Available at: https://meetings.npfmc.org/CommentReview/DownloadFile?p=5c143308-0c47-4514-a913-e61256c9fe3.pdf&fileName=D1%20Crab%20Binding%20Arbitration%20Discussion%20Paper.pdf

NPFMC. 2023. Stock Assessment and Fishery Evaluation (SAFE) Report for the king and Tanner crab fisheries of the Bering Sea and Aleutian Islands Region, Complied by the Plan Team for the king and Tanner crab fisheries of the Bering Sea and Aleutian Islands. Anchorage, Alaska, September 2023.

Szuwalski, C.S., K. Aydin, E. J. Fedewa, B. Garber-Yonts, and M. A. Litzow. 2023. The collapse of eastern Bering Sea snow crab. 382(6668). Available at: https://doi.org/10.1126/science.adf6035

Woodley, C. J., Lincoln, J. M., & Medlicott, C. J. (2009). Improving Commercial Fishing Safety Through Collaboration. Proceedings of the Marine Safety and Security Council, 66, 38-46.

Woodley, C. J., & Medlicott, C. J. (2001). A Review of an “At the Dock” Stability & Pot Loading Survey. Proceedings of the Marine Safety Council, 58(2), 40-43.

Zacher, L. S., J. I Richar, E. J. Fedewa, E. R. Ryznar, and M. A. Litzow. 2024. The 2023 eastern and northern Bering Sea continental shelf trawl surveys: Results for commercial crab species. Available at: https://doi.org/10.25923/c5j1-4r46