

PUBLIC REVIEW DRAFT

Regulatory Impact Review for Proposed Amendment to the Fishery Management Plan for Bering Sea/Aleutian Islands and Gulf of Alaska Management Areas

Full Retention of Rockfish for Fixed Gear Catcher Vessels

January 14, 2019

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Abstract: This document analyzes proposed management measures that would amend the Bering Sea/Aleutian Islands Fishery Management Plan to require full retention of all rockfish species for fixed gear catcher vessels in the Bering Sea/Aleutian Islands and Gulf of Alaska. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status while still prohibiting these retained rockfish from entering commerce.

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List of Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
ABC	acceptable biological catch
ACL	annual catch limits
ADF&G	Alaska Department of Fish and Game
AKFIN	Alaska Fisheries Information Network
AI	Aleutian Islands
BS	Bering Sea
BSAI	Bering Sea and Aleutian Islands
CAS	Catch Accounting System
Council	North Pacific Fishery Management Council
CV	catcher vessel
DSR	Demersal Shelf Rockfish
E.O.	Executive Order
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	essential fish habitat
EIS	Environmental Impact Statement
EM	Electronic monitoring
ESA	Endangered Species Act
ESU	endangered species unit
FMP	fishery management plan
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
FRFA	Final Regulatory Flexibility Analysis
ft	foot or feet
GOA	Gulf of Alaska
ICA	Incidental catch allowance
IFQ	Individual fishing quota
IPHC	International Pacific Halibut Act
IRFA	Initial Regulatory Flexibility Analysis
IR/IU	Improved retention/improved utilization
lb(s)	pound(s)
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MCA	Maximum commerce allowance
MMPA	Marine Mammal Protection Act
MRA	Maximum retainable allowance
mt	Metric ton
t	tonne, or metric ton
NAICS	North American Industry Classification System
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fishery Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council

Acronym or Abbreviation	Meaning
Observer Program	North Pacific Groundfish and Halibut Observer Program
OLE	Office of Law Enforcement
OMB	Office of Management and Budget
POP	Pacific ocean perch
PSC	prohibited species catch
PPA	Preliminary preferred alternative
PRA	Paperwork Reduction Act
PWS	Prince William Sound
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
RSW	Refrigerated sea water
SAFE	Stock Assessment and Fishery Evaluation
SBA	Small Business Act
Secretary	Secretary of Commerce
SEO	Southeast outside
TAC	total allowable catch
U.S.	United States
USCG	United States Coast Guard

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Executive Summary

This document analyzes proposed management measures that would amend the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) Fishery Management Plan (FMP) to require full retention of all rockfish species for fixed gear catcher vessels (CVs) in the BSAI and GOA. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce. The purpose of this proposed action is to improve the identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State of Alaska and Federal fisheries.

Purpose and Need

During the December 2017 meeting, the Council developed the following purpose and need statement:

Fixed-gear CVs in the BSAI and GOA discard much of their incidental catch of rockfish (Sebastes and Sebastolobus spp.). The greatest amount of discarded rockfish occurs in the GOA hook-and-line fisheries. Requiring the full retention of rockfish could: benefit vessel operators by improving identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State of Alaska and Federal fisheries.

Updates to the Document Since Initial Review (June 2018)

- Addition of two new options under Alternatives 2 and 3 and the Council's selection of Alternative 2 and Options 1 and 2 as the Preliminary Preferred Alternative (PPA) (Section 2.4)
- Based on Scientific and Statistical Committee (SSC) input, revisions to distinguish vessel impacts from processor impacts to better describe the beneficial and adverse impacts of the proposed FMP amendment that can be attributed to varying vessel characteristics (e.g., vessel length, hold capacity) or operational characteristics (e.g., area fished, average trip length) (Section 2.7.2)
- Based on SSC input, an evaluation of the 27% of fish that are currently being discarded by fishery, region, and species, along with the presumptive reason for the discard (Section 2.7.1.4)
- Based on SSC input, revised the effects on communities to include a more robust analysis of community fleets (locally owned vessels) and associated operational characteristics to determine the pattern of beneficial and adverse impacts across communities (Section 2.7.2.3)
- Based on SSC input, additional information in the effects on GOA Rockfish Stock Assessments to reflect that the reduction in uncertainty is unlikely to lead to changes in policies and benefit from the action from reduced uncertainty would be minimal (Section 2.7.2.9)

Alternatives

Alternative 1: No Action (status quo) – Most rockfish species are not required to be retained. Rockfish species not open to directed fishing would continue to be managed by maximum retainable amount (MRA) limits. Once a total allowable catch (TAC) limit is reached, NMFS places that rockfish species on prohibited species status and prohibits retention.

Alternative 2 (Preliminary Preferred Alternative): Require full retention of rockfish species by all fixed gear CVs (hook-and-line, pot, and jig) in the BSAI and GOA.

Alternative 3: Require full retention of rockfish species by hook-and-line CVs in the GOA.

Option 1 under Alternatives 2 and 3 (Preliminary Preferred Alternative): Require full retention of rockfish even if the species is on prohibited species status (PSC) but prohibit these retained rockfish from entering commerce.

Option 2 under Alternatives 2 and 3 (Preliminary Preferred Alternative): Establish a maximum commerce allowance (MCA) of 10% or 15%.

Regulatory Impact Review

Alternative 1

In general, under Alternative 1, absent significant changes in harvest limits or market conditions, fishing activity for the different fixed gear CV groups will likely continue at current levels. Increases in harvest limits or increases in exvessel price could result in more fixed gear CVs participating, while declines in the harvest limits or exvessel prices could reduce the number of fixed gear CVs participating in the directed fisheries.

It is likely that the amount of incidental catch of the different rockfish species/species groups in the BSAI and GOA would likely continue at current levels. It is possible that incidental catch of rockfish species/species groups could increase or decrease with changes in directed fishery harvest limits or market conditions. In addition, changes in market conditions for rockfish species could also influence incidental catch of rockfish by the fixed gear CV fleets.

In most hook-and-line CV fisheries, more rockfish are retained than are discarded. Likely, this trend would continue under this alternative.

Alternatives 2 and 3

Impacts to vessels

A full retention requirement for fixed-gear CVs could have operational implications for vessel operators, which may impose operational compromises and economic costs. For those vessels with limited hold space, the additional rockfish retained could displace fish of higher value, thereby decreasing per trip revenues. Damaging of more valuable species, such as individual fishing quota (IFQ) sablefish, by mixing rockfish in the hold may be a problem for many vessels. Storage in refrigerated sea water (RSW) tanks may also lead to abrasion between the rockfish and other more valuable species and rockfish themselves may lose quality when they are stored in RSW tanks.

If large amounts rockfish are encountered, the retention of rockfish may require vessel operators to end trips when the storage space is full, which increase vessel operating costs and, in some stances, change delivery patterns. There is the potential that the action alternatives could disincentivize some vessel operators from making landings to their homeports due to the distance from the fishing grounds and instead delivery to ports that are closer to the fishing grounds in order to sell higher quality rockfish. This factor may also incentivize avoidance of rockfish, which may reduce rockfish catch.

Finally, faced with the costs of storage, handling, and delivery, and with the potential costs increases associated with changing their fishing patterns to reduce incidental catch, vessel operators might choose to violate the full retention requirement.

Impacts to processors

Alternatives 2 and 3 would likely result in more production costs for processors. With the delivery of additional rockfish, processors would face additional costs for weighing and for sorting and grading of rockfish. Additional recordkeeping would be required to fill out fish tickets and production reports.

Alternatives 2 and 3 would also likely reduce rockfish waste, at least in terms of utilizing fish for human consumption that would otherwise be dead under Alternative 1. The additional incidental catch of rockfish that would result from the full retention requirement would likely be utilized for human consumption either through commerce, personal use, or donations. Some portion of the likely overages may also be discarded onshore by the processors.

Charitable donations may increase under these alternatives. These donations may provide benefits to some low-income consumers. It is not possible to say with any certainty to what extent rockfish overages would be donated to charitable organizations. In areas where Seashare is currently established, there is a willingness to receive rockfish for distribution. These communities include Kodiak and Dutch Harbor. In smaller communities, there likely is insufficient quantities of rockfish available to support the cost of shipping to a Seashare distribution center.

Impacts to communities

Alternatives 2 and 3 could change a vessel's delivery pattern, which would result in a distributional shift in hook-and-line CV deliveries. This potential shift in delivery patterns is likely dependent on the perceived value of retained rockfish relative to the target species onboard the vessel and the distance to the nearest port. Vessel operators that are homeported far from the fishing grounds may opt to deliver their retained rockfish in addition to their halibut, sablefish, and Pacific cod to ports closer to the fishing grounds if they perceived the value of the rockfish onboard the vessel is greater than the cost of transiting back to their homeport. As a result, some homeport communities may see a reduction in deliveries of halibut, sablefish and Pacific cod, while other communities may see an increase in deliveries of these same species along with rockfish.

One factor that reduces that potential change in delivery patterns will be the amount of retained rockfish that can be sold into commerce. A lower percent of retained rockfish that can be sold into commerce would likely result in a reduced potential for change in delivery patterns. Currently under consideration are commerce limits of 10 percent or 15 percent.

Option 1: Establishing an MCA

Given that maximum retainable allowance (MRA)s do not apply under a full retention requirement, there is a need to establish a limit or allowance that provides an incentive for vessel operators to retain all rockfish and to avoid high rockfish incidental catch. The selection of the MCA percentages in Option 2 has some trade-offs. Lower percentages prioritize incentivizing avoidance of rockfish but increases the number of trips with rockfish that cannot be sold. These fish that cannot be sold could be discard by the shoreplant or utilized by vessel crew or donated to non-profits. This may result in less compliance with the retention requirements. Less compliance with the full retention may have negative impacts on the accuracy of rockfish catch.

Higher MCA percentages could result in more rockfish catch as vessels could seek areas with higher rockfish incidental catch to target halibut, Pacific cod and sablefish. Higher percentages may also incentivize the development of top off fishing behavior. These could increase total removals of rockfish which could result in management actions to reduce rockfish catch that may affect other sectors.

Balancing the purpose and need of the proposed action, the Council could select either an MCA that is 10 percent or 15 percent. Both percentages provide a balance of the tradeoffs, and under the assumption that a top-off fishery is not prevalent, there likely would not be a large increase in incidental catch of rockfish. These percentages are also near the intrinsic bycatch rate of rockfish.

If the Council selects an MCA of 10 percent, the data indicates that approximately 72 percent of fixed gear CV trips in the GOA and 80 percent of fixed gear CV trips in the BSAI would be able to sell all their rockfish harvested incidentally. The remaining 20 percent to 28 percent of trips that may be impacted, vessel-operators would still be able to sell the majority of their rockfish catch. However, a proportion of the incidental catch would not be able to be sold. These fish would be available for home-packs and donation.

These impacts are more likely on vessels targeting sablefish because the average rockfish incidental catch on sablefish trips is between 10 percent and 20 percent depending on the area and the time of year. There may also be impacts to vessels fishing in the GOA and BSAI for halibut but would be limited to less than 15 percent of the halibut trips and may reflect rates from mixed halibut and sablefish trips. Finally, an MCA of 10 percent could incentivize rockfish avoidance, especially in areas with high rockfish catch that exceeds 10 percent.

If the Council selects an MCA of 15 percent, the data indicates that over 85 percent of trips will be able to retain and sell all rockfish that are incidentally harvested. This would provide more incentive for vessel operators to retain all rockfish and still provide incentive for vessels to avoid areas with high incidental catch rates of rockfish, though at a lesser degree than the 10 percent MCA.

Option 2: Require full retention of rockfish when on PSC status

The full retention even if the species is on PSC status option will most likely continue to maintain the management goals of a PSC action by removing financial incentives that may exist to catch more rockfish. Additionally, it will still maintain the regulation that requires a vessel operator to minimize the catch of prohibited species. The difference between status quo and this option is that it would require vessels to retain all rockfish regardless of the status.

In order to remove any financial incentives that may drive top-off fishing, when a rockfish species is placed on PSC status, the MCA for that species would be set to zero. This would maintain the primary goal of a PSC action by removing incentives to harvest more rockfish than the true incidental catch and likely result in vessels avoiding areas that have high incidental catch rates of those species.

Additional benefits of this option include less complicated regulations, limit confusion to vessel operators by providing consistency of retention requirements in all areas and reduce any regulatory interpretations that could make compliance and enforcement more challenging.

This option could intensify the impacts to a vessel or processing plant. This could cause vessel operators to change their fishing practices to avoid that species to the extent possible and limit fishing in multiple areas on the same trip. PSC actions for rockfish are not necessary in most areas of the BSAI and GOA, and in some years do not occur in any area. Therefore, the impact of this option is expected to be small and only impact a proportion of the fleet.

Effects on NMFS's Inseason Management and Enforcement

These alternatives are not expected to increase incidental catch of rockfish. Therefore, the impacts to National Marine Fishery Service (NMFS)'s Inseason Management of rockfish species and complexes are thought to be minimal. Inseason Management will continue to operate as they currently do. Inseason Management will continue monitor catch and institute actions to control harvest that are necessary to prevent exceeded the TACs that are established. If a full retention regulation is selected as the preferred alternative, the Council should select an MCA to provide an additional layer of certainty that total harvest will not increase any from top-off fishing that occurs.

There may still be some unintentional discard of rockfish as fish drop off at the rail of a vessel or due to fishing gear loss. CVs with human observers or EM systems will gather these discard data when available. These discards could create an enforcement concern in determining what is an unintentional discard; however, the amount of drop-offs or unintentional discards should be minimal.

There is a chance that full retention may create a situation where catch is underestimated. Under full retention, rockfish catch estimates will be calculated primarily on retained harvest (eLandings data). At-sea discard estimates will be reduced to small amounts. While NMFS believes that most vessels are compliant with the regulations, there is a chance that an underestimate may occur from an interaction with the observer effect and vessel non-compliance.

From an Office of Law Enforcement (OLE) perspective, full retention is difficult to enforce but not impossible. The challenges of enforcing full retention requirements are well known to OLE. Alternative 2 and 3 would likely result in easier to understand and more consistent regulations. Overall, full retention of rockfish would remove some of the challenges OLE staff encounter when investigating rockfish MRA or MCA overages and could result in less investigative work.

1 Introduction

This document analyzes proposed management measures that would amend the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) Fishery Management Plan (FMP) to require full retention of all rockfish species for fixed gear catcher vessels (CVs) in the BSAI and GOA. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce. The purpose of this proposed action is to improve the identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State of Alaska and Federal fisheries.

This document is a Regulatory Impact Review (RIR). An RIR provides assessments of the economic benefits and costs of the action alternatives, as well as their distribution. This RIR addresses the statutory requirements of the Magnuson Stevens Fishery Conservation and Management Act, the National Environmental Policy Act, Presidential Executive Order 12866, and the Regulatory Flexibility Act. An RIR is a standard document produced by the North Pacific Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) Alaska Region to provide the analytical background for decision-making.

2 Regulatory Impact Review

This RIR examines the benefits and costs of a proposed regulatory amendment to require full retention of all rockfish species for fixed gear CVs in the BSAI and GOA. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce. The purpose of this proposed action is to improve the identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State of Alaska and Federal fisheries.

The preparation of an RIR¹ is required under Presidential Executive Order (E.O.) 12866 (58 FR 51735, October 4, 1993). The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following Statement from the E.O.:

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and Benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider. Further, in choosing among alternative regulatory approaches agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be “significant.” A “significant regulatory action” is one that is likely to:

- Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

2.1 Statutory Authority

Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801, *et seq.*), the United States has exclusive fishery management authority over all marine fishery resources found within the exclusive economic zone (EEZ). The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the regional fishery management councils. In the Alaska Region, the Council has the responsibility for preparing fishery management plans (FMPs) and FMP amendments for the marine fisheries that require conservation and management, and for submitting its recommendations to the Secretary. Upon approval by the Secretary, NMFS is charged with

¹ The proposed action has no potential to effect individually or cumulatively on the human environment. The only effects of the action are economic, as analyzed in this RIR. As such, it is categorically excluded from the need to prepare an Environmental Assessment.

carrying out the Federal mandates of the Department of Commerce with regard to marine and anadromous fish.

The rockfish fishery in the EEZ off Alaska is managed under the Fishery Management Plan (FMP) for Groundfish of the BSAI Area and FMP for Groundfish of the GOA. The proposed action under consideration would amend these FMPs and Federal regulations at 50 CFR 679. Actions taken to amend FMPs or implement other regulations governing these fisheries must meet the requirements of Federal law and regulations.

2.2 Purpose and Need for Action

During the December 2017 meeting, the Council developed the following purpose and need statement:

Fixed-gear CVs in the BSAI and GOA discard much of their incidental catch of rockfish (Sebastes and Sebastolobus spp.). The greatest amount of discarded rockfish occurs in the GOA hook-and-line fisheries. Requiring the full retention of rockfish could: benefit vessel operators by improving identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State of Alaska and Federal fisheries.

2.3 History of this Action

2.3.1 October 2016

In October 2016, the Council requested staff develop a discussion paper to consider requiring full retention of all rockfish species for fixed gear CVs. Some of the primary reasons the Council was considering a discussion paper on full retention of rockfish species include:

- Provides a benefit to vessel operators, by alleviating their responsibility for identifying and retaining only certain hard-to-differentiate rockfish species;
- Improves data collection on the incidental catch of rockfish in the fixed gear fisheries, resulting in more accurate estimation of rockfish catch and improved rockfish stock assessments;
- Avoids increasing incentives either to target rockfish or to discard rockfish in excess of the amount that can legally be sold for profit; and
- Reduces waste, if the retained rockfish are sold, donated or utilized by crew instead of discarded at sea.

That discussion paper originated with the Council's fixed gear electronic monitoring (EM) integration analysis in October 2016. In the EM integration analysis initial review draft, the Council had evaluated an option that would have required full retention of all rockfish species by vessels using EM. The option was intended to facilitate identification of certain rockfish species pairs² that cannot be distinguished by cameras, and full retention was proposed in order to implement a simple and consistent policy for all rockfish, rather than requiring vessel operators to identify and remember which rockfish species must be retained and which must be discarded. While EM studies to date have shown that in most cases, it is possible to identify fish to the species or species complex required for management, there are some rockfish species groupings that are difficult to distinguish. In the end, the Council did not include this option as part of their preferred alternative for EM integration. Rather, the Council tasked staff to develop

² Hard to differentiate rockfish species include Shortraker, Rougheye, Blackspotted and other red rockfish.

a discussion paper to evaluate full rockfish retention to all fixed gear vessels, rather than limiting full retention of rockfish to fixed gear vessels using EM. Industry representatives on the EM Workgroup supported extending the full rockfish retention requirement because it would result in a consistent regulation for rockfish retention across all regulatory areas and species and would apply regardless of whether a vessel is using EM.

2.3.2 December 2017

After reviewing a discussion paper to consider requiring full retention of all rockfish species for fixed gear CVs, the Council adopted a purpose and need statement and initiated an analysis. The proposed action includes an alternative requiring full retention of rockfish species by all fixed gear CVs (hook-and-line, pot, and jig) in the BSAI and GOA and an alternative that would limit full retention of rockfish species to only hook-and-line CVs in the GOA. The suite of alternatives also includes an option requiring full retention of rockfish even if the species is on prohibited species status but would prohibit these retained rockfish from entering commerce. The Council also requested that staff consider the following issues as part of the analysis:

- Whether increasing the maximum retainable allowances (MRA) for rockfish species would reduce the amount of catch that would need to be monitored to ensure that it does not enter commerce.
- The costs and feasibility of processing, handling, and donating rockfish that are retained in excess of an MRA which cannot enter commerce.
- Potential inconsistencies between state and federal management.

2.3.3 June 2018

In June 2018, the Council completed an initial review of the RIR that would require full retention of all rockfish species for fixed gear CVs in the BSAI and GOA. After reviewing the RIR, the Council released the document for public review. The Council also selected a preliminary preferred alternative. The alternative selected would require full retention of rockfish species by all fixed gear CVs (hook-and-line, pot, and jig) in the BSAI and GOA. The preliminary preferred alternative also includes two options. The first option would require full retention of rockfish even if the rockfish species is on prohibited species status but prohibit these retained rockfish from entering commerce. The second option would establish a maximum commerce allowance (MCA) of 10% or 15%. The purpose of the MCA is to limit increasing rockfish incidental catch under a full retention regulation, while allowing vessel operators to sell most of the true incidental catch of rockfish.

2.4 Alternatives

Alternative 1: No Action (status quo) – Most rockfish species would not be required to be retained. Rockfish species not open to directed fishing would continue to be managed by maximum retainable amount (MRA) limits. Vessels that retain IFQ halibut or sablefish are required to retain rockfish up to the MRA. Once a total allowable catch (TAC) limit is reached, NMFS places that rockfish species on prohibited species status and prohibits retention.

Alternative 2 (Preliminary Preferred Alternative): Require full retention of rockfish species by all fixed gear CVs (hook-and-line, pot, and jig) in the BSAI and GOA.

Alternative 3: Require full retention of rockfish species by hook-and-line CVs in the GOA.

Option 1 under Alternatives 2 and 3 (Preliminary Preferred Alternative): Require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce.

Option 2 under Alternatives 2 and 3 (Preliminary Preferred Alternative): Establish a maximum commerce allowance (MCA) of 10% or 15%.

2.5 Methodology for Analysis of Impacts

The evaluation of impacts in this analysis is designed to meet the requirement of E.O. 12866, which dictates that an RIR evaluate the costs and benefits of the alternatives, to include both quantifiable and qualitative considerations. Additionally, the analysis should provide information for decisionmakers “to maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.” The costs and benefits of this action with respect to these attributes are described in the sections that follow, comparing the No Action Alternative 1 with the action alternatives. A qualitative assessment of the net benefit to the Nation of each alternative, compared to no action then follows.

This analysis was prepared using data from the NMFS catch accounting system (CAS), which is the best available data to estimate total catch in the groundfish fisheries off Alaska. Total catch estimates are generated from information provided through a variety of required industry reports of harvest and at-sea discard, and data collected through an extensive fishery observer program. In 2003, NMFS changed the methodologies used to determine catch estimates from the NMFS blend database (1995 through 2002) to the CAS (2003 through present).

The CAS was implemented to better meet the increasing information needs of fisheries scientists and managers. Currently, the CAS relies on data derived from a mixture of production and observer reports as the basis of the total catch estimates. The 2003, modifications in catch estimation included providing more frequent data summaries at finer spatial and fleet resolution, and the increased use of observer data. Redesigned observer program data collections were implemented in 2008 to include recording sample-specific information in lieu of pooled information, increased use of systematic sampling over simple random and opportunistic sampling, and decreased reliance on observer computations. As a result of these modifications, NMFS is unable to recreate blend database estimates for total catch and retained catch after 2002. Therefore, NMFS is not able to reliably compare historical data from the blend database to the current CAS.

2.6 Background

As noted in *Fishes of Alaska*, the family *Scorpaenidae*, commonly called rockfishes, is a commercially important group of about 115 species (Mechlengburg et al. 2002). Most of the species inhabit rocky areas in shallow to moderately deep waters. Some species are found farther offshore on silty and sandy bottoms. The young rockfish tend to occupy shallower water depths than the adults. Many of the rockfish species are large enough to be sought for their commercial use. Rockfish can live for many years. Except for thornyhead species, rockfish have a closed swimbladder, which regulates buoyancy. They cannot withstand quick changes in pressure and therefore are susceptible to embolism mortality when brought to the surface from depth. Virtually no rockfish survive once caught without special precautions being taken.

Many rockfish species are challenging to manage because they are commonly caught as incidental species, have low acceptable biological catch (ABC) amounts, have several management area breakouts in the GOA, and have higher variance of at-sea discards estimates from observed discard rates on smaller hook-and-line vessels. NMFS closes directed fishing to most rockfish species at the beginning of the year

because the individual species TACs do not support directed fishing. Once a TAC is reached, NMFS prohibits retention of the species, which removes financial incentives to catch that species.

This background section includes a brief management overview for the different rockfish species/complexes by FMP management area. Information on incidental catch management is provided in the background section. Also provided in the background section is an overview of the demersal shelf rockfish (DSR) full retention regulations that were approved by the Council and implemented by NMFS in 2005. The DSR full retention requirement provides invaluable experience to the Council on the benefits and challenges associated with a full rockfish retention requirement for fixed gear CVs in the GOA and BSAI. Finally, the background section includes information on state rockfish retention requirements.

2.6.1 Description of Rockfish Species/Complex Management

This following section provides a description of the management of BSAI and GOA rockfish species/species groups. Table 2-1 summarizes the status of each rockfish species/species group in the BSAI and GOA for fixed gear vessels. As noted in the table, nearly all of the rockfish species/species groups in the BSAI and GOA for fixed gear vessels are closed on January 1 for directed fishing. The only exceptions are GOA Pacific ocean perch (POP), northern rockfish, and dusky rockfish.

Table 2-1 Status of BSAI and GOA rockfish species/species groups for fixed gear CVs

Rockfish species/complex	Status on Jan 1 for fixed gear	Other status	Closure duration	Notes
BSAI				
AI Pacific ocean perch	Closed		Closed all year	No allocation to non-trawl vessels
BS Pacific ocean perch	Closed	Limited opening (Inseason action)	Limited opening in fall	Organized trawl fishery
Northern rockfish	Closed	Limited opening (Inseason action)	Limited opening in summer	To prevent regulatory discard in trawl fishery
Rougheye/blackspotted	Closed		Closed all year	All gear types closed; not enough TAC to support directed harvest
Shortraker	Closed		Closed all year	All gear types closed; not enough TAC to support directed harvest
Other rockfish	Closed		Closed all year	All gear types closed; not enough TAC to support directed harvest
GOA				
Pacific ocean perch	Open	Closed after TAC reached	Closes in summer months	Trawl fishery; closed on TAC
Northern rockfish	Open	Closed after TAC reached	Closes in summer months	Trawl fishery; closed on TAC
Dusky rockfish	Open	Closed after TAC reached	Closes in summer months	Trawl fishery; closed on TAC
Shortraker	Closed		Closed all year	All Gear types closed; not enough TAC to support directed harvest
Rougheye/blackspotted	Closed		Closed all year	All Gear types closed; not enough TAC to support directed harvest
Other rockfish	Closed		Closed all year	All Gear types closed; not enough TAC to support directed harvest
Thornyheads	Closed		Closed all year	All Gear types closed; not enough TAC to support directed harvest
Demersal shelf rockfish		Delegated management to ADFG		Southeast only; limited State fishery

Source: NMFS Sustainable Fisheries

2.6.2 BSAI Rockfish Species

In the BSAI, there are currently five different rockfish species or species groups that are managed with separate TACs:

- POP (*Sebastes alutus*)
- Northern rockfish (*Sebastes polycipinus*)
- Blackspotted (*Sebastes melanostictus*) and rougheye rockfish (*Sebastes aleutianus*)
- Shortraker rockfish (*Sebastes borealis*), and
- Other rockfish complex which consists of 24 species.

The following is a brief description of the management of these five species and species groups. Provided in Table 2-2 and Table 2-3 are the ABCs, TACs, and catch in metric tons (mt) for these BSAI rockfish species/species groups from 2005-2017.

Table 2-2 ABC, TAC, and catch for BSAI POP, blackspotted & rougheye rockfish, and other rockfish in metric tons, 2005-2017

Year	POP			Blackspotted and rougheye rockfish			Other rockfish		
	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)
2005	14,600	12,600	10,427	223	223	90	1,400	1,050	465
2006	14,800	12,600	12,867	224	224	203	1,400	1,050	583
2007	21,900	19,900	18,451	202	202	168	999	999	656
2008	21,700	21,700	17,436	202	202	193	999	999	612
2009	18,880	18,800	15,347	539	539	197	1,040	1,040	611
2010	18,860	18,860	17,852	547	547	232	1,040	1,040	766
2011	24,700	24,700	24,004	454	454	163	1,280	1,000	944
2012	24,700	24,700	24,161	475	475	191	1,280	1,070	921
2013	35,100	35,100	31,362	378	378	321	1,160	873	818
2014	33,122	33,122	32,380	416	416	197	1,163	773	952
2015	34,988	32,021	31,422	453	453	180	1,250	880	687
2016	33,320	31,900	31,319	561	300	158	1,250	875	786
2017	43,723	34,900	32,777	501	225	202	1,362	875	825

Source: Harvest specification tables and AKFIN for catch data

Table 2-3 ABC, TAC, and catch for BSAI northern rockfish and shortraker rockfish in metric tons, 2005-2017

Year	Northern rockfish			Shortraker rockfish		
	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)
2005	8,260	5,000	3,964	596	596	169
2006	8,530	4,500	3,828	580	580	215
2007	8,190	8,190	4,016	424	424	324
2008	8,180	8,180	3,287	424	424	133
2009	7,160	7,160	3,111	387	387	184
2010	7,240	7,240	4,332	387	387	303
2011	8,670	4,000	2,763	393	393	334
2012	8,610	4,700	2,487	393	393	344
2013	9,850	3,000	2,037	370	370	369
2014	9,761	2,594	2,342	370	370	163
2015	12,488	3,250	7,197	518	518	155
2016	11,960	4,500	4,541	518	200	105
2017	13,264	5,000	4,699	499	125	155

Source: Harvest specification tables and AKFIN for catch data

2.6.2.1 Pacific Ocean Perch

POP distribution extends from Japan around the Pacific Rim south to California. POP, found primarily offshore along the continental slope in depths from 180 – 420 m, are most abundant in the AI, GOA, and British Columbia. POP are a demersal species found over cobble substrate. Seasonal changes in depth distribution occur, and adults migrate farther offshore to deeper waters during winter. During late spring and summer, POP migrate to shallower waters inshore for summer feeding. Populations often occur in patchy aggregations. POP is a slow-growing, long-lived species.

In 1991, the POP and other red rockfish complexes were separated from the POP/other rockfish complex. In 2001, the POP complex was separated into three management units; POP, shortraker/rougheye, and sharpchin/northern rockfish.

Primary amongst the BSAI POP fisheries is the Aleutian Islands (AI) trawl fishery. Fixed gear vessels do not receive an allocation in the AI. POP is allocated among the three AI districts and the eastern Bering Sea (BS), based on biomass distribution. In the BS, POP is managed as an incidental catch allowance (ICA) while targeting other fisheries. In the AI, the directed trawl fishery is concentrated during the summer months. Since 1996, the majority of the catch (by weight) occurred in the western AI. Starting in 2008, POP was allocated under the Amendment 80 program³. In general, Amendment 80 vessels tend to harvest most of the TAC, while the fixed gear vessels harvest significantly less. With a TAC of 34,900 mt in 2017, 84 fixed gear vessels caught 5 mt, while 118 trawl vessels caught 32,773 mt.

2.6.2.2 Northern Rockfish

Northern rockfish distribution extends from the Kamchatka Peninsula, through the BSAI, GOA and British Columbia. This species is most abundant in the central GOA to the western end of the AI. Northern rockfish are demersal and are generally found in discrete aggregations with patchy distributions along the outer continental shelf from 75-150 m. Northern rockfish is a relatively slow-growing, long lived species.

Northern rockfish is currently managed as an ICA and is generally caught by bottom trawl gear while targeting other species. In 2017, the TAC for northern rockfish was 5,000 mt of which 41 fixed gear vessels caught 51 mt and 122 trawl vessels caught 4,647 mt. Catch of northern rockfish occurred primarily in the Atka mackerel fishery.

2.6.2.3 Blackspotted and Rougheye Rockfish

Blackspotted and rougheye rockfish are distributed from Japan, through the BSAI and GOA to southern California. Adults inhabit a narrow band along the upper continental slope at depths from 300-500 m. Data from recent bottom trawl surveys suggests that although the distribution of the two species overlap, blackspotted rockfish are predominant in the AI, while rougheye rockfish are more common in the GOA and southeastern BS.

Blackspotted and rougheye rockfish are managed as an ICA. In the AI, they are primarily harvested as incidental catch in the POP trawl fishery, and to a lesser extent in the Atka mackerel trawl fishery and the Pacific cod longline fishery. In the BS, blackspotted and rougheye rockfish are generally caught in the Pacific cod longline fishery and various bottom trawl fisheries. For 2017, the blackspotted and rougheye rockfish TAC was 225 mt, with 117 fixed gear vessels catching 68 mt and 104 trawl vessels catching 131 mt.

2.6.2.4 Shortraker Rockfish

Shortraker rockfish are distributed from southeastern Kamchatka, north through the BSAI, the GOA and south to California. Adults are concentrated along the 300-500 m depth interval along the continental slope. Shortraker rockfish is one of the most long-lived species in the northeast Pacific.

Shortraker rockfish is currently managed as an ICA. This species is primarily harvested in the POP trawl fisheries and Greenland turbot, sablefish, and halibut hook-and-line fisheries. In 2017, the TAC for shortraker rockfish was 125 mt, of which 115 fixed gear vessels caught 33 mt and 98 trawl vessels caught 118 mt.

³ Amendment 80, implemented in 2008, allocates BSAI yellowfin sole, flathead sole, rock sole, Atka mackerel, and Aleutian Islands Pacific ocean perch to the head and gut trawl catcher processor sector, and allows qualified vessels to form cooperatives.

2.6.2.5 Other Rockfish

Of the other rockfish species group, shortspine thornyhead and dusky rockfish are the two most abundant species, accounting for about 80 percent of the survey biomass and catch. Data are limited for many of the “other rockfish” species.

Dusky rockfish distribution extends from Japan into the BSAI and down to central Oregon. Dusky rockfish are found along the outer continental shelf in patchy distributions. Dusky rockfish longevity is approximately 60 years. Shortspine thornyhead is distributed from Japan to the BSAI down to central California. Shortspine thornyheads are commonly found at depths from 150-450 m.

There is no open directed fishery for other rockfish in the BSAI, so the species group is managed as an ICA. Dusky rockfish are primarily taken in the AI Atka mackerel fishery and the BS Pacific cod fishery. Shortspine thornyhead are primarily taken in the AI sablefish and Greenland turbot longline fisheries and BS pollock trawl fishery. In 2017, the TAC for other rockfish was 875 mt, of which 174 fixed gear vessels caught 129 mt and 122 trawl vessels caught 696 mt.

2.6.3 GOA Rockfish Species

In the GOA, there are currently eight different rockfish species/species groups that are managed with separate TACs:

- Pacific ocean perch
- Northern rockfish
- Shortraker rockfish
- Other rockfish species group consisting of 25 rockfish species
- Dusky rockfish (*Sebastes variabilis*)
- Rougheye and Blackspotted rockfish
- Demersal shelf rockfish consisting of seven rockfish species
- Thornyhead rockfish consisting of three species

Table 2-4 and Table 2-5 include ABCs, TACs, and catch in mt for each GOA rockfish species/species group from 2005-2017.

Table 2-4 ABC, TAC, and catch for GOA POP, shortraker rockfish, dusky rockfish, and demersal shelf rockfish in metric tons, 2005-2017

Year	POP			Shortraker rockfish			Dusky rockfish			Demersal shelf rockfish*		
	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)
2005	13,575	13,575	11,248	753	753	534	4,553	4,553	2,237	410	410	212
2006	14,261	14,261	13,595	843	843	797	5,436	5,436	2,454	410	410	239
2007	14,636	14,635	12,955	843	843	733	5,542	5,542	3,386	410	410	243
2008	14,999	14,999	12,461	898	898	673	5,227	5,227	3,645	382	382	233
2009	15,111	15,111	13,002	898	898	616	4,781	4,781	3,075	362	362	247
2010	17,584	17,584	15,617	914	914	564	5,059	5,059	3,148	295	295	211
2011	16,997	16,997	14,218	914	914	597	4,754	4,754	2,540	300	300	145
2012	16,918	16,918	14,913	1,081	1,081	749	5,118	5,118	4,010	293	240	199
2013	16,412	16,412	13,183	1,081	1,081	781	4,700	4,700	3,159	303	249	246
2014	19,309	19,309	17,672	1,323	1,323	751	5,486	5,486	3,063	274	274	158
2015	21,012	21,012	18,733	1,323	1,323	624	5,109	5,109	2,782	225	225	144
2016	24,437	24,437	23,133	1,286	1,286	813	4,686	4,686	3,328	231	231	149
2017	23,918	23,918	23,880	1,286	1,286	584	4,278	4,278	2,623	227	227	156

Source: Harvest specification tables and AKFIN for catch data

* DSR only in Southeast Alaska, DSR species included in Other rockfish in other parts of GOA

Table 2-5 ABC, TAC, and catch for GOA northern rockfish, other rockfish, rougheye & blackspotted rockfish, and thornyhead rockfish in metric tons, 2005-2017

Year	Northern rockfish			Other rockfish			Rougheye and blackspotted rockfish			Thornyhead rockfish		
	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)	ABC (mt)	TAC (mt)	Catch (mt)
2005	5,091	5,091	4,522	3,900	670	740	1,007	1,007	313	1,940	1,940	772
2006	5,091	5,091	4,958	4,152	1,480	1,193	983	983	402	2,209	2,209	854
2007	4,938	4,938	4,187	4,154	1,482	726	988	988	475	2,209	2,209	848
2008	4,549	4,549	4,052	4,297	1,730	842	1,286	1,286	416	1,910	1,910	794
2009	4,362	4,362	3,952	4,297	1,730	920	1,284	1,284	304	1,910	1,910	724
2010	5,098	5,098	3,902	3,749	1,192	987	1,302	1,302	451	1,770	1,770	624
2011	4,854	4,854	3,443	3,752	1,195	919	1,312	1,312	567	1,770	1,770	666
2012	5,507	5,507	5,077	4,045	1,080	1,059	1,223	1,223	588	1,665	1,665	786
2013	5,130	5,130	4,879	4,045	1,080	856	1,232	1,232	594	1,665	1,665	1,241
2014	5,322	5,322	4,278	4,081	1,811	1,005	1,244	1,244	756	1,841	1,841	1,176
2015	4,998	4,998	3,944	4,080	1,811	1,144	1,122	1,122	571	1,841	1,841	1,077
2016	4,004	4,004	3,437	5,773	2,308	1,333	1,328	1,328	655	1,961	1,961	1,161
2017	3,790	3,786	1,836	5,773	2,308	1,103	1,327	1,327	537	1,961	1,961	1,067

Source: Harvest specification tables and AKFIN for catch data

2.6.3.1 Pacific Ocean Perch

In 1991, POP and the shortraker/rougheye species group were separated from the “slope rockfish” complex to prevent overfishing. A reduction in TACs after 1991 to promote POP stock rebuilding was also implemented. In 2004, shortraker and rougheye rockfish were separated into their own management groups due to disproportionately high harvests of shortraker rockfish. GOA rockfish stocks and complexes are managed with area-specific ABC and TAC apportionments to avoid the potential for localized depletions. Amendment 41, effective in 2000, prohibited trawling in the Eastern area, east of 140°W longitude, an area previously fished for POP.

The Central GOA Rockfish Pilot Program (Amendment 68), effective in 2007 through 2011, and its replacement Central GOA Rockfish Program (Amendment 88), effective in 2012 through 2021, rationalized the rockfish and related trawl fisheries. The program provides cooperatives with exclusive catch shares for target species of POP, northern rockfish, and pelagic shelf (dusky) rockfish, as well as an allocation of the TAC for a suite of secondary species (sablefish, Pacific cod, and thornyhead, shortraker and rougheye rockfish), and a halibut PSC limit allocation. Cooperatives receive allocations based on catch history of cooperative member vessels. For the 2017 fishing season, the GOA TAC was 23,918 mt, of which 198 fixed gear vessels caught 2 mt, while 76 trawl vessels caught 23,878 mt.

2.6.3.2 Northern Rockfish

Northern rockfish is caught primarily in directed bottom trawl fishery, but recent years have seen an increase in the catch using pelagic trawl gear. Most of these rockfish species are caught in the Central GOA through the Central GOA Rockfish Program. In 2017, the GOA TAC was 3,786 mt. During that fishing year, 136 fixed gear vessels caught 35 mt of northern rockfish, and 63 trawl vessels caught 1,801 mt.

2.6.3.3 Shortraker Rockfish

From 1991 to 2004, shortraker rockfish in the GOA was managed together with rougheye rockfish as an assemblage. Shortraker was separated into a single species management unit in 2005. Shortraker rockfish in the GOA are managed as “bycatch” only species, except for trawl catcher/processors in the Central GOA Rockfish Program. Shortraker rockfish have been taken in both longline and trawl fisheries and mostly in fisheries targeting on rockfish, sablefish, and Pacific halibut, with less amounts taken in the pollock and other fisheries. With a GOA TAC of 1,286 mt in 2017, 551 fixed gear vessels caught 299 mt

of shortraker rockfish, while 41 trawl vessels caught 285 mt. Nearly all the hook-and-line catch of shortraker rockfish appears to be “true” incidental catch in the sablefish and halibut longline fisheries. In the trawl rockfish fisheries, however, some vessels top off on shortraker rockfish by targeting those species. Starting in 2007, with the Central GOA Rockfish Pilot Program and continuing in the Central GOA Rockfish Program implemented in 2012, shortraker rockfish, catch in the Central GOA by trawl vessels decreased considerably. Catches of shortraker rockfish in the Central GOA are now at some of their lowest levels since 1991.

2.6.3.4 Other Rockfish

The other rockfish species group consists of 25 rockfish species, although sharpchin, harlequin, silvergray, redstripe, and redbanded rockfish comprise the majority of the biomass in the GOA. The center of abundance for most of these species is farther south off British Columbia or the U.S. west coast. However, harlequin rockfish are most common in Alaskan waters, and silvergray rockfish appear to be most abundant in southeast Alaska and British Columbia. Within the GOA, other rockfish are most abundant in the eastern GOA and become increasingly scarce in areas farther west.

Since the mid-1990s, directed fishing has not been allowed for other rockfish in the GOA, and the fish can only be retained as “incidentally-caught” species. In recent years, trawling in the rockfish directed fisheries has accounted for a substantial majority of the ‘other slope rockfish’ catch. In 2017, the TAC for other rockfish was 2,308 mt, of which 852 fixed gear vessels caught 283 mt, while 54 trawl vessels caught 820 mt.

2.6.3.5 Dusky Rockfish

Dusky rockfish is an abundant species in the GOA. Adult dusky rockfish are concentrated around offshore banks and near gullies on the outer continental shelf at depths of 100 to 200 m. In 2012, dusky rockfish became a separate management category. Dusky rockfish were formerly grouped with yellowtail rockfish (*S. flavidus*) and widow rockfish (*S. entomelas*) in the pelagic shelf rockfish species group. Since 2012, yellowtail and widow rockfish have been managed in the other rockfish species group.

In the central GOA, 95 percent of the dusky rockfish TAC is allocated to the Central GOA Rockfish Program. Catch of dusky rockfish are concentrated at a number of offshore banks of the outer continental shelf, west of Yakutat and around Kodiak in areas such as Portlock Bank and Albatross Bank. In general, trawl vessels catch most of the dusky rockfish, while fixed gear vessels catch significantly less. In 2017, the TAC was 4,278 mt of which 555 fixed gear vessels caught 90 mt of dusky rockfish and 65 trawl vessels caught 2,533 mt of dusky rockfish.

2.6.3.6 Rougheye and Blackspotted Rockfish

Rougheye rockfish and blackspotted have been closed to directed fishing since the creation of the shortraker/rougheye rockfish species group in the GOA in 1991. Rougheye and blackspotted rockfish were separated into their own management group in 2004.

In 2017, the TAC was 1,327 mt, of which 535 fixed gear vessels caught 199 mt of rougheye and blackspotted rockfish, while 53 trawl vessels caught 354 mt. Of the trawl catch, nearly all rougheye and blackspotted rockfish was from bottom trawlers in the target rockfish fisheries. The amount of rougheye and blackspotted rockfish catch taken in the target rockfish fisheries has more than doubled in the past couple of years, likely due to increased POP TAC allocated to the Central GOA. For hook-and-line gear, nearly all the rougheye and blackspotted rockfish catch appears to be “true” incidental catch in the sablefish or halibut longline fisheries.

2.6.3.7 Demersal Shelf Rockfish

The DSR species group consists of seven species and are a management group in the Southeast Outside (SEO) area only (east of 140 W longitude). The primary species of the fishery is yelloweye rockfish. Elsewhere in the GOA, these DSR species are managed as part of the "other rockfish" species group. DSR are generally nearshore, bottom-dwelling species, located on the continental shelf and associated with rugged, rocky habitat. DSR species exhibit slow growth and extreme longevity.

DSR are managed jointly by Alaska Department of Fish and Game (ADF&G) and NMFS. Directed fishery quotas are set by state management areas and are based on the remaining ABC after subtracting the estimated DSR incidental catch (landed and at-sea discard) in other fisheries. The directed fishery for DSR is prosecuted by longline and jig gear. The directed fishery for DSR began in 1979 as a small, shore-based, hook-and-line fishery in Southeast Alaska. This fishery targeted the nearshore, bottom-dwelling component of the rockfish species group. The 2017 TAC for DSR was 227 mt, of which 504 fixed gear vessels harvested 156 mt. No trawl vessels harvested SEO DSR in 2017. Incidental catch of DSR are caught in the lingcod, Pacific cod, halibut, and sablefish fisheries. Starting in 2005, operators of a federally permitted CV using hook-and-line or jig gear in the SEO are required to retain and land all DSR caught while fishing for groundfish or for Pacific halibut under the Individual Fishing Quota (IFQ) program.

2.6.3.8 Thornyhead Rockfish

The thornyhead rockfish species groups consists of 3 species; shortspine (*Sebastolobus alascanus*), longspine (*Sebastolobus altivelis*), and broadfin (*Sebastolobus macrochir*) thornyheads. Thornyheads are differentiated from *Sebastes* spp. in that they lack a swim bladder. Shortspine thornyheads are distributed in deep-water habitats throughout the North Pacific, and are concentrated between 150-450 m in the cooler, northern part of their range and are generally found in deeper habitats up to 1000 m in the warmer waters of their southern range. Longspine thornyheads are found only in the eastern North Pacific, around the Shumagin Islands, GOA and south to California. Longspines are generally found in deeper habitats from 200-1,750 m.

Thornyhead rockfish are closed to directed fishing due to the amounts needed to support incidental catch in other target fisheries in the GOA. They are commonly taken by bottom trawlers while targeting rockfish and hook-and-line gear while targeting sablefish. Thornyhead rockfish are a secondary species in the Central GOA Rockfish Program that has an allocation of quota which can be caught while fishing for the primary rockfish species. Thornyhead rockfish have a high retention rate due primarily to its high exvessel value. In 2017, the TAC for thornyhead rockfish was 1,961 mt, of which 589 fixed gear vessels caught 664 mt, while 48 trawl vessels caught 403 mt.

2.6.4 Incidental Catch Management

NMFS determines annually how much of the TAC for each groundfish species is needed for incidental catch in other groundfish fisheries. The remainder of the TAC is made available as a directed fishing allowance. Directed fishing is defined in regulation as "any fishing activity that results in the retention of an amount of a species or species group onboard a vessel that is greater than the MRA for that species or species group."

During a fishing year, NMFS routinely closes directed fishing for specified groundfish species. Directed fishing closures occur because a fishery has reached a halibut or crab bycatch allowance, the directed fishing allowance for a target groundfish species has been reached, or because of overfishing concerns for another groundfish species taken as bycatch. When directed fishing for a species is closed for any of these reasons, incidental catch amounts of the species may still be retained onboard a vessel up to the specified

percentage of other retained groundfish catch open to directed fishing. NMFS attempts to manage groundfish TACs so that directed fishing closures are implemented in a timely manner, thereby providing sufficient portions of the TAC to allow for incidental catch in other fisheries. When the harvest amount approaches or reaches the TAC, NMFS may place the species on “prohibited species” status, and any catch of that species must be discarded. If the harvest amount approaches the overfishing level, then NMFS may close those directed fisheries which take the species as bycatch, to prevent overfishing.

Since nearly all the rockfish caught by the fixed gear CVs are incidental to their directed fisheries, MRAs are integral to the management of rockfish for the fixed gear CVs. MRAs are the primary tool NMFS uses to regulate the catch of species closed to direct fishing. When NMFS prohibits directed fishing for a groundfish species, retention of the catch of that species is allowed up to an MRA. In the case of the IFQ halibut and IFQ sablefish fisheries, when IFQ halibut or IFQ sablefish is on board the vessel, discarding of rockfish is prohibited unless rockfish are required to be discarded. The instances that require rockfish to be discarded are limited to rockfish catch in excess of the MRA and when rockfish are prohibited from being retained (prohibited species closure action).

The MRA tables (Tables 10 and 11 to 50 CFR part 679) show allowable retainable proportions of incidental catch species, relative to retained basis species open to directed fishing. The MRA tables are a matrix of proportions representing a range of rates of expected or accepted incidental catch of species closed to direct fishing, relative to target species. As a management tool, MRAs rely on the ability of the vessel operator to selectively catch groundfish species. The species open for a directed fishery are called the basis species in the MRA regulations. Groundfish species not open for a directed fishery is the incidental catch species. The MRA percentages are intended to slow the rate of harvest of a species when insufficient TAC amounts are available to support a directed fishery.

MRA regulations at § 679.20(e) establish the calculation method and set individual MRAs for groundfish species or species groups, when directed fishing for that species is closed. The MRA is calculated as a percentage of the retained amount of a species closed to direct fishing, relative to the retained amount of basis species or basis species groups open for directed fishing. Amounts that are caught in excess of the MRA percentage must be discarded. Table 2-6 shows the rockfish MRAs in the BSAI and GOA for the fixed gear fisheries. NOAA Office of Law Enforcement (OLE) may confiscate the overage amount and assesses a fine for the overages delivered in the same calendar year.

Table 2-6 Rockfish MRAs for fixed gear fisheries in the BSAI and GOA

Basis Species	BSAI		GOA	
	Shortraker/rougheye	Aggregated rockfish ²	Shortraker/rougheye	Aggregated rockfish ³
Pacific cod	2	5	*	5
Sablefish	7	15	7	15
Aggregated non-groundfish species ¹	2	5	*	5

Source: Tables 10 and 11 to Part 679 – GOA and BSAI Retainable Percentages

1 All legally retained species of fish and shellfish including CDQ halibut and IFQ halibut that are not listed as FMP groundfish.

2 Aggregated rockfish in BSAI includes all “rockfish” as defined at § 679.2, except shortraker and rougheye rockfish

3 Aggregated rockfish in GOA (see § 679.2) means any species of the genera *Sebastes* or *Sebastolobus* except *Sebastes ciliates* (dark rockfish), *Sebastes melanops* (black rockfish), and *Sebastes mystinus* (blue rockfish), except in: SEO District where DSR is a separate species group for those species marked with an MRA; Eastern Regulatory Area where shortraker and rougheye is a separate species group for those species marked with an MRA.

*Where an MRA is not indicated, use the MRA for shortraker/rougheye included under Aggregated rockfish.

When NMFS prohibits directed fishing for a groundfish species, MRAs buffer the amount of catch of that species occurring in directed groundfish fisheries that remain open. Ideally, the application of an MRA slows catch of a species, so that harvest can be managed up to the TAC by the end of the year. Beyond

management of a TAC to obtain optimum yield, MRA calculations perform two additional functions. First, MRAs limit retention to a species expected or accepted incidental catch rate. Second, the MRA functions as a trip limit for retention of incidental catch of a species. This function allows for limited targeting of a species up to the MRA (topping off).

Topping off works in this way: the MRA tables assign an MRA percentage for species not open for directed fishing to each species open to directed fishing. If a vessel does not catch its MRA while directed fishing for a target species that are open for directed fishing before the end of a fishing trip, the vessel may be able to make some target sets on the incidental catch species and still not exceed its MRA.

The incentive for vessel operators to top off is directly related to the value of, and available market for, the incidental catch species in relation to the species being targeted. From the management perspective, limiting the amount of incidental catch a vessel operator is allowed to retain is a tool to slow down harvest rates, which therefore do not necessarily reflect an “intrinsic” incidental catch rate, but rather reflect a balance between the recognized need to slow harvest rates, minimize the potential for undesirable discards, and, in some cases, provide an increased opportunity to harvest available TAC.

Provided in Table 2-7 and Table 2-8 are the MRAs for the different rockfish species by area in state waters. MRAs can be challenging for a vessel operator to understand since rates for the different rockfish vary depending on the target fishery and the area in which a vessel is fishing. The inconsistency of MRA regulations between the federal and state target fisheries, between different rockfish species, and different areas makes it harder for a vessel operator to ensure compliance.

Table 2-7 Rockfish for Central GOA, Western GOA, AI, and BS by state management

State Management Area	Federal Area	Alaska state water MRA/MCA MRA/MCA
Eastern Gulf of Alaska	Eastern GOA	See Table 2-8
Prince William Sound	Eastern GOA and Central GOA	10% combined rockfish (including Thornyhead), except: 20% rockfish in sablefish fishery, 5% rockfish in Pacific cod fishery, and 0.5% rockfish in pollock trawl fishery
Cook Inlet	Central GOA	10% combined rockfish (including Thornyhead), except during directed pelagic shelf rockfish jig fishery - 20% nonpelagic rockfish
Kodiak Chignik	Central GOA	Kodiak black and dark rockfish - 20% for jig gear, 5% for non-jig gear; Chignik black rockfish - 5% for all gear types; Chignik dark rockfish - 20% for all gear types; all other rockfish mirrors federal MRAs
South Alaska Peninsula	Western GOA	5% black rockfish - all other gear 20% dark rockfish - jig gear all other rockfish mirrors federal MRAs
Bering Sea - Aleutian Islands	Aleutian Islands	20% black and dark rockfish all other rockfish mirrors federal MRAs
Bering Sea - Aleutian Islands	Bering Sea	20% black and dark rockfish all other rockfish mirrors federal MRAs

MCA = maximum commerce allowance (equivalent to an MRA, however MRAs don't apply under a full retention requirement)

Table 2-8 Rockfish MRA for SEO inside, SEO, and Icy Bay by state management

Area	Alaska state water MRA/MCA						Salmon troll target
	Halibut target	DSR target	Black rockfish target - Jig only	Lingcod target - Jig only	Sablefish target	Pacific cod target	
Southeast inside	Aggregated rockfish: DSR - 10%; black, blue, & dark rockfish -15%; all other rockfish & thornyheads - 5%	Aggregated rockfish: Shortraker & Rougheye - 7%; black, blue, & dark rockfish -15%; all other rockfish & thornyheads - 15%	n/a	n/a	Longline: DSR - 1%; Shortraker & Rougheye -7%; all other rockfish & thornyheads - 15%. Pot: no retention thornyheads-5%;other rockfish-0%	Longline: DSR - 10%; silvergrey - 20%; shortraker, rougheye, & thornyheads - 20%; all other rockfish 20%. Pot:thornyheads-5%; other rockfish-0%	DSR - 10%, full retention not required for salmon troll; other rockfish- incidental retention allowed
Southeast outside			Aggregated rockfish: DSR -10%; dusky & yellowtail -20%; blue & dark - 15%; all other rockfish & thornyheads - 15%	Aggregated rockfish: DSR - 10%; black, blue, & dark - 15%; all other rockfish & thornyheads - 5%	n/a	Longline: DSR - 10%; black, blue & dark- 5%; all other rockfish and thornyheads 5%. Pot: thornyheads-5%; other rockfish-0%	
Icy Bays subdistrict (140° to 144°)		n/a	n/a	n/a	n/a		

MCA = maximum commerce allowance (equivalent to an MRA, but MRAs don't apply under a full retention requirement)

2.6.5 Full Retention of Demersal Shelf Rockfish

Although this proposed action would require full retention of all rockfish by fixed gear CVs, one rockfish species group is already fully retained through regulations. Starting in 2005, operators of a federally permitted CV using hook-and-line or jig gear in the SEO of the GOA were required to retain and land all DSR caught while fishing for groundfish or for Pacific halibut under the IFQ program. The Council’s objective in requiring full retention of DSR by fixed gear CVs fishing in the SEO included:

- To improve data collection on the incidental catch of DSR in the halibut and groundfish hook-and-line fisheries in the SEO in order to more accurately estimate DSR fishing mortality, improve DSR stock assessments, and evaluate whether current MRAs are the appropriate levels for DSR in the SEO;
- To minimize waste to the extent practicable;
- To avoid either increasing incentives to target on DSR or increasing incentives to discard DSR that is caught in excess of the amount that can legally be sold for profit; and
- To maintain a consistent approach within state and federal regulations that governs the retention and disposition of DSR (NMFS, 2004).

The FMP delegates to the State some management responsibility for the DSR fishery in the SEO of the eastern GOA, subject to Council and federal oversight. The Council and NMFS establish the TAC for DSR (see § 679.20), regulate the catch of prohibited species in the DSR directed fishery (see § 679.21), set recordkeeping and reporting requirements (see § 679.5), and impose an MRA requirement for DSR caught incidentally in federal fisheries (see § 679.20(d) and (e); Table 10 to Part 679). Existing state regulations for DSR establish fishing seasons (5 AAC 28.130) and gear restrictions (5 ACC 28.130), set guideline harvest levels for directed DSR fishing based on the federal TAC (5 ACC 28.160), and limit the amount of DSR that can be retained as bait (5 AAC 28.190). The state has a full retention requirement for DSR caught in state waters (5 AAC 28.171).

The only exception to the full retention requirement for DSR is when on prohibited species status. If NMFS were to put DSR on prohibited species status, regulations require that DSR must be discarded.

For species with full retention requirements, like DSR, the MRA is the percent of retained species that can enter commerce. Anything over the MRA for a full retention species is prohibited from entering commerce and is referred to as an overage. For example, an individual is limited to selling an amount of retained DSR that is no more than 10 percent of the aggregate round weight equivalent of IFQ halibut and groundfish, other than IFQ sablefish, that is retained onboard the vessel. For IFQ sablefish, an individual is limited to selling an amount of retained DSR that is no more than 1 percent of the aggregate round weight equivalent of IFQ sablefish that is retained onboard the vessel. Amounts of DSR in excess of the sale limits are prohibited from entering commerce through sale, barter, or trade, although when a vessel lands DSR in excess of the MRA limits, the fish is either used for personal consumption, donated, or is discarded at the processor.

OLE receives notification of numerous DSR overages throughout the year. For a DSR overage, OLE verifies the product has not entered commerce through voluntary reporting and eLandings. As long as the DSR overage has not entered commerce, OLE does not investigate it any further. Most of the time, the OLE investigation can be completed with one phone call to verify the overage did not enter commerce. This is not a burdensome task, and OLE are freed up to work other investigations. OLE has had at least 3 cases in 2017, where the buyer/processor purchased DSR in excess of the MRA.

2.6.6 State of Alaska Rockfish Retention Requirements

Other than DSR full retention requirements, state managed black rockfish, and full rockfish retention requirements when IFQ halibut and IFQ sablefish are onboard vessels, there are no other federal waters rockfish retention requirements. The state, on the other hand, has differing full rockfish retention requirements depending on the area and/or species. Table 2-9, provides a summary of the current rockfish retention requirements by area in federal and state waters. The following is a summary of the rockfish retention requirements by area in federal and state waters.

Black and dark rockfish are not managed under the BSAI and GOA FMP. Management of these species fall to the State. While these species are primarily located inside state waters, their range does extend into federal waters. As identified in Table 2-9, full retention is required for these species in the Eastern GOA, but management of these species in areas west of Icy Bay subdistrict mirror federal MRAs in federal waters.

In the Westward Region, which equates to all federal management areas west of Kodiak, all state rockfish retention requirements mirror federal retention requirements. This is done through the global emergency order each year to ensure there are not different regulations for rockfish retention during state fisheries/parallel fisheries.

In state waters of Prince William Sound (PWS) and Cook Inlet Areas (latitude of Cape Douglas east to longitude of Cape Suckling), ADF&G requires full retention of all rockfish due to their high discard mortality rate.

In the Southeast and Yakutat area, retention requirements for rockfish are also different between the state and federal management (see Figure 2-1). In state waters (internal), full retention is required of all rockfish (excluding thornyheads) for vessels fishing for groundfish or halibut. In state waters (0-3 nm) and in federal waters east of 140° W. longitude, vessels fishing for groundfish and halibut are required to retain all DSR and black rockfish.

Table 2-9 Current rockfish retention requirements by area in federal and state

Area	Federal waters <i>Retention requirement</i>	Alaska state water <i>Retention requirement</i>
Southeast inside	n/a	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Southeast outside	Full retention of DSR and black rockfish only	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Eastern GOA: Icy Bay subdistrict (140° to 144°)	Full retention of black rockfish only	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Eastern GOA west of 144° (including PWS inside waters)	Full retention of rockfish when IFQ halibut and IFQ sablefish are onboard; otherwise full retention not required	Full retention of all rockfish in all fisheries
Central GOA	Full retention of rockfish when IFQ halibut and IFQ sablefish are onboard; otherwise full retention not required	Full retention of all rockfish in all fisheries in PWS & Cook Inlet Areas; No retention requirement south of 58° 51.10' N lat (Kodiak/Chignik)
Western GOA	Full retention of rockfish for when IFQ halibut and IFQ sablefish are onboard otherwise full retention not required	No retention requirement
Aleutian Islands	Full retention of rockfish when IFQ halibut and IFQ sablefish are onboard; otherwise full retention not required	No retention requirement
Bering Sea	Full retention of rockfish when IFQ halibut and IFQ sablefish are onboard; otherwise full retention not required	No retention requirement

In the Icy Bay Subdistrict (140° to 144° W. long.) (labeled IBS on Figure 2-1) full retention of DSR is required in state waters but is not a requirement for federal waters. Full retention of black rockfish is required in the 0-3 nm section as well as in federal waters for vessels fishing for groundfish or halibut. There are no groundfish full-retention requirements in the salmon troll fishery.

As described in the previous section, IFQ permit holders may sell up to 10 percent of their retained DSR, by weight based on the round weight of basis species, except that sablefish permit holders are restricted to 1 percent. DSR overages from federal waters must be retained for personal use or donated but may not be sold. DSR overages from state waters are forfeited to the State and no enforcement action is pursued. ADF&G does allow permit holders to retain state DSR bycatch overage for personal use, but all overages must be reported on the fish ticket.

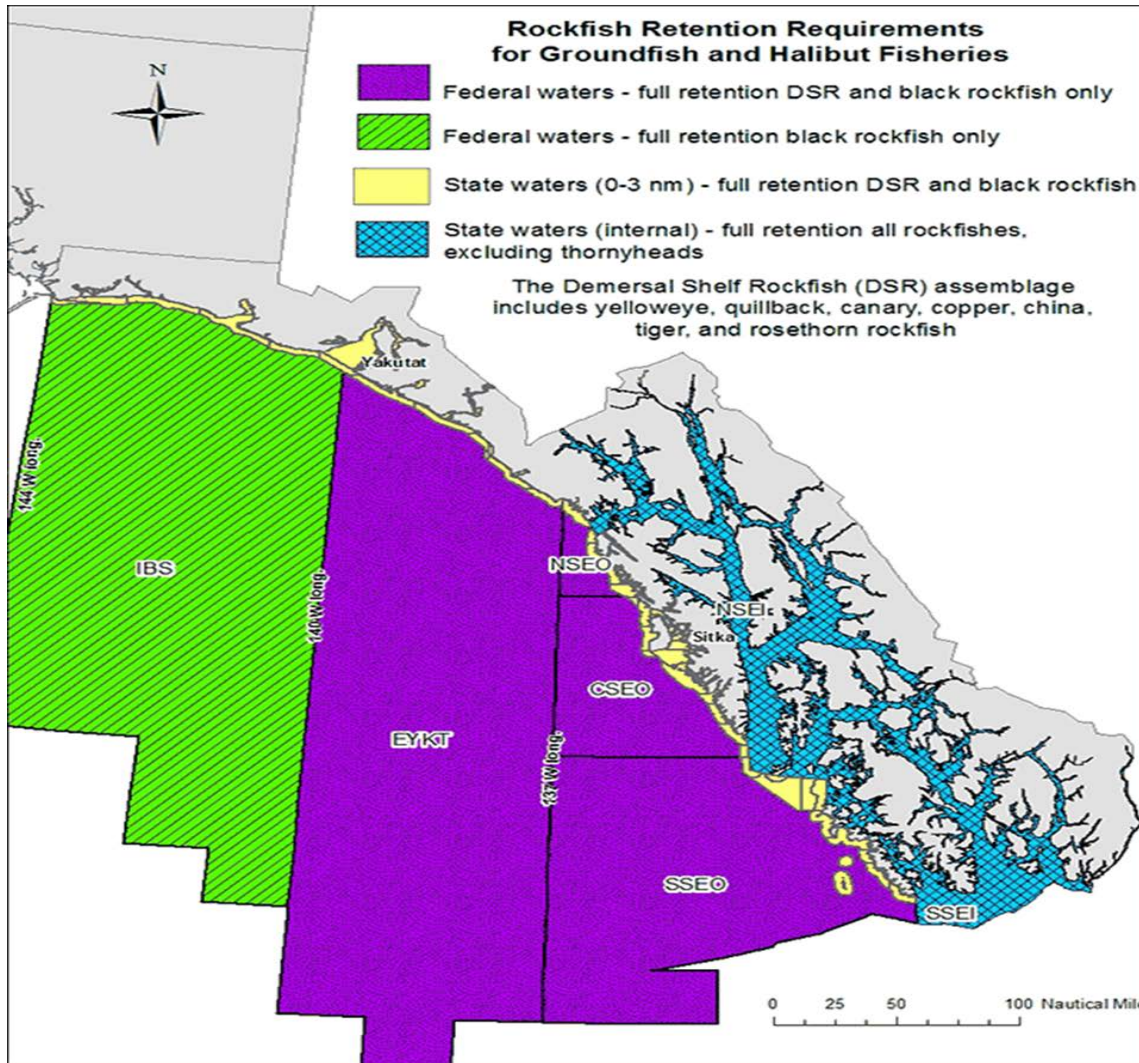


Figure 2-1 Rockfish retention requirements for groundfish and halibut fisheries in Southeast Alaska and Yakutat commercial fisheries

2.7 Expected Effects of Alternatives

This section presents a discussion of the economic, management, and enforcement effects that might be expected to occur as a result of requiring full retention of rockfish in the BSAI and GOA for fixed gear CVs. The purpose of this proposed action stems from the benefits of full retention of rockfish by fixed gear CVs. These benefits include improving the identification of species when CVs are subject to EM, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between state and federal fisheries.

Assessing the effects of the alternatives and options involves some degree of speculation. In general, the effects arise from the actions of individual participants in the fisheries, under the incentives created by different alternatives and options. Predicting these individual actions and their effects is constrained by incomplete information concerning the fisheries, including the absence of complete economic information and well-tested models of behavior under different institutional structures. In addition,

exogenous factors, such as stock fluctuations, market dynamics, and macro conditions in the global economy, will influence the response of the participants under each of the alternatives and options.

2.7.1 Alternative 1, No Action

Alternative 1 is the no action alternative. Alternative 1 would continue to maintain the existing management regime. To understand the impacts of this alternative, this section provides recent historical information at the sector level that is intended to characterize the status quo alternative.

2.7.1.1 Description of the Fixed Gear CVs Directed Fisheries

The directed fisheries for fixed gear CVs is primarily IFQ halibut, IFQ sablefish and Pacific cod. This section includes a description of the seasons for these directed fisheries. Also included in this section is a description of the directed fishing effort and value of the directed fisheries by gear during the last five years.

In general, under Alternative 1, absent significant changes in harvest limits or market conditions, fishing activity for the different fixed gear CV groups in the below directed fisheries will likely continue at current levels. Increases in harvest limits or increases in exvessel price could result in more fixed gear CVs participating, while declines in the harvest limits or exvessel prices could reduce the number of fixed gear CVs participating in the directed fisheries.

Description of Directed Fishery Seasons

The Pacific cod directed fisheries have a different fishing season depending on the gear type. A summary of these different seasons for each of the gears is provided below:

Jig

- Pacific cod jig fisheries are open in all areas of the BSAI and GOA. These fisheries open by regulation on January 1 and typically remain open through the entire year, unless the jig allocation is reached. There has been limited effort in federal jig fisheries in recent years. Since 2013, there have been two closures to jig gear, both in the Central GOA. These closures occurred in March in both 2015 and 2016. In 2016, the fishery was reopened 2 weeks later and remained open throughout the remainder of the year.

Hook-and-line

- Pacific cod fisheries have two seasons. The A season (winter/spring) opens by regulation on January 1 and typically close in February or March when the hook-and-line allocations are reached. The B season (fall) opens on September 1 and typically remains open through December 31. There is more hook-and-line effort for Pacific cod and better fishing in the A season than in the B season.
- Halibut season dates are set by the International Pacific Halibut Commission (IPHC) and typically open in mid to late March and close in early November.
- Sablefish season dates take into account the opening date of the halibut season set by the IPHC when determining the opening date for sablefish for the purposes of reducing bycatch and regulatory discards between the two fisheries.

Pot

- Pacific cod fisheries have two seasons. The A season (winter/spring) opens by regulation on January 1 and typically close in February when the pot allocation is reached. The B season (fall) opens on September 1 and typically remains open through December 31. There is more pot effort and better fishing in the A season than in the B season.
- Sablefish season dates take into account the opening date of the halibut season set by the IPHC when determining the opening date for sablefish for the purposes of reducing bycatch and regulatory discards between the two fisheries and typically open in mid-late March and close in early November.

Description of Directed Fishing Activity

Table 2-10 through Table 2-17 summarize directed fishing activity in the BSAI and GOA for each of the fixed gear CVs from 2013 through 2017. The tables include vessel count, vessel size, retained catch, total catch, and exvessel value by target species. Total and retained catch only includes directed fisheries in federal and state waters and does not include catch from the state directed fisheries. In addition, exvessel price data was not yet available for the 2017 fishing year, so the exvessel value for the 2017 retained catch is not included in the tables.

Table 2-10 and Table 2-11 provide a vessel count and total catch of Pacific cod, IFQ halibut, and IFQ sablefish combined for fixed gear CVs by vessel length and gear type in the BSAI and GOA for the 2017 fishing season. As seen from Table 2-10, hook-and-line gear was the most prominent for almost all vessel size categories. Of the different vessel length categories for the hook-and-line gear, the less than 30' group had the largest number of vessels at 34 during the 2017 fishing year, but their total catch was the lowest amongst the vessel size groupings. Amongst the different gear groups in the BSAI, pot vessels had the largest total catch at 12,908 mt for the over 100' vessel size group and 11,372 mt for the 50' to 60' vessel size group.

In GOA, the hook-and-line gear had the largest number of vessels and total catch. Amongst the hook-and-line gear, the 30' to 40' group had the highest vessel count at 234 vessels followed by the 50' to 60' group at 224 and the 40' to 50' group at 201 vessels. The vessel length group with the highest total catch in the GOA was the 50' to 60' for both hook-and-line gear and pot gear at over 8,000 mt.

Table 2-10 Vessel count and total catch (mt) of Pacific cod, IFQ halibut, and IFQ sablefish for fixed gear CVs by vessel length and gear type in the BSAI for 2017

Vessel length	HAL		JIG		POT	
	Vessel count	Catch (mt)	Vessel count	Catch (mt)	Vessel count	Catch (mt)
Less than 30 feet	34	122				
30 feet - 40 feet	33	283				
40 feet - 50 feet	14	292	1	c	1	c
50 feet - 60 feet	30	956			21	11,372
60 feet - 100 feet	17	470			6	1,300
Greater than 100 feet	3	128			32	12,908

Source: CAS; May, 2018

c = confidential data

Table 2-11 Vessel count and total catch (mt) of Pacific cod, IFQ halibut, and IFQ sablefish for fixed gear CVs by vessel length and gear type in the GOA for 2017

Vessel length	HAL		JIG		POT	
	Vessel count	Catch (mt)	Vessel count	Catch (mt)	Vessel count	Catch (mt)
Less than 30 feet	91	184	3	< 1		
30 feet - 40 feet	234	2,282	38	49	3	39
40 feet - 50 feet	201	4,615	43	14	10	380
50 feet - 60 feet	224	8,749	13	13	69	8,051
60 feet - 100 feet	48	3,376			14	3,370
Greater than 100 feet	5	128			10	2,405

Source: CAS; May, 2018

Looking at the hook-and-line CVs in Table 2-12 and Table 2-13, the primary fisheries for this gear type were IFQ halibut, IFQ sablefish, and Pacific cod. Looking at the GOA, IFQ halibut had the largest number of hook-and-line CVs, which ranged from a low of 787 vessels in 2017 to a high of 872 vessels in 2013. The estimated exvessel value of the GOA IFQ halibut fishery ranged from a low of \$113 million in 2014 to a high of \$125 million in 2017. The GOA IFQ sablefish fishery was also prominent for the hook-and-line CVs. The number of participating hook-and-line CVs active in the GOA IFQ sablefish fishery ranged from a low of 271 vessels in 2017 to high of 311 vessels in 2013. The estimated exvessel value of GOA IFQ sablefish fishery ranged from a low of \$72 million in 2013 to a high of \$80 million in 2015.

Not as prominent as the GOA IFQ fisheries, but likely no less crucial for some hook-and-line CVs, the BSAI IFQ halibut fishery ranged from a low of 127 vessels in 2016 to a high of 220 vessels in 2013. The exvessel value of the BSAI IFQ halibut fishery ranged from a low of \$21 million in 2014 to a high of \$26 million in 2016.

Table 2-12 Vessel count, retained catch (mt), and exvessel value of target species in the BSAI by species for hook-and-line CVs from 2013-2017

Year	IFQ Halibut			IFQ Sablefish			Pacific cod		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013	220	2,214	\$21,131,256	40	570	\$4,873,280	41	1,033	\$644,731
2014	154	1,750	\$20,755,347	37	515	\$5,969,879	27	2,167	\$1,436,829
2015	129	1,821	\$23,277,704	39	355	\$4,152,942	34	756	\$472,095
2016	127	1,975	\$25,884,084	38	221	\$2,399,821	29	20	\$12,974
2017	130	1,999	NPD	27	161	NPD	38	92	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

NPD = Exvessel prices have not been released

Table 2-13 Vessel count, retained catch (mt), and exvessel value of target species in the GOA by species for hook-and-line CVs from 2013-2017

Year	IFQ Halibut			IFQ Sablefish			Pacific cod		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013	872	10,955	\$121,472,775	311	9,854	\$71,535,238	341	7,714	\$4,728,524
2014	868	8,254	\$113,645,867	294	8,513	\$76,977,569	320	7,469	\$5,174,341
2015	817	8,652	\$119,612,535	287	8,200	\$79,745,507	304	7,038	\$4,900,545
2016	810	8,663	\$125,299,166	285	7,295	\$79,615,624	272	3,043	\$2,058,856
2017	787	9,213	NPD	271	7,154	NPD	242	2,965	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

NPD = Exvessel prices have not been released

For pot CVs, the number of CVs active in both BSAI and GOA directed fisheries (Table 2-14 and Table 2-15) are significantly less than the hook-and-line CVs (Table 2-12 and Table 2-13). In the BSAI, pot CVs participated in the IFQ sablefish and Pacific cod fisheries, while in the GOA, they participated only in the Pacific cod prior to 2017. Starting in 2017, pot CVs participated in the GOA IFQ sablefish fisheries. Prior to 2017, pots were not an authorized gear for IFQ halibut and IFQ sablefish fisheries in the GOA and is still not an authorized gear in the IFQ halibut fishery in the BSAI.

For pot CVs in the BSAI, the Pacific cod fishery had the largest number of vessels, which ranged from a low 44 vessels in 2015 to high of 56 vessels in 2017. The estimated exvessel value of the BSAI Pacific cod fishery for the pot CVs ranged from a low of \$13.7 million in 2015 to a high of \$15.5 million in 2014. The only other directed fishery for the pot CVs in the BSAI, IFQ sablefish, was significantly less than the Pacific cod fishery. In the IFQ sablefish fishery, the number of vessels ranged from low of 3 in 2015 to high of 6 in 2017. The estimated exvessel value of the IFQ sablefish fishery for the BSAI pot CVs ranged from \$1.4 million in 2015 to \$3.7 million in 2013 and 2014.

In the GOA, the Pacific cod fishery for the pot CVs ranged from a low of 80 vessels in 2014 to a high of 98 vessels in 2016. The estimated exvessel value of the Pacific cod fishery ranged from a low \$10.4 million to a high of over \$14.2 million in 2015.

Table 2-14 Vessel count, retained catch (mt), and exvessel value of target species in the BSAI by species for pot CVs from 2013-2017

Year	IFQ Halibut			IFQ Sablefish			Pacific cod		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013				4	438	\$3,744,738	53	23,367	\$14,576,939
2014				4	324	\$3,758,608	46	23,419	\$15,528,300
2015	NA	NA	NA	3	120	\$1,402,732	44	21,879	\$13,671,665
2016				4	177	\$1,921,044	46	23,333	\$15,051,215
2017				6	488	NPD	56	25,252	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

NPD = Exvessel prices have not been released

Table 2-15 Vessel count, retained catch (mt), and exvessel value of target species in the GOA by species for pot CVs from 2013-2017

Year	IFQ Halibut			IFQ Sablefish			Pacific cod		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013							89	16,900	\$10,359,676
2014	NA	NA	NA	NA	NA	NA	80	19,729	\$13,668,025
2015							92	20,427	\$14,222,665
2016							98	19,132	\$12,943,970
2017	14	16	NPD	22	883	NPD	91	13,346	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

NPD = Exvessel prices have not been released

Jig CVs are most prominent in the GOA with very little activity in the BSAI (Table 2-16 and Table 2-17). The primary fisheries in GOA for jig vessels were IFQ halibut, Pacific cod, and rockfish. The number of jig vessels participating in these fisheries were similar, with slightly less jig vessels active in the Pacific cod fishery. The number of jig vessels active in the IFQ halibut fishery ranged from a low 61 vessels in 2015 to high of 69 vessels in 2017. The estimated exvessel value of the IFQ halibut jig fishery ranged from a low \$72 thousand to a high of nearly \$200 thousand. The number of jig vessels in the Pacific cod fishery ranged from a low of 29 vessels in 2017 to a high of 77 vessels in 2014. The estimated exvessel value of the Pacific cod fishery ranged from a low of \$200 thousand in 2016 to a high of over \$700 thousand in 2013. For the rockfish fishery, the numbers of active jig vessels were similar to Pacific cod fishery, but the estimated exvessel value was generally less than \$50 thousand each year. In the BSAI, jig vessel activity was very limited with the exception of the halibut fishery in 2013 at 98 active jig vessels with an estimated exvessel value of over \$200 thousand.

Table 2-16 Vessel count, retained catch (mt), and exvessel value of target species in the BSAI by species for jig vessels from 2013-2017

Year	Halibut			Pacific cod			Rockfish		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013	98	25	\$236,763	16	15	\$9,358	0	0	\$0
2014	4	2	\$18,464	2	*	*	1	*	*
2015	0	0	\$0	4	28	\$17,496	1	*	*
2016	0	0	\$0	2	*	*	2	*	*
2017	0	0	NPD	1	*	NPD	0	0	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

* Confidential data

NPD = Exvessel prices have not been released

Table 2-17 Vessel count, retained catch (mt), and exvessel value of target species in the GOA by species for jig vessels from 2013-2017

Year	Halibut			Pacific Cod			Rockfish		
	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value	Vessels count	Catch (mt)	Exvessel value
2013	65	6	\$72,015	55	476	\$291,518	55	21	\$22,222
2014	65	11	\$155,443	77	1,046	\$724,757	49	17	\$16,490
2015	61	14	\$189,939	49	408	\$284,138	45	17	\$20,988
2016	66	10	\$144,656	74	346	\$234,060	66	43	\$51,191
2017	69	10	NPD	29	67	NPD	69	30	NPD

Source: Vessel count and retained catch from NMFS Sustainable Fisheries & price data from AKFIN

NPD = Exvessel prices have not been released

2.7.1.2 Incidental Catch and Value by Rockfish Species/Complex

Large amounts of rockfish are taken as incidental catch in the directed fisheries for IFQ halibut, IFQ sablefish, and Pacific cod. Table 2-18 and Table 2-19 provide incidental catch for the fixed gear CVs for each rockfish species/species group in BSAI and GOA from 2013 through 2017. In the BSAI, the highest amount of incidental catch was thornyhead rockfish, which are part of the other rockfish group, followed by shortraker rockfish. In GOA, the highest amount of incidental catch was thornyhead rockfish followed by shortraker rockfish, other rockfish, rougheye/blackspotted rockfish, and demersal shelf rockfish. Catch totals for yelloweye rockfish are parsed from each of the larger rockfish complex they are managed under to provided visibility for this species given its value.

It is likely under Alternative 1, that the amount of incidental catch of the different rockfish species/species groups in the BSAI and GOA would likely continue at current levels. It is possible that incidental catch of rockfish species/species groups could increase or decrease with changes in directed fishery harvest limits or market conditions. In addition, changes in market conditions for rockfish species could also influence incidental catch of rockfish by the fixed gear CV fleet.

Table 2-18 BSAI catch (mt) for fixed gear catcher vessels by rockfish species/complex from 2013-2017

Rockfish species/complex	Catch by year (mt)				
	2013	2014	2015	2016	2017
Pacific Ocean perch	0	3	1	0	0
Northern rockfish	2	1	1	1	0
Rougheye/blackspotted	5	7	2	4	11
Shortraker rockfish	46	37	23	15	21
Other rockfish	74	149	56	51	43

Source: NMFS Sustainable Fisheries

Table 2-19 GOA catch (mt) for fixed gear catcher vessels by rockfish species/complex from 2013-2017

Rockfish species/complex	Catch by year (mt)				
	2013	2014	2015	2016	2017
Pacific Ocean perch	2	1	1	10	1
Northern rockfish	8	5	3	9	9
Dusky rockfish	20	15	23	33	34
Shortraker rockfish	317	276	213	195	203
Rougheye/blackspotted	202	176	177	135	126
Other rockfish	273	151	186	209	181
<i>Yelloweye rockfish</i> ¹	149	87	87	93	90
Thornyhead rockfish	842	601	632	601	543
Demersal shelf rockfish	92	73	71	78	90
<i>Yelloweye rockfish</i> ²	87	70	67	72	86

Source: AKFIN, Sept 26, 2018

Table originates from file Rock_Ret_Catch_(9-26-18)

Yellow eye rockfish catch is a portion of the species complex

¹Except DSR which is managed in SEO, yellow eye rockfish is managed as part of "other rockfish" species group in the GOA.

²The primary species of the DSR fishery is yellow eye rockfish, which is managed in the SEO.

The next series of tables (Table 2-20 and Table 2-21) provide exvessel price information for the BSAI and GOA rockfish species/species groups caught using fixed gear during the 2013 through 2016 fishing years. Exvessel price data for 2017 is not yet available. Since the BSAI rockfish species/species groups for the fixed gear sectors are generally closed, the exvessel prices are from incidental caught rockfish while targeting other groundfish. In the BSAI, the rockfish species with the highest exvessel prices was other rockfish. In the GOA, DSR had the highest exvessel price with an average of \$1.32 per pound during the 2013 through 2016 fishing period. Of the DSR species, yelloweye rockfish had the highest exvessel price. Exvessel prices for incidental catch of yelloweye rockfish that are managed in the other rockfish complex is also provided. The remaining rockfish species/species groups exvessel prices in the GOA for fixed gears vessels are general lower.

Table 2-20 Fixed gear exvessel prices (\$/lbs.) by BSAI rockfish species/species groups from 2013-2016

Year	Northern rockfish	POP	Rougheye & blackspotted rockfish	Other rockfish	Shortraker rockfish
2013	0.02	No reported price	0.32	0.70	0.18
2014	No reported price	0.32	0.23	0.69	0.46
2015	No reported price	0.50	0.20	0.71	0.62
2016	0.31	0.11	0.18	0.69	0.30

Source: AKFIN

Table 2-21 Fixed gear exvessel prices (\$/lb.) by GOA rockfish species/species groups from 2013-2016

Year	POP	Shortraker rockfish	Dusky rockfish	DSR		Northern rockfish	Other rockfish		Rougheye & blackspotted rockfish	Thornyhead rockfish
				Complex	Yelloweye		Complex	Yelloweye		
2013	0.16	0.37	0.36	1.43	1.47	0.17	0.58	0.70	0.34	0.92
2014	0.50	0.41	0.36	1.62	1.70	0.22	0.60	0.73	0.36	0.83
2015	0.34	0.41	0.41	1.54	1.60	0.02	0.55	0.67	0.38	0.79
2016	0.50	0.40	0.46	1.51	1.58	0.44	0.60	0.78	0.38	0.78

Source: AKFIN

Utilizing the above incidental catch (Table 2-18 and Table 2-19) and exvessel prices (Table 2-20 and Table 2-21), Table 2-22 and Table 2-23 provide the exvessel value by rockfish species/species groups in the BSAI and GOA for fixed gear CVs from 2013 through 2016. In the BSAI, other rockfish had the highest exvessel value relative to other rockfish species/species groups. In the GOA, thornyhead rockfish had the highest exvessel value followed by DSR. The high exvessel value for DSR relative to the higher catch amounts for shortraker rockfish and rougheye/blackspotted rockfish, is due to the high exvessel price of DSR, particularly yelloweye rockfish.

Table 2-22 Exvessel value of incidental rockfish species/species groups in the BSAI for fixed gear CV from 2013-2016

Rockfish species/complex	Exvessel value of catch by year			
	2013	2014	2015	2016
Pacific Ocean perch	\$0	\$2,260	\$556	\$0
Northern rockfish	\$75	\$29	\$625	\$0
Rougheye/blackspotted	\$3,886	\$3,521	\$2,763	\$1,490
Shortraker rockfish	\$18,049	\$36,921	\$30,829	\$9,973
Other rockfish	\$113,609	\$227,900	\$86,346	\$77,937

Source: NMFS Sustainable Fisheries

Table 2-23 Exvessel value of incidental rockfish species/species groups in the GOA for fixed gear CV from 2013-2016

Rockfish species/complex	Exvessel value of catch by year			
	2013	2014	2015	2016
Pacific Ocean perch	\$757	\$1,529	\$728	\$10,862
Northern rockfish	\$3,085	\$2,227	\$92	\$8,680
Dusky rockfish	\$16,010	\$11,804	\$20,604	\$33,236
Shortraker rockfish	\$256,837	\$250,492	\$669,489	\$173,478
Rougheye/blackspotted	\$151,217	\$138,091	\$149,732	\$113,680
Other rockfish	\$346,642	\$198,576	\$224,590	\$274,315
<i>Yelloweye rockfish</i> ¹	\$229,940	\$140,014	\$128,506	\$159,922
Thornyhead rockfish	\$1,700,083	\$1,098,379	\$1,104,421	\$1,029,799
Demersal shelf rockfish	\$289,169	\$260,642	\$240,486	\$259,211
<i>Yelloweye rockfish</i> ²	\$281,946	\$262,347	\$236,333	\$250,795

Source: AKFIN

Yellow eye rockfish value is a portion of the species complex

¹Except DSR which is managed in SEO, yellow eye rockfish is managed as part of "other rockfish" species group in the GOA.

²The primary species of the DSR fishery is yellow eye rockfish, which is managed in the SEO.

2.7.1.3 Incidental Catch of Rockfish by Gear

Incidental catch of rockfish is highest for hook-and-line CV fisheries in the GOA. For the hook-and-line CV fisheries, the IFQ sablefish fishery in the GOA has the highest incidental catch followed by the hook-and-line halibut fishery in the GOA. Under Alternative 1, it is likely the hook-and-line CVs would continue to have the highest incidental catch of rockfish. Provided below are tables showing incidental catch amounts and incidental catch rates for the IFQ sablefish, IFQ halibut, and Pacific cod target

fisheries for hook-and-line and pot CVs in the GOA and BSAI. Jig gear were not included because of lack of rockfish incidental catch data.

Table 2-24 and Table 2-25 show the incidental catch and the percentage of total catch that is rockfish by gear type in the BSAI and the GOA. The calculation of the rates is the amount of total rockfish divided by the total retained groundfish and halibut in each gear type and FMP area. These data are from CAS which incorporates at sea discard rate estimates collected from observers and applied to non-observed trips. The data in these tables are aggregated for each year to prevent the release of confidential information. These data are limited to CVs delivering shoreside and do not include state fisheries or trips that were identified as directed fishing for rockfish. As a result, the methods and data are different from the data used in Section 2.7.2.4.

As seen from Table 2-24, in the BSAI, the hook-and-line CVs had the highest incidental catch of rockfish, while the pot CVs had significantly less incidental catch of rockfish. The average incidental catch rate of rockfish for the hook-and-line CVs in the BSAI from 2013 through 2017 was 3.15 percent, while the incidental catch rate for pot CVs was less than one percent during the same time period.

Table 2-24 Rockfish incidental catch and catch rates by gear type in the BSAI from 2013-2017

Year	Hook-and-line		Pot	
	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)
2013	120	3.11	7	0.03
2014	189	4.22	4	0.02
2015	75	2.53	3	0.01
2016	66	2.95	3	0.01
2017	63	2.93	1	0

Source: NMFS Sustainable Fisheries

In the GOA, the hook-and-line CVs had the highest amount of incidental catch, while the pot CVs had significantly less incidental catch of rockfish (Table 2-25). The average incidental catch of rockfish as a percentage of total catch for the hook-and-line CVs in the GOA from 2013 through 2017 was 5.83 percent, while the incidental catch rate for pot CVs was less than one percent during the same time period.

Table 2-25 Rockfish incidental catch and catch rates by gear type in the GOA from 2013-2017

Year	Hook-and-line		Pot	
	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)
2013	1,792	6.03	8	0.04
2014	1,313	5.2	9	0.05
2015	1,337	5.53	9	0.04
2016	1,270	6.49	19	0.1
2017	1,051	5.9	49	0.39

Source: NMFS Sustainable Fisheries

Given the low incidental rockfish catch that occurs with pot vessels (Table 2-24 and Table 2-25) and the lack of observed discard information for jig gear, the remainder of this section focuses on hook-and-line gear.

Table 2-26 and Table 2-27 show the incidental catch and the incidental catch rate of rockfish in the primary hook-and-line CV targets: IFQ halibut, IFQ sablefish, and Pacific cod. The rates are calculated using the same methods as noted above.

The rate of incidental catch of rockfish varies depending on the target fishery. The incidental catch of rockfish is highest in the hook-and-line sablefish fishery, followed by the hook-and-line halibut fishery. The high incidental catch of rockfish in the IFQ sablefish fishery is primarily due to incidental catch of thornyhead rockfish, which are more common in the sablefish fishery. Thornyhead rockfish tend to be more valuable than other species of rockfish and therefore have a higher retention rate. Discards of thornyhead rockfish are thought to be regulatory discards stemming from prohibited species closure actions and MRA limits.

Table 2-26 Hook-and-line rockfish incidental catch rates by target fishery in the BSAI from 2013-2017

Year	IFQ/CDQ Halibut		IFQ/CDQ Sablefish		Pacific cod	
	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)
2013	73	3.14	47	9.16	<1	0.01
2014	51	2.94	132	22.03	7	0.31
2015	52	2.76	21	6.06	2	0.26
2016	54	2.6	12	7.63	<1	0
2017	54	2.73	8	10.82	<1	0.15

Source: NMFS Sustainable Fisheries

Table 2-27 Hook-and-line rockfish incidental catch rates by target fishery in the GOA from 2013-2017

Year	IFQ Halibut		IFQ Sablefish		Pacific cod	
	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)	Incidental catch (mt)	Incidental catch rate (%)
2013	502	4.52	1,265	11.7	24	0.31
2014	403	4.84	900	9.56	11	0.14
2015	383	4.35	903	10.06	50	0.78
2016	384	4.41	853	10.51	33	1.19
2017	340	4.17	774	9.62	31	1.29

Source: NMFS Sustainable Fisheries

2.7.1.4 Retention of Incidental Catch of Rockfish

In most hook-and-line CV fisheries, more rockfish are retained than are discarded. Likely, this trend would continue under Alternative 1. Vessels with federal fisheries permits are required to retain rockfish that are taken when IFQ halibut or IFQ sablefish are on board unless rockfish are required to be discarded under other regulations (see § 679.7). The retention rate also varies, depending on the area, likely due to existing retention regulations. For example, in the Southeast Outside District of the GOA where there is full retention of DSR, a higher proportion of rockfish overall are retained. Observer data indicates this is not limited to only DSR but also includes other rockfish being retained at higher percentages than other areas. This may indicate that if any species has required full retention, then it incentivizes full retention of similar species as vessel operators seek to avoid a violation resulting from misidentification of the required full retention species.

CVs may not retain rockfish because of multiple reasons that are not easily identifiable. Two reasons could be from regulatory discards to prevent exceeding an MRA or a prohibited species closure action that prohibits retention of a particular species or species group. Other reasons could be lack of market or

available hold space on the vessel as discussed in Section 2.7.2.1. As Table 2-28 shows, more rockfish are being retained than discarded under current regulations. Those rockfish that are discarded are likely dead as a result of barotrauma. Barotrauma occurs due to a rockfish's inability to release expanding gasses in the swim bladder when they are brought to the surface

Using the same data used in Section 2.7.2.4, analysts estimated the retention of rockfish for the hook-and-line CVs in the GOA. Observers collect species composition and estimate how much was retained. On a fixed gear vessel, these estimates are considered to be representative of actual retention. This is because an observer on a longline vessel is tallying each fish as it is retrieved and the disposition of that fish during their sample. These data are informative and identify that most rockfish are already being retained. Table 2-28 shows the retention of rockfish on observed trip that were retained in the GOA. Due to limited data and confidentiality constraints, the same table for the BSAI is not available. However, the BSAI has lower retention than the GOA.

Table 2-28 Retention of rockfish on observed trips by hook-and-line CVs in the GOA (by reporting area)

Year	610	620	630	640	649	650	659	GOA Wide
2013	28%	29%	65%	81%	100%	71%	91%	64%
2014	52%	53%	69%	71%	58%	85%	93%	73%
2015	53%	36%	73%	79%	92%	86%	78%	75%
2016	54%	65%	75%	72%	71%	83%	95%	77%
2017	60%	53%	70%	77%	97%	83%	92%	76%
2013-2017	47%	47%	71%	76%	80%	83%	89%	73%

Source: NMFS Sustainable Fisheries

In recent years, approximately 27% of rockfish were discarded at sea. The data collected on retention of groundfish and at-sea discards are collected by at-sea observers. Rates are calculated and applied to non-observed vessels. Observers do not collect data indicating the reason for the discard. Therefore, data is not readily available to determine why these fish were discarded.

While it is difficult to determine the exact reason for discarding a species, available observer data helps infer some of the reasons. There are some indications of vessels effects. Some vessels operators retain all or most of the rockfish species observed in almost all trips that are observed. Conversely, some vessel operators discard most of the rockfish encountered in all observed trips. Additionally, some vessels only retain certain species and discard all others. The reason why some vessel operators discard more than others is not known, but the data do not show a consistent pattern related to vessels size or area of operation.

The most common reason for discards, inferred by available data, is regulatory discard. These discards are when an MRA is exceeded or a PSC action is placed on a rockfish species. Using the total amount of rockfish encountered on a fishing trip compared target species of sablefish and halibut and when the rockfish incidental catch occurs allows for the analyst to infer that many instances of discard are regulatory. Trips that occur after an action that prohibits the retention of species, show that the rockfish species is mostly discarded, indicated the vessel operator is complying with the management action. Trips that have larger amounts of rockfish observed compared to the targeted catch have higher discard rates than trips with small amounts of rockfish. Note that this pattern is not consistent among all vessels due to other factors that are not easily identified.

Table 2-29 shows the percentage retained of common rockfish incidental catch species managed in the aggregated rockfish MRA category (Table 2-6). These data seem to indicate is that species that are more valuable are more likely retained than less valuable species. The values of individual rockfish species are shown in Table 2-20 and Table 2-21. For example, 75% of yelloweye rockfish from 2015 to 2018 by hook-and-line catcher vessels in the GOA are retained compared to 40% of other identified species. A

vessel operator that encounters rockfish rates that are more likely to exceed the MRA may be making a choice to retain more valuable species and discard less valuable species in order to prevent exceeding the MRA.

Table 2-29 Observed rockfish retention by hook-and-line catcher vessels in the GOA (by species) from 2015-2018

Species	Total observed catch (mt)	Observed retained catch (mt)	Percentage retained
Thornyhead Rockfish	262,024	197,960	76%
Yelloweye Rockfish	51,463	38,806	75%
Redbanded Rockfish	23,887	14,878	62%
Unidentified Rockfish Species	22,458	10,559	47%
Quillback Rockfish	10,672	8,622	81%
Dusky Rockfish	4,840	857	18%
Silvergray rockfish	2,253	1,411	63%
Other Identified Rockfish Species	3,639	1,460	40%

Source: NMFS Sustainable Fisheries

2.7.2 Alternative 2 and 3 – Full Retention of Rockfish for Fixed Gear CVs

Alternative 2 would require full retention of all rockfish species for fixed gear CVs in the BSAI and GOA, while Alternative 3 limits the scope of full rockfish retention to longline CVs in the GOA. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce.

Alternative 2 and 3 are similar, and therefore, the discussion on the general impacts of the two alternatives are similar. Alternative 3 affects a smaller population of fixed gear CVs than Alternative 2. Given that Alternative 3 is simply a narrower alternative of the broader Alternative 2, the effects section instead addresses each alternative within the broader effects sections. This approach was utilized to reduce unnecessary duplication that would likely occur if the separate effects section for each alternative were used.

Additionally, most of the expected effects sections focus on longline gear due to the amount of incidental rockfish catch encountered by longline gear compared to other fixed gears. Longline gear is a subset of fixed gear and splitting the gear types out in the analysis presented problems with confidentiality for pot and jig gear. This confidentiality issue limits the ability to provide the reader with how the alternatives differ in relation to limiting the gear to only longline gear. The data shown in Section 2.7.1 indicates that the impact of the Alternative 2 to pot and jig vessels would likely be minimal in relation to longline gear.

2.7.2.1 Impacts to Vessels

A full retention requirement for fixed-gear CVs could have operational implications for vessel operators that might also indirectly affect processors. Since fixed-gear CVs would have to retain all incidental catch of rockfish, this could reduce hold space for more valuable target species. There are two main storage techniques used on fixed-gear CVs: ice down fish in fish holds or store fish in refrigerated sea water

(RSW) tanks. Storing additional rockfish onboard raises three issues: (1) displacement of other more valuable fish, (2) impact on quality of other fish, and (3) impact on rockfish quality.

Assuming hold space is limited, the additional rockfish retained would displace fish of higher value, thereby decreasing per trip revenues. Additionally, the problem of damaging more valuable species, such as IFQ sablefish, by mixing rockfish in the hold may be a problem for many of the vessels. Rockfish have spines which can puncture other fish. Placing rockfish with other fish in the same storage compartment may reduce their commercial value. Storage in RSW tanks may also lead to abrasion between the rockfish and other more valuable species, damaging the scales and flesh of the other species. Rockfish themselves lose quality when they are stored in RSW tanks. Yelloweye rockfish are valued, in part, for their bright red or orange color. Storage in RSW tanks tends to wash out the color. This reduces their value on delivery. On larger vessels using RSW tanks, the rockfish can be iced in totes on the deck. Smaller vessels using RSW tanks and with limited deck space for totes may experience the greatest storage issue. On vessels that rely on storing the fish on ice, these issues may be dealt with by setting the rockfish aside until the other species are iced down, and then storing the rockfish in a separate top layer in the fish hold. Also, the rockfish may be iced down in a bait hold. All of these options impose operational compromises and economic costs.

The impacts of full retention are hard to quantify. However, based on the average harvest of rockfish from trip and trip length data, the impacts of full retention on fishing trips are thought to be small. If large amounts of rockfish are encountered, the retention of rockfish may require vessel operators to end trips when the storage space is full, which increase vessel operating costs and, in some instances, change delivery patterns. Some vessel operators have indicated that the impacts from this action would minor. Under a catch share fishery like IFQ, vessels typically do not load the boat to capacity and have space for additional harvest of non-target species. If a vessel operator does maximize their harvest of target species to maximum hold space, then the requirement to retain rockfish could result in the need to take extra trips to fully harvest their target species. This factor may incentivize avoidance of rockfish, which may reduce rockfish catch.

Depending on the species, and how a vessel cares for and preserves their catch, rockfish, generally must be delivered within a certain amount of time in order to be accepted by processors for full value. Other species like halibut may maintain their quality (and market value) onboard for significantly longer periods. Longer trips may result in less value of retained rockfish species due to the color washing out of some rockfish species. Therefore, the impacts of these alternatives may be different depending on where a vessel fishes and the length of the trip required to harvest target species. Additionally, requiring full retention of rockfish may also change a vessel's delivery pattern. There is the potential that the proposed action could disincentivize some vessel operators from making landings to their homeports due to the distance from the fishing grounds and instead deliver to ports that are closer to the grounds to sell higher quality rockfish. This could negatively impact some communities while positively impacting other communities (see section 2.7.2.3 for more details on community impacts).

The average trip length by hook-and-line CVs is 3 days and most are less than 5 days, however some trip lengths can exceed 10 days. The trip lengths vary depending on the vessel size, trip target, and the location of the fishery.

Table 2-30 through Table 2-32 show that the average trip length for hook-and-line CVs varies by target fishery, area, and vessel length.

Table 2-30 Hook-and-line CV trip length by target fishery Alaska wide

Target fishery	Average trip length (days)	Proportion of trips (2013-Oct. 2017)
IFQ Halibut	2.99	59%
IFQ Sablefish	4.49	26%
Pacific Cod	2.79	14%

Source: Sustainable Fisheries

Table 2-31 Hook-and-line CV trip length by area

Area	Average trip length (days)	Proportion of trips (2013-Oct. 2017)
Southeast Alaska (650/659)	2.68	32%
West Yakutat / PWS (640/649)	3.79	8%
Central GOA (630)	3.31	27%
Central GOA (620)	4.91	6%
Western GOA (610)	5.25	7%
Bering Sea	2.27	16%
Aleutian Islands	7.69	4%

Source: Sustainable Fisheries

Table 2-32 Hook-and-line CV trip length by vessel length Alaska wide

Vessel length	Average trip length (days)	Proportion of trips (2013-current)
Less than 30 feet	1.04	15%
30 feet – 40 feet	2.46	23%
40 feet – 50 feet	3.07	22%
50 feet – 60 feet	4.64	30%
60 feet – 100 feet	5.85	9%
Greater than 100 feet	5.15	< 1%

Source: NMFS Sustainable Fisheries

Although many vessels likely already work to avoid rockfish, some vessel operators may change where they fish to reduce the amount of rockfish incidental catch they take during their halibut, sablefish, or Pacific cod fishing. Changes in fishing patterns may reduce a vessel operator’s profits from a trip, since they may operate in ways differently than if they had been left unconstrained. For example, they may incur larger fuel costs, or they may experience lower catch per unit of effort (CPUE) in their directed fisheries. These impacts may be offset to some degree by the value of rockfish allowed to be sold.

Faced with the costs of storage, handling, and delivery, and with potential costs increases associated with changing their fishing patterns to reduce incidental catch, vessel operators might choose to violate the full retention requirements (i.e., vessel operators may continue to discard some or all of the rockfish incidental catch). In some instances, crewmembers might report illegal discarding, but overall, discards would be difficult for NMFS Enforcement to monitor.

2.7.2.2 Impacts to Processors

Alternatives 2 and 3 would likely result in more production costs for processors. With the delivery of additional rockfish, processors would face additional costs for weighing and for sorting and grading of

rockfish. Additional recordkeeping would be required to fill out fish tickets and production reports. Some processors could assist vessel owners delivering excess rockfish to utilize or dispose of these overages. These actions could include allowing employees to fillet and take some excess rockfish, adding rockfish to their waste stream, and coordinating with donation programs to take excess rockfish. Taku Fisheries, a processor in Juneau, Alaska, reported that they had a large delivery of incidentally caught DSR in the past that was in excess of the limit allowed to enter commerce. The plant manager had these fish processed and they distributed bags of fresh rockfish fillets to staff and to local nonprofits (personal communication, April 2018).

Alternatives 2 and 3 would also likely reduce rockfish waste, at least in terms of utilizing fish for human consumption that would otherwise be dead under Alternative 1. As noted in Table 2-33, currently most of the incidental catch of rockfish are either sold to processors for commerce or are utilized for personal use. The overage amounts provided in the table indicated that rockfish incidental catch is greater than the MRA. However, most of the rockfish overage is likely utilized for human consumption either through commerce, personal use, or donations. Under both Alternatives 2 and 3, the additional incidental catch of rockfish that would result from the full retention requirement would likely be utilized for human consumption either through commerce, personal use, or donations. Given that Alternative 2 and 3 would require that overage amounts of incident rockfish catch not enter commerce, a large portion of overages from proposed action would likely be utilized for personal use or donations. Some portion of the likely overages from Alternatives 2 or 3 may also be discarded onshore by the processors. If the Council selects the higher 15 percent MCA in Option 2, then fishermen could sell the additional incidental catch of rockfish to processors and rockfish overage amounts would likely decline.

Table 2-33 Incidental catch of rockfish (mt) that is sold to processors, utilized for personal use, reported as MRA overage, and discarded onshore by processors from 2013 through 2017 for the BSAI and GOA.

BSAI				
Year	Sold (mt)	Personal use (mt)	Overage (mt)	Discarded Onshore (mt)
2013	37	2	n/a	1
2014	46	2	c	3
2015	32	3	n/a	2
2016	26	1	n/a	2
2017	18	2	n/a	1
GOA				
Year	Sold (mt)	Personal use (mt)	Overage (mt)	Discarded Onshore (mt)
2013	1,024	65	58	2
2014	857	57	50	1
2015	934	53	51	1
2016	895	53	59	3
2017	793	53	56	2

Source: eLandings; May, 2018; file located in community tables.

c = confidential data

Charitable donations may increase under Alternatives 2 and 3. These donations may provide benefits to some low-income consumers. Informal conversations with some Southeast Alaska processors appear to show some interest in taking rockfish product and filleting it for a lunch programs or low-cost meals to

those in need. This already occurs at some processors. For example, Sitka Sound Seafoods has partnerships with some local non-profits like shelters and the Senior Center. When a vessel operator has more DSR than can enter commerce and these organizations indicate need, Sitka Sound will process the fish and distribute to these groups. This is done at the discretion of the plant manager and the plant incurs the cost of processing these fish. It is not possible to say with any certainty to what extent rockfish overages would be donated to charitable organizations.

Conversations with Seashare⁴ indicated that there are multiple opportunities to utilize rockfish not destined for commerce. These opportunities can be split into local and more national programs. In areas where Seashare is currently established, there is a willingness to receive rockfish for distribution. These communities include Kodiak and Dutch Harbor. In smaller communities, there likely are insufficient quantities of rockfish available to support the cost of shipping to a Seashare distribution center.

2.7.2.3 Effects on Communities

Table 2-34 shows the number of communities and shoreside processors that have received halibut and groundfish deliveries by CV gear from 2013 through 2017. Table 2-34 identifies 41 unique communities in 2017 that received groundfish and halibut from hook-and-line vessels compared to a smaller number of communities for other gear types.

Table 2-34 Number of unique communities that received halibut and groundfish deliveries from CVs

Communities				
Year	Hook-and-Line	Jig	Pot	Trawl
2013	50	34	13	8
2014	39	24	11	10
2015	41	22	10	9
2016	42	23	9	8
2017	41	18	16	8

Source: eLandings; May, 2018

Table 2-35 provides the top 10 communities by the number of fixed gear CV deliveries of combined groundfish and halibut and by number of deliveries with rockfish for the 2017 fishing season. Although in 2017, Kodiak had the highest number of hook-and-line deliveries of all groundfish and halibut at 833, Sitka had the highest number of deliveries with rockfish. Other communities that were prominent among hook-and-line deliveries were Seward, Petersburg, Homer, and Juneau. For pot vessels, Sitka had the most deliveries of all groundfish and halibut and deliveries with rockfish. BSAI communities St. Paul and Dutch Harbor were among the list of top 10 communities, but much of their deliveries were masked due to confidential data restrictions.

⁴ SeaShare is a non-profit founded in 1994 to help the seafood industry donate to hunger-relief efforts in the United States.

Table 2-35 Top 10 communities by the number of deliveries of all groundfish & halibut and those that received rockfish for fixed gear CVs in 2017

Community/port	All groundfish and halibut			With rockfish		
	HAL	Pot	Jig	HAL	Pot	Jig
Kodiak	833	161	737	365	92	54
Sitka	737	788	c	665	555	c
Seward	522	28	c	479	27	c
Petersburg	411	26	c	284	c	c
Homer	366	27	234	185	19	3
Juneau	308	c	c	212	c	c
Yakutat	c	c	c	c	n/a	c
St Paul	c	n/a	n/a	c	n/a	n/a
Dutch Harbor/Unalaska	c	n/a	489	c	n/a	28
Wrangell	c	c	c	c	c	c

Source: eLandings

c = confidential data

As noted in Section 2.7.2.1, Alternatives 2 and 3 could change a vessel’s delivery pattern, which would result in a distributional shift in hook-and-line CV deliveries. This potential shift in delivery patterns is likely dependent on the perceived value of retained rockfish relative to the target species onboard the vessel and the distance to the nearest port. Vessel operators that are homeported far from the fishing grounds may opt to deliver their retained rockfish in addition to their halibut, sablefish, and Pacific cod to ports closer to the fishing grounds if they perceived the value of the rockfish onboard the vessel is greater than the cost of transiting back to their homeport. As a result, some homeport communities may see a reduction in deliveries of halibut, sablefish and Pacific cod, while other communities may see an increase in deliveries of these same species along with rockfish. One factor that reduces that potential change in delivery patterns will be the amount of retained rockfish that can be sold into commerce. A lower percent of retained rockfish that can be sold into commerce would likely result in a reduced potential for change in delivery patterns. Currently under consideration are commerce limits of 10 percent or 15 percent. For more information concerning the proposed commerce limits and their impacts, see Section 2.7.2.4.

As seen in Table 2-36, homeports for vessels under 58’ that have average trip lengths of four to five days include Wrangell, Douglas, and Petersburg. These communities are further from the Yakutat and Central GOA halibut, sablefish, and Pacific cod fishing grounds. Communities that have average trip lengths of two to three days include Yakutat, Sitka, Kodiak, and Homer. These communities are closer to the halibut, sablefish, and Pacific cod fishing grounds. Vessel operators from homeport communities with an average trip length of four or five days may decide to delivery their catch to homeports like Yakutat, Homer, or Kodiak to maximize the value of the rockfish catch if they perceive the economic value of that rockfish to be greater than the value they would receive if they returned to their homeport.

Table 2-36 Vessel count and average trip length for hook-and-line CVs under 58' by vessel owner's registered community in the GOA for 2017 and percent of exvessel revenue from hook-and-line CVs under 58'

City	Vessel Length						Total vessel count	Average days fished for all H&L vessels under 58'	Percent of exvessel revenue from H&L CV <58'
	<30'		<45'		<58'				
	Vessel count	Average trip length	Vessel count	Average trip length	Vessel count	Average trip length			
Wrangell					3	6	3	6	6
Douglas					6	5	6	5	21
Seldovia			4	5			4	5	15
Petersburg					5	4	5	4	3
Cordova			4	4	3	5	7	4	3
Sand Point			4	4	4	5	8	4	1
Haines			4	5	3	4	7	4	7
Juneau			3	4	10	4	13	4	12
Craig			4	4	5	4	9	4	7
Homer	3	2	50	4	20	5	73	4	20
Fritz Creek			3	4			3	4	39
Kodiak	8	2	22	3	17	4	47	3	5
Sitka	19	2	25	3	38	4	82	3	30
Ouzinkie	4	2					4	2	43
Yakutat	9	2	7	3			16	2	47

Source: AKFIN

Table originates from rockfish_ret_comm_days_fished(9-14-18) & Rockfish_Ret_Comm_Div(9-14-18)

From the perspective of community impacts from Alternative 2 or 3, any change in delivery patterns would likely be distributional in nature. To provide an indication of the impacts Alternatives 2 or 3 to GOA communities, Table 2-36 shows the percent of exvessel revenue from hook-and-line CVs under 58' relative to total exvessel revenue by vessel owner registered community for 2017. As show in the table, the percent of exvessel revenue from hook-and-line CVs < 58' for Wrangell was 6 percent and for Petersburg was 3 percent. This indicates that the impact to these communities from a change in delivery patterns would be relatively less when compared to other communities like Douglas which had 21 percent of its exvessel revenue from hook-and-line CVs under 58'. Recognizing any change in delivery patterns that negatively effects one community would also likely benefit another community. In this case, communities most likely to benefit from a change in delivery patterns would be those close to the Yakutat and Central GOA fishing grounds like Yakutat, Kodiak, and Homer. For Kodiak, with the percent of exvessel revenue from hook-and-line CVs under 58' of 5 percent, the additional exvessel revenue from a change in delivery patterns would likely have a marginal benefit on the community. For communities like Homer and Yakutat, where the exvessel revenue from hook-and-line CVs less than 58' is 20 percent and 47 percent, respectively, the benefits from additional exvessel revenue could be more significant.

2.7.2.4 Establishing a Maximum Commerce Allowance

Given that MRAs do not apply under a full retention requirement, there is a need to establish a limit or allowance that provides an incentive for vessel operators to retain all rockfish and to avoid high rockfish incidental catch. In June 2018, the Council added Option 2 which would establish a maximum commerce allowance (MCA) of 10 percent or 15 percent. The purpose of an MCA is to limit increasing rockfish incidental catch while allowing vessel operators to sell most of the true incidental catch of rockfish. Allowing vessel operators to sell retained catch up to the MCA incentivizes compliance with the regulation.

Amounts of rockfish greater than the MCA are prohibited from entering commerce and are referred to as an overage. Amounts of rockfish in excess of the MCA are prohibited from entering commerce through

sale, barter, or trade, although when a vessel lands rockfish in excess of the MCA limits, the fish is either used for personal consumption, donated, or is discarded at the processor.

There are two methods used for calculation of the MCA. The first method, by way of the DSR fishery in Southeast Alaska specifies the limit in the regulations, while the second method, used by ADF&G for their full retention rockfish requirements, uses the MRA tables to establish the limits. Both methods have merit in establishing an MCA for rockfish, however establishing one MCA for all rockfish without determination of a basis species being open or closed to directed fishing allows a quick and easy way to calculate MCA.

The regulations for DSR in Southeast Alaska set an MCA equivalent to 10 percent of the aggregate round weight of IFQ halibut and groundfish species except sablefish which is 1 percent for the aggregate round weight of sablefish. For example, a vessel operator with 20 mt of halibut, 5 mt of Pacific cod, and 10 mt of sablefish would have an MCA of 2.6 mt of DSR (25 mt of IFQ halibut and Pacific cod multiplied by 10 percent equals 2.5 mt plus 1 percent of 10 mt of sablefish or 0.1 mt).

The reason the MCA for DSR in Southeast Alaska has a different rate for halibut/groundfish and sablefish, is that DSR catch is more likely in halibut and groundfish fisheries and less likely while fishing for sablefish. This matches the preferred habitat of the various species. To prevent any expansion of top-off fishing for DSR while a vessel is sablefish fishing, the lower allowance was established. However, these limits were set with DSR as the only species group. Therefore, these MCAs need to account for catch in other areas and more species and species groups that have different habitats.

The Council, during deliberation of the discussion paper, asked staff to identify what the intrinsic bycatch rate of rockfish catch is in fixed gear CV target fisheries, which can be useful in setting an appropriate MRA or MCA. The intrinsic bycatch rate is the rate of rockfish catch that would occur if there were no market for rockfish, or, alternatively, if the rockfish retention were prohibited by regulation. In these circumstances, there is no economic value obtained from retaining rockfish and incurring the costs of minimal preparation on board, icing, and lost space in the hold. It is meant to reflect the true incidental catch of rockfish when prosecuting other directed fisheries with no incentive to harvest rockfish.

Rockfish species are not considered to be a top-off species for fixed gear vessels. In general, most top-off species are more valuable than the target fishery, creating a financial incentive to target a top-off species. However, rockfish are less valuable than the target species of halibut and sablefish. Therefore, the financial incentives that drive top-off fishing are less for rockfish in these fixed gear target fisheries. Additionally, fixed gear vessel operators have also stated that they do not set gear to target rockfish. Establishing an MCA would help provide incentives to avoid rockfish and limit expansion of any top-off fishing for rockfish if that is occurring.

Rockfish incidental catch rates prior to and after an action to prohibit retention of rockfish shows that rockfish are not a common top-off species. If the prohibiting retention action reduces incidental catch rates after the action, then it can be stated that top-off fishing for rockfish may be occurring prior to the action. If the harvest is similar before and after the prohibiting retention action, then the prohibiting retention action did little to control harvest. This analysis was run for all rockfish prohibiting retention actions that have occurred since 2013 and during time periods that had active hook-and-line CV activity.

This test cannot estimate the effects of new effort or new areas of fishing that may affect the rate of rockfish harvest. Also, this method can only be used on species and in areas that have had rockfish prohibiting retention actions in the past and cannot determine if top-off fishing is occurring in other areas or species.

Table 2-37 shows three examples of rockfish prohibiting retention actions that have occurred since 2013 and during time periods that had hook-and-line CV activity. This table shows the total catch, total rockfish catch, rockfish retention rate, and the rate of rockfish catch six weeks prior to and after a PSC action.

These examples of prohibiting rockfish retention actions are for rockfish species that are more commonly caught in sablefish directed fisheries; therefore, the data was limited to sablefish targets. This removed some of the effects of new effort in new target fisheries that may affect this analysis; however, it does not remove all of them. As a test, a similar analysis was done with no restrictions to hook-and-line CV sablefish targets. The results showed a similar trend indicating that restricting the data to sablefish targets did not change the overall results. These data and analysis of other actions show that there is little impact from these rockfish PSC actions in controlling harvest and indicates top-off fishing is minimal for rockfish species for hook-and-line gear fisheries.

Table 2-37 Three examples of hook-and-line CV catch six weeks before and after a rockfish PSC action

Examples	Action	Total groundfish and IFQ halibut retained catch (mt)	Total catch of prohibited rockfish (shortraker or thornyhead) (mt)	Rate of prohibited rockfish catch
Shortraker Rockfish PSC in Central GOA (Sept 19, 2016)	Prior to PSC	532	6.65	1.25%
	After PSC	498	6.32	1.27%
Shortraker Rockfish PSC in Western GOA (Sept 19, 2016)	Prior to PSC	254	4.87	1.92%
	After PSC	171	5.98	3.50%
Thornyhead PSC in Western GOA (Aug 17, 2013)	Prior to PSC	277	75.1	27.21%
	After PSC	307	66.7	21.76%

Source: NMFS

The complexity of the MCA and calculation of the MCA should be considered. MRA uses basis species for calculation of the amount allowed to be retained. This requires a vessel operator and processor to identify which species are open to directed fishing. They must also calculate multiple percentages depending on the rockfish species retained and the basis species. This is further complicated by the area in which a vessel operates as shown in Table 2-38 and discussed in Section 2.7.2.5. All of these considerations in the calculation makes for a complicated and hard to understand retention limit.

To reduce confusion associated with using multiple MCAs, an approach the Council could consider is selecting one MCA rate that applies to all fixed gear vessels without further calculation of target fishery, area and other considerations. While separation by target allows for more precision in picking an MCA rate that reflects the intrinsic rockfish bycatch rate, multiple MCA rates provides additional complexities in the calculation and enforcement of the MCA. Separating the MCA percentages into the given targets is not advisable because these targets are hard to differentiate. There are a large number of landings that have fishing activity in multiple targets. It is common for an IFQ trip to target both halibut and sablefish in the same trip. Also, there are trips that include Pacific cod and halibut directed fishing. This occurs during the hook-and-line B season Pacific cod fishery when there is overlap of both halibut and Pacific cod fishing.

Another element of the MCA the Council might consider is to calculate the MCA as a percentage of the round weight of retained halibut and all groundfish except rockfish. This is similar to the way the MCA is calculated for DSR in Southeast Alaska. This allows for a simple calculation using the total round weight of all groundfish and halibut, regardless of whether or not it was the target species. These data are provided to vessel operators and processors in the eLandings system. The analysts were unable to identify any negative consequences of calculating the MCA this way and identified that it could incentivize retention of other incidentally harvested species in order to increase the amount of rockfish that could be sold.

The purpose of identifying the rockfish bycatch rate is to allow policy makers to pick an appropriate level that maintains an incentive to retain most rockfish incidentally harvested and prevent increased rockfish catch through top-off fishing activity. As noted in Section 2.7.2.4, large amounts rockfish are not caught through top-off fishing, however the data is limited and determining if the activity is occurring and at what level it is occurring is not possible to quantify. Therefore, it could be prudent to set an MCA limit that provides a disincentive for potential increase in rockfish catch.

Monitoring and enforcement of these MCA limits are likely to be at the trip level. Fixed gear CVs that operate in groundfish fisheries off Alaska are very diverse with many configurations and fishing practices. It is important to consider the data at a trip level in order to analyze what the impact of an MCA would be on individual vessels. An analysis at the trip level results in a difference between the average rates calculated with trip level data than those estimated by CAS. This is because CAS aggregates data by gear, reporting area, target, and time period to calculate rates. CAS estimates are weighted by the amount of retained rockfish and halibut or groundfish that was used in calculation of the rate. Trip level data does not weight the data in any way as each trip is considered separately. This results in trip rates that are higher than CAS rates shown in Section 2.7.1.3.

For example, take a scenario where there are two vessels fishing in a given area. One vessel only retains one metric ton of retained groundfish and harvests .25 mt of rockfish. This trip has a 25 percent rate of rockfish catch. The other vessel has ten metric tons of retained groundfish and harvests one mt of rockfish resulting in a rate of 10 percent. CAS would aggregate the two amounts to 11 mt of groundfish and 1.25 mt of rockfish with an effective rate of 11 percent. The trips however are a 25 percent rate and a 10 percent rate. The mean of those rates at the trip level is 17 percent.

The data used to calculate trip level rates come from observer data. These data are collected at sea during fishing activity and capture the retention of target species and all incidental catch. These data allow for the calculation of the rate of rockfish catch when each set is aggregated to the trip. The rate is calculated as the total observed rockfish amount divided by the observed amount of retained groundfish and halibut for each observed trip.

Figure 2-2 and Figure 2-3 shows the rate of rockfish catch calculated as the total rockfish catch divided by the retained groundfish and halibut catch collected from at-sea observers. Rockfish is not included in the retained groundfish and halibut catch (denominator). The rates are shown for the two primary management areas (BSAI and GOA) to allow readers to consider the difference between the two areas when setting an MCA and also show the potential differences between Alternative 2 and Alternative 3. A synopsis of the key data results is provided below each figure.

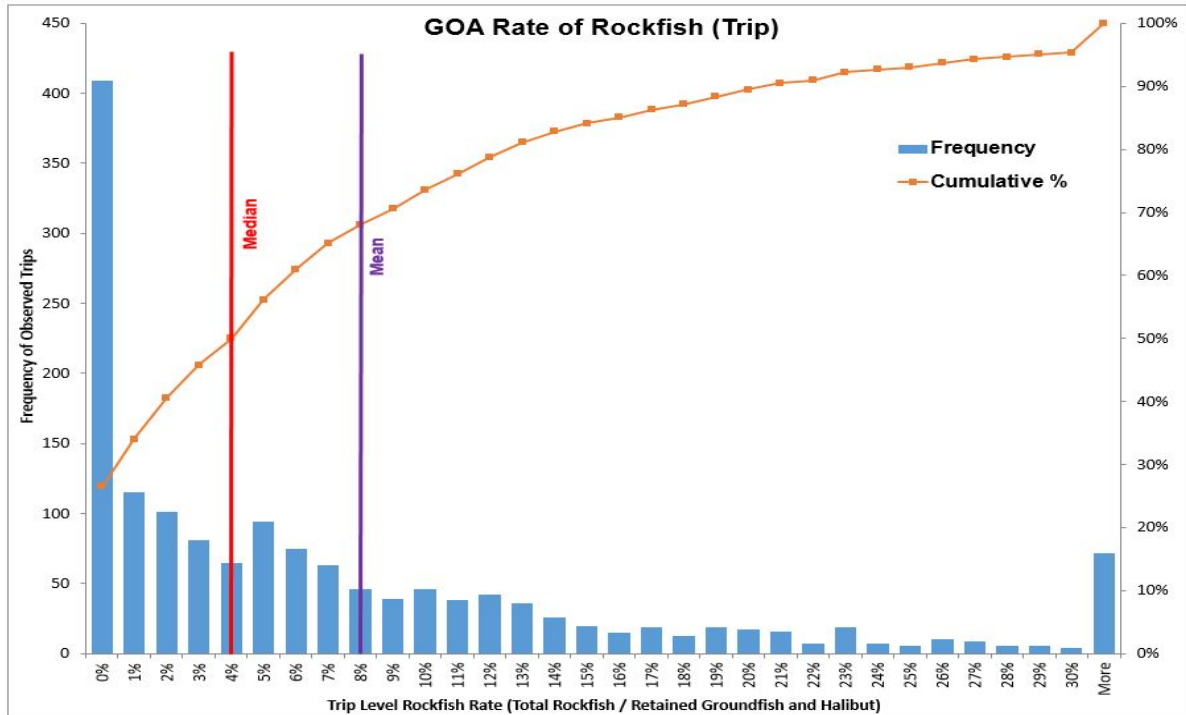


Figure 2-2 Incidental catch rate of rockfish by hook-and-line CVs in the GOA (all targets)

Hook-and-line, All Targets in the GOA.

- Total observed trips 2014-2017: 1,541
- Mean trip rockfish rate 8%,
- Median trip rockfish rate: 4%
- Number of trips with no rockfish occurrence: 304 (20%)
- MCA at which 75% of observed trips would be allowed to sell all rockfish harvested: 11%
- MCA at which 85% of observed trips would be allowed to sell all rockfish harvested: 16%
- MCA at which 95% of observed trips would be allowed to sell all rockfish harvested: 29%

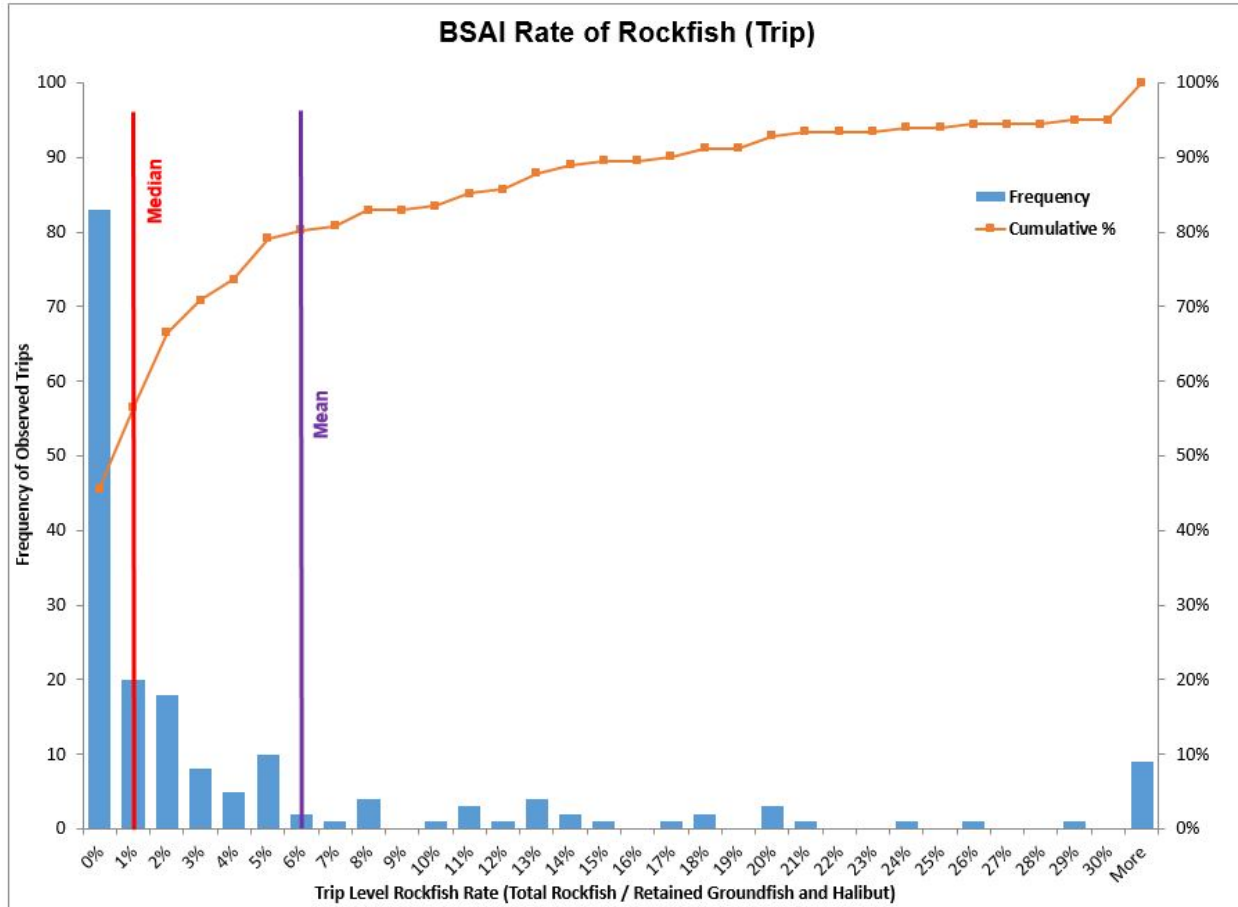


Figure 2-3 Incidental catch rate of rockfish by hook-and-line CVs in the BSAI (all targets)

Hook-and-line, All Targets in the BSAI

- Total observed trips 2013-2017: 182
- Mean rockfish rate: 6%
- Median rockfish rate: 1%
- Number of trips with no rockfish occurrence: 60 (33%)
- Point at which 75% of observed trips would be allowed to sell all rockfish harvested: 5%
- Point at which 85% of observed trips would be allowed to sell all rockfish harvested: 11%
- Point at which 95% of observed trips would be allowed to sell all rockfish harvested: 29%

Factoring the effect of the IFQ sablefish fishing, Table 2-26 and Table 2-27 in Section 2.7.1.3 shows that there is a higher incidental catch rates in sablefish targets than Pacific cod and halibut targets. However, as a proportion of total trips, the GOA has more hook-and-line Pacific cod and halibut targeted trips than the BSAI. For example, 20 percent of observed trips in the GOA are Pacific cod target, while the BSAI has 11 percent. Pacific cod trips have less rockfish incidental catch than sablefish trips. As a result, this may reduce the mean rate for all targets in the GOA.

The selection of the MCA percentage in Option 2 has some trade-offs. Lower percentages prioritize incentivizing avoidance of rockfish but increases the number of trips with rockfish that cannot be sold. These fish that cannot be sold could be discard by the shoreplant or utilized by vessel crew or donated to

non-profits. This may result in less compliance with the retention requirements. Less compliance with the full retention may have negative impacts on the accuracy of rockfish catch.

Higher MCA percentages could result in more rockfish catch as vessels could seek areas with higher rockfish incidental catch to target halibut, Pacific cod and sablefish. Higher percentages may also incentivize the development of top off fishing behavior. These could increase total removals of rockfish which could result in management actions to reduce rockfish catch that may affect other sectors.

Balancing the purpose and need of the proposed action, the Council could select either an MCA that is 10 percent or 15 percent. Both percentages provide a balance of the tradeoffs, and under the assumption that a top-off fishery is not prevalent, there likely would not be a large increase in incidental catch of rockfish. These percentages are also near the intrinsic bycatch rate of rockfish.

If the Council selects an MCA of 10 percent, the data indicates that approximately 72 percent of fixed gear CV trips in the GOA and 80 percent of fixed gear CV trips in the BSAI would be able to sell all their rockfish harvested incidentally. The remaining 20 percent to 28 percent of trips that may be impacted, vessel-operators would still be able to sell the majority of their rockfish catch. However, a proportion of the incidental catch would not be able to be sold. These fish would be available for home-packs and donation as discussed in Section 2.7.2.2.

These impacts are more likely on vessels targeting sablefish because the average rockfish incidental catch on sablefish trips is between 10 percent and 20 percent depending on the area and the time of year. There may also be impacts to vessels fishing in the GOA and BSAI for halibut but would be limited to less than 15 percent of the halibut trips and may reflect rates from mixed halibut and sablefish trips. Finally, an MCA of 10 percent could incentivize rockfish avoidance, especially in areas with high rockfish catch that exceeds 10 percent.

If the Council selects an MCA of 15 percent, the data indicates that over 85 percent of trips will be able to retain and sell all rockfish that are incidentally harvested. This would provide more incentive for vessel operators to retain all rockfish and still provide incentive for vessels to avoid areas with high incidental catch rates of rockfish, though at a lesser degree than the 10 percent MCA.

2.7.2.5 Potential Inconsistencies Between State and Federal Management

Currently, rockfish retention requirements differ across federal and state waters. As noted in Table 2-6 through Table 2-8 and Section 2.6.5, there are full retention requirements for DSR in Southeast Outside (SEO), full retention of rockfish when IFQ halibut and IFQ sablefish are onboard the vessel, and different retention requirements inside state waters depending on area and rockfish species. Under Alternatives 2 or 3, inconsistency between federal and state water rockfish retention requirements would be reduced. In some areas, the State already has full retention requirements for all rockfish, which include parts of the Eastern GOA and in the Cook Inlet. In other areas, federal and state management inconsistencies may be eliminated since the State mirrors federal retention requirements. The State accomplishes this by use of a global emergency order each year to ensure consistent rockfish retention regulations between federal, state, and parallel fisheries where possible. Those areas where rockfish retention requirements might be inconsistent are in parts of the Eastern GOA (west of 144° W longitude), Southeast outside district and Icy Bay subdistrict (140° W to 144° W longitude). Any changes to the rockfish retention requirement in these state water areas will require a change in state regulation through an Alaska Board of Fisheries action. Given the State in the past has mirrored federal retention requirements, likely the State would change the rockfish retention requirements to mirror federal requirements.

Table 2-38 Rockfish retention requirements under Alternatives 2 and 3 and current state water rockfish retention requirements

Area	Federal Management	State of Alaska Management
Southeast inside	n/a	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Southeast outside	Full retention of all rockfish for fixed gear CVs	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Eastern GOA: Icy Bay subdistrict (140° to 144°)	Full retention of rockfish for fixed gear CVs	Full retention of DSR and black rockfish only in groundfish and halibut fisheries
Eastern GOA west of 144° (including PWS inside waters)	Full retention of rockfish for fixed gear CVs	Full retention of all rockfish in all fisheries (PWS Area)
Central GOA	Full retention of rockfish for fixed gear CVs	Full retention of all rockfish in all fisheries in PWS & Cook Inlet Areas; No retention requirement south of 58° 51.10' N lat (Kodiak/Chignik)
Western GOA	Full retention of rockfish for fixed gear CVs	No retention requirement
Aleutian Islands	Full retention of rockfish for fixed gear CVs	No retention requirement
Bering Sea	Full retention of rockfish for fixed gear CVs	No retention requirement

Unlike the improvements between federal and state management with regards to full rockfish retention, limits on MRAs/MCAs across federal and state waters will likely continue to be inconsistent. As noted in Table 2-6 through Table 2-8, MRAs/MCAs vary widely depending on the target fishery, the species of rockfish encountered, the area in which a vessel is fishing, and whether it is federal or state waters. These inconsistencies in retention requirements between target fishery, species, and area makes it harder for a vessel operator to ensure compliance. The Council is considering an option for a 10 percent or 15 percent MCA for rockfish in federal waters (see Section 2.7.2.4). A benefit of a single MCA percentage that applies to all rockfish is a reduction in some of the inconsistencies between federal and state MRA/MCA management. However, this benefit will likely be limited since the State will likely not mirror all of their rockfish MRAs/MCAs to a single federal rockfish MCA.

2.7.2.6 Option: Require Full Retention of Rockfish When on PSC Status

The Council added an option to require full retention even if a rockfish species or complex is on PSC status. The option does not limit NMFS from initiating a PSC action on a rockfish species should management goals warrant this action.

Under status quo, when a groundfish species is put on PSC status, the vessel operator must minimize their catch of a prohibited species, sort their catch immediately after retrieval of the gear, and return all prohibited species, or parts thereof, to the sea immediately, with a minimum of injury, regardless of its condition. PSC actions remove the financial incentive to harvest a species. As a result, this creates an incentive to avoid catch of this species.

The full retention even if the species is on PSC status option will most likely continue to maintain the management goals of a PSC action by removing financial incentives that may exist to catch more rockfish. Additionally, it will still maintain the regulation that requires a vessel operator to minimize the catch of prohibited species. The difference between status quo and this option is that it would require vessels to retain all rockfish regardless of the status.

When selecting this option, management objectives of a PSC action and how the option relates to the goals of Alternative 2 and 3 should be considered. This option would change how a vessel treats incidentally caught rockfish when that species is placed on PSC status. PSC actions apply to all gear types in a given area when NMFS projects that catch will exceed the TAC. Data indicates that trawl

vessels “top-off” for some rockfish species and PSC actions are effective at reducing catch from trawl vessels. Therefore, PSC actions are still likely to take place. However, as discussed in Section 2.7.2.4, PSC actions for rockfish are not that effective in controlling rockfish harvest for fixed gear vessels due to the lack of top-off fishing behavior.

In order to remove any financial incentives that may drive top-off fishing, when a rockfish species is placed on PSC status, the MCA for that species would be set to zero. This would maintain the primary goal of a PSC action by removing incentives to harvest more rockfish than the true incidental catch and likely result in vessels avoiding areas that have high incidental catch rates of those species.

PSC actions for rockfish are typically limited to a specific reporting area or group of reporting areas. Vessels commonly fish in multiple areas. Under status quo, a vessel operator that fishes in multiple areas would be required to discard all catch of a species of rockfish in both areas if one of those areas has that rockfish species on PSC status. This is a result of how enforcement monitors compliance of limits. The general rule is that the most restrictive limit applies to the trip. This option would eliminate that concern.

Additional benefits of this option include less complicated regulations, limit confusion to vessel operators by providing consistency of retention requirements in all areas and reduce any regulatory interpretations that could make compliance and enforcement more challenging.

This option could intensify the impacts to a vessel or processing plant as discussed in Section 2.7.2.2. The impacts are similar to a vessel that harvests more rockfish than the MCA. When a rockfish species is placed on PSC status, the MCA would be set to zero for that species. This would be enforced at the trip level, therefore if a vessel operates in multiple areas, the MCA would be set to zero for all catch of that species on that trip. This could cause vessel operators to change their fishing practices to avoid that species to the extent possible and limit fishing in multiple areas on the same trip. PSC actions for rockfish are not necessary in most areas of the BSAI and GOA, and in some years do not occur in any area. Therefore, the impact of this option is expected to be small and only impact a proportion of the fleet.

2.7.2.7 Effects on Recreational Users

This action would likely have minimal impact on recreational users. Catch by subsistence and recreational sectors are reported in the stock assessments however, there is no catch limit or accounting of that catch when setting federal TACs. Catch limits on recreational sectors are set by ADF&G and the Board of Fisheries and do not typically consider the catch in federal groundfish fisheries. Analysts believe that this action will not result in significant increases in the harvest of rockfish or changes in fishing behavior by the fleet. Looking specifically at yelloweye rockfish and the potential for localized depletion, the proposed action would likely have minimal impacts. There is likely room between the annual catch limit (ACL) and the total estimated harvest of rockfish by all sectors to accommodate any increases in catch, and therefore, impacts to rockfish stocks as a result of either alternative is unlikely. In addition, the State of Alaska can change MRAs for yelloweye rockfish to address localized depletion.

2.7.2.8 Effects on Safety

The proposed alternatives are not expected to have a measurable effect on safety at sea. The proposed action would not modify existing safety regulations, authorized gear, the size or type of vessels that may be used in the fishery, or otherwise affect the amount of species that could be harvested. The proposed action would not result in any changes in harvest limits that would be likely to encourage unsafe fishing practices. The primary impact of the proposed action is to increase utilization of rockfish that are likely to be harvested under the status quo alternative. Any potential change in fishing operations or delivery

patterns resulting from the proposed action are expected to be minimal. Projected fishing and delivery practices in the BSAI and GOA will continue to promote the safety of life at sea to the extent practicable.

2.7.2.9 Effects on GOA Rockfish Stock Assessments

The Other Rockfish stock complex is comprised of species that generally have low market value and are often discarded. Thus, estimates of total catch are based on known retained catch and estimated discards based on observed hauls. If full retention were implemented and complied with, then total catch would be known with greater certainty and discards would presumably be eliminated. Further, if all rockfish are retained, this could potentially result in greater certainty in the species composition of the catch. Currently, catch by species is based on observed rates applied to estimates of unobserved group catch. Identifying more of the catch to species would decrease that source of uncertainty and decrease concerns regarding potential bias in the current port species proportions. Current port sampling could be biased if samples that are delivered to port are different in species or size composition than those that are actually caught at sea. The potential benefits described above only apply if the fully retained fish are also fully sampled at port. The SSC noted at the June 2018 Council review of this action that the reduction in uncertainty is unlikely to lead to changes in policies and any benefit derived from reduced uncertainty would be minimal.

Many of the remaining rockfish species (i.e., POP, Dusky, Northern, Shortraker, and Rougheye and Blackspotted Rockfish) have substantial market value and are generally retained. However, species such as shortraker, rougheye and blackspotted rockfish are not always retained primarily because of regulatory discards related to MRAs. Full retention of these species of rockfish could improve species identification and address any bias in port species proportions. Full retention could also prevent potential bias in port length and age composition sampling, if vessels are only bringing in to port larger fish under current regulations (source: John Heifetz, April 20, 2018).

Finally, there have been advances in ways to reduce rockfish mortality through the use of devices that send a rockfish to a depth that it can recompress. These devices are typically called fish descenders. While in theory these devices would reduce mortality of incidentally caught rockfish, these devices are designed for low volume fisheries like recreational fisheries. These devices are not feasible for the large volume commercial fisheries analyzed in this action. Requiring the use of these devices would impose significant impacts to a vessel. Allowing the use of these devices in lieu of full retention would create enforcement concerns and not reduce estimates of total mortality.

2.7.2.10 Effects on NMFS's Inseason Management

Currently, rockfish are retained and discarded as discussed in Section 2.6. This action focuses primarily on utilization of fish that is already estimated as harvested. As a result, this action is not expected to increase incidental catch of rockfish. Therefore, the impacts to NMFS's Inseason Management of rockfish species and complexes are thought to be minimal. Inseason Management will continue to operate as they currently do. Inseason Management will continue monitor catch and institute actions to control harvest that are necessary to prevent exceeded the TACs that are established.

The CAS estimates of rockfish total catch by fixed gear CVs are derived from two sources: eLandings reports of retained rockfish and estimates of at-sea discard of rockfish. At-sea discard estimates are calculated from rates based on observed discards of rockfish.

If a full retention regulation were implemented, the Council should select an MCA. In general, having an MCA can provide an additional layer of certainty that total harvest will not increase any from top-off fishing that occurs. This limit would remove the financial incentives to increase rockfish harvest, but

with little evidence of a top-off fishery, the benefit of an MCA for rockfish is limited. Establishing this limit is discussed in detail in Section 2.7.2.4

Full retention will not remove all discards. There may still be some unintentional discard of rockfish as fish drop off at the rail of a vessel or due to fishing gear loss. CVs with human observers or EM systems will gather these discard data when available. These discards could create an enforcement concern in determining what is an unintentional discard; however, the amount of drop-offs or unintentional discards should be minimal. The CAS and Observer Program are set up to account for these unintentional discards. With these data, an at-sea discard rate will continue to be calculated and applied to a vessel's retained catch to estimate these unintentional drop-offs. The rate of at-sea discards will likely be much lower than they are currently.

There is a chance that full retention may create a situation where catch is underestimated. Under full retention, rockfish catch estimates will be calculated primarily on retained harvest (eLandings data). At-sea discard estimates will be reduced to small amounts. While NMFS believes that most vessels are compliant with the regulations, there is a chance that an underestimate may occur from an interaction with the observer effect and vessel non-compliance.

The observer effect occurs when a vessel operator's behavior is different when it is observed versus unobserved. Vessels operators with an observer or EM coverage are more likely to ensure compliance with the regulations when being observed. In a full-retention scenario there will be little to no observed at-sea discard estimates. Unobserved vessels that are not compliant with the regulations and discard rockfish will not have at-sea discard rates applied to their landings that estimate these higher discards. This may result in underestimates of total rockfish catch by that vessel.

Detecting non-compliance may be possible after implementation of full retention. One way to test this is based on anecdotal evidence before and after implementation of full retention. With the current observer program, the baseline data exists that may allow NMFS to determine if there is significant non-compliance. For example, if there is a significant decrease in the overall catch of rockfish after a full retention rule becomes effective, this may indicate non-compliance of rockfish retention or that the estimates of rockfish discard rates before full retention were too high.

Another way to test for compliance is to look at the difference in deliveries between vessels. If there are deliveries coming in from one vessel with no rockfish and all other vessels fishing in the same general area delivered rockfish, it would indicate the vessel is not compliant with full retention.

Additionally, observer data can be used to estimate the likelihood that a trip should have encountered rockfish and compare it to deliveries. These data are flexible to drill down to target and area if data exists from those areas. A limited analysis of this method was completed. Observer data were used to identify if rockfish was present in a set from 2013-2017 by longline CVs. Figure 2-4 show the percentage of observed longline sets that had at least one rockfish observed. These data are inclusive of CVs only.

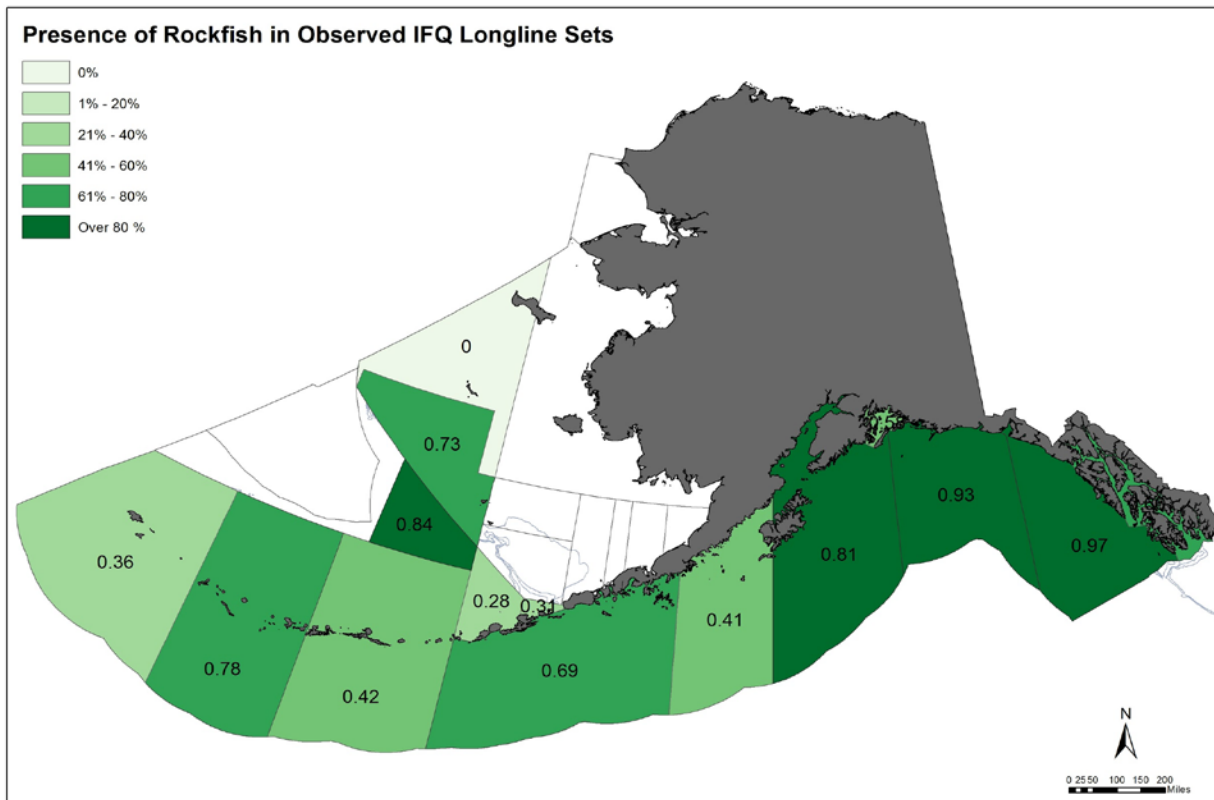


Figure 2-4 Presence of rockfish in observed IFQ sets

Figure 2-4 shows that in Southeast Alaska outside waters (650), over 97 percent of observed sets had the presence of at least one rockfish. Combined with the likelihood that observer data would underestimate the presence of rockfish, it would be safe to assume that all deliveries in Southeast Outside should deliver rockfish. If vessels fishing in that area were to make a delivery and have no rockfish, this would indicate potential non-compliance with full retention.

There are some limitations in using data to precisely estimate the proportion longline sets with the presence of rockfish. The sampling methods used by observers are not designed to fully account for presence and absence and likely underestimates the presence of rockfish. This is due to the observer only sampling approximately 30 percent of each set that is observed. There may have been at least one rockfish in the other 70 percent of the set that was not sampled. Another limitation is that some areas may indicate lower likelihood of rockfish catch due to lower effort and observer coverage. For example, the AI have less observer coverage than areas more commonly fished in like the Central and Eastern GOA. These data also are limited to presence and absence and would not be able to identify if a vessel only retained some of the rockfish they encountered.

If non-compliance is suspected, the Council could consider increasing monitoring on the hook-and-line fleet. Additional monitoring would provide more robust data to use in identification of non-compliance and increase the incentives to be in compliance. The risk and effects of non-compliance in pot and jig fisheries are thought to be small. Under any of these scenarios, there is currently flexibility to increase monitoring should management priorities suggest it is necessary.

Some rockfish species are challenging to manage because they are commonly caught as incidental species, have low ABC amounts, in the GOA have several area breakouts, and have higher variance of at-sea discard estimates from observed discard rates on smaller hook-and-line vessels. NMFS closes directed fishing to most rockfish species at the beginning of the year because the TAC does not support directed fishing. Once a TAC is reached, NMFS prohibits retention of the species which removes financial incentives to catch a species. Since 2013, there has been increased total catch of rockfish. Part of this increase is better data collection and the ability to get estimates of rockfish incidental catch and at-sea discard on hook-and-line vessels. Prior to 2013, there was little data from these vessels to estimate rockfish at-sea discards. The tools available to NMFS to control harvest are limited and are somewhat ineffective in reducing harvest of rockfish to ensure that the TAC is not exceeded. NMFS continues to adapt management to address the increase in total catch; however, area TACs and area ABCs are occasionally exceeded for some rockfish species.

The reasons for exceeding an area ABC is a multi-faceted problem spanning multiple gear types, targets, and incentives. While hook-and-line gear catch rockfish species that have had TACs or area ABCs that were exceeded, the fixed gear sector's catch is not always the main reason for exceeding an area ABC. Total catch of rockfish is not expected to increase by large amounts under any alternative and full retention of rockfish may allow for better catch accounting as a result of reducing the variance on the rates used for at-sea discard estimates.

For vessels that have opted into the EM pool, full retention of rockfish could increase the accuracy in species identification among those species of rockfish that are difficult to distinguish on EM video. Implementing a requirement for full rockfish retention could benefit these vessel operators by alleviating their responsibility for identifying and retaining only certain hard-to-differentiate rockfish species. Full rockfish retention could also create an avenue for the collection of additional biological samples during offload, should the need arise.

By requiring retention of all rockfish by fixed-gear CVs, the action would likely result in better information on the incidental catch of rockfish by these vessels, because data on retained and landed fish are recorded in the existing reporting system. CV estimates of at-sea discards of rockfish are calculated using discard rates that are applied to the retained groundfish landed. These discard rates have variability. Full retention removes some of that variability in the discard rates. This is increasingly important when accounting for species that have low ABC amounts. A more precise estimate can assist in management of these species.

However, improved data collection on incidental catch of rockfish under a full retention requirement is dependent on vessel operators retaining all of the rockfish that they catch. Some vessel operators, without increased monetary incentives (i.e., the ability to sell all retained rockfish), may choose to violate the full retention requirement. OLE has indicated that since implementation of the full retention of DSR for hook-and-line CVs and jig vessels in SEO, there appears to be increasing compliance and large amounts of non-compliance may not be occurring.

2.7.2.11 Enforcement Considerations

Full retention is difficult to enforce but not impossible. The challenges of enforcing full retention requirements are well known to OLE. Federal fisheries in the BSAI and GOA have many regulations that regulate vessel operators to require retention of species. These partially come from improved retention/improved utilization (IR/IU) regulations. These regulations require a vessel to keep certain groundfish species up to the MRA. In addition, there already is a requirement to keep rockfish up to the MRA when fishing for IFQ halibut and sablefish. From the experience gained in enforcing these regulations, we can discuss the enforcement considerations of full retention of rockfish.

While challenges exist, OLE believes these regulations are needed and are enforceable. Increased outreach is an effective tool to increase compliance of these retention requirements. For example, data exist that indicate that in some fisheries like sablefish, where most, if not all, trips incidentally harvest some rockfish (Table 2-26 and Table 2-27). If there are trips from those fisheries without reported rockfish, this can result in further investigation on the retention compliance. Conversations with vessel operators are effective in increasing compliance. Another example is at-sea assets, such as vessels, may be able to identify vessels that are not compliant. Rockfish typically float behind a vessel when discarded. This is sometimes nicknamed a buoy line. Like a trail of breadcrumbs, large amounts of rockfish discard can sometimes be followed to a nearby vessel operating their gear. Other vessel operators may also report suspected non-compliance to OLE.

Limiting confusion and providing consistency in the regulations is likely to increase compliance. Alternative 2 and 3 would likely result in easier to understand and more consistent regulations. Some of this will result in how these requirements would likely be implemented.

Full retention of rockfish would remove some of the challenges OLE staff encounter when investigating rockfish MRA or MCA overages. For species with full retention requirements, like DSR in the Southeast Outside District, OLE focuses on the calculation of the overage and ensuring the amount in excess of the MCA does not enter commerce. OLE staff may also seek to ensure the species are identified correctly because currently only some rockfish species have full-retention requirements. By requiring all rockfish to be retained, compliance of these requirements is easier for vessel operator to understand and be in compliance. This would reduce some enforcement tasks. By picking a simple method to calculate the MCA, this could remove additional challenges and likely increase compliance. Overall, with full retention of all rockfish, MRA overages could likely result in less investigative work.

When overages do occur, OLE staff may seek to confirm the calculation of the amounts in excess of the MCA and then follow up with the processing plant and vessel owner to ensure amounts in excess of the MCA do not enter commerce. This is done primarily through conversations with the processors and vessel operators.

While analyzing the potential impacts of these alternatives, OLE identified a potential tool that could assist enforcement in tracking compliance on what happens to rockfish in excess of the MCA. This tool would use current record keeping and reporting regulations in 50 CFR 679.5. A minor modification of the Product transfer report (PTR) regulations could assist this. Currently, processors with Federal Processor Permits are required to fill out a PTR when groundfish and halibut species are transferred out of the facility or off the vessel. The regulation specifically addresses donation.

The regulations require information on the shipper and the receiver of the fish being transferred. The regulations are structured in order to explain how to fill out the receiver information, date and time of product transfer, location of product transfer (e.g., port, position coordinates, or city), mode of transportation, and intended route based on what the shipper or processor is doing. While the regulations currently require the processor to fill out a PTR for donation, adding a new requirement to these regulations to address donation of rockfish in excess of the MCA may clarify these regulations even more and provide a tool for enforcement to use to monitor compliance. This should not result in any increase in recordkeeping and reporting, only clarify the information to be recorded.

Rockfish overages are likely to continue whether this action is implemented or not. If full retention for all rockfish species were implemented there may be an increase in the amount of overages. However, the reduced workload investigating and documenting full retention overages could outweigh the increase in number of cases. This would likely result in less investigative work for rockfish overages overall. Therefore, OLE believe that full retention of all rockfish species has more benefits than challenges.

The option to require retention of rockfish when the species on PSC status is discussed in detail in section 2.7.2.6. This option would allow for easier enforcement of compliance with full retention. Enforcement is concerned that if the council does not adopt this option, it may increase non-compliance of the limits established and result in more cases due to not understanding the nuances of how limits are enforced. Since fishing mortality for rockfish is near 100 percent, continuing to maintain full retention of rockfish but restricting it from entering commerce would allow many of the benefits of full retention but also restrict the financial incentive of retention. This is discussed in section 2.7.2.4.

Full retention of rockfish could allow OLE time to pursue other priorities. Typically, an MRA overage requires an enforcement agent or officer to double check MRA calculations, write and submit an enforcement action report, enter the information in the data management system to document the overage, and mail the required paperwork to the permit holder. Each overage action is estimated to take approximately 1 hour to complete. Full rockfish retention removes this burden as the priority shifts from a violation of the MRA to ensuring the species does not enter commerce.

The analysts had several conversations with stakeholders and the primary concern expressed was to make sure enforcement knew that unintentional drop offs occur with longline gear. With increased monitoring via EM and observer coverage, industry members were concerned that this may result in an increase in enforcement actions. This concern was discussed with enforcement staff and enforcement staff stated that they will investigate each case on its merits and that they recognize that unintentional drop-offs do occur.

2.7.2.12 Number and Description of Directly Regulated Small Entities

Section 603 of the Regulatory Flexibility Act (RFA) requires that an initial regulatory flexibility analysis (IRFA) be prepared to describe the economic impacts of proposed actions on small entities. As of January 2017, NMFS Alaska Region will prepare the IRFA in the Classification section of the proposed rule for an action. Therefore, the preparation of a separate IRFA is not necessary for the Council action on this issue until after final action.

There are two action alternatives under consideration. The first alternative would require full retention of rockfish species by all fixed gear CVs. The second alternative would narrow the scope to require full rockfish retention requirement to hook-and-line CVs in the GOA.

The entities directly regulated by this action are those CVs that would utilize fixed gear in the BSAI and GOA. The thresholds applied to determine if an entity or group of entities are “small” under the RFA depend on the industry classification for the entity or entities. Businesses classified as primarily engaged in commercial fishing are considered small entities if they have combined annual gross receipts not in excess of \$11.0 million for all affiliated operations worldwide (81 FR 4469; January 26, 2016). Based on the 2016 fishing season, there were 169 active fixed gear CVs in BSAI and there were 949 active fixed gear CVs in the GOA. Of these fixed gear CVs in the BSAI and GOA, there were 136 vessels in the BSAI and 932 vessels in the GOA that are considered small entities.

2.7.2.13 Net Benefit to the Nation

Net benefits to the Nation would likely increase under Alternative 2 and 3, relative to Alternative 1. Alternatives 2 and 3 would provide a more accurate estimate of rockfish catch, and the alternatives would reduce waste of rockfish by requiring fixed gear CVs to retain all rockfish species. Both benefits would result in greater utilization of rockfish resource. The difference in net benefits to the Nation between Alternatives 2 and 3 are likely small, with Alternative 2 having a slightly higher prospect of yielding greater benefits to the Nation, as compared to Alternative 3, which has a narrower scope than Alternative 2.

3 Magnuson-Stevens Act and FMP Considerations

3.1 Magnuson-Stevens Act National Standards

Below are the 10 National Standards as contained in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and a brief discussion of how each alternative is consistent with the National Standards, where applicable. In recommending a preferred alternative, the Council must consider how to balance the national standards.

National Standard 1 — Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The BSAI and GOA groundfish stocks, including rockfish species, are generally considered stable, and are not at a level that would correspond to being overfished, and harvest is not at a level that would correspond to overfishing under the status determination criteria used for BSAI and GOA groundfish fisheries. None of the alternatives considered for this action would affect the status of a rockfish stock in the BSAI or GOA. The ABC and TAC for rockfish species will continue to be established through the annual harvest specifications process, and the processes by which NMFS manages catch of rockfish species to stay within its allocation will not change under the alternatives considered for this action.

National Standard 2 — Conservation and management measures shall be based upon the best scientific information available.

The analysis for this amendment is based upon the most recent and best scientific information available, recognizing that some information (such as operational costs) are unavailable. It represents the best scientific information available.

National Standard 3 — To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The proposed action is consistent with the management of individual stocks as a unit or interrelated stocks as a unit or in close coordination. None of the alternatives considered for this action would affect how rockfish species are managed.

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 United States fishermen, such allocation shall be: (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The proposed action does not allocate or assign fishing privileges to a vessel operator. This action focuses on making regulations more consistent and easy to understand and increase the utilization of fish that are likely to be harvested under status quo. Under the alternatives being considered for this action, it would allow fixed gear CV operators to sell most of the incidental catch of rockfish they encounter while targeting other species. A cap on the amount of rockfish that can enter commerce would be implemented to prevent vessels from increasing harvest of rockfish. This cap would be the same for all fixed gear CV operators.

National Standard 5 — Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

Efficiency in the utilization of fishery resources is one of the primary goals of the proposed action. The purpose of the alternatives being considered is not an economic allocation, but rather a rockfish retention requirement. By allowing vessel operators to retain and sell rockfish that are incidentally harvested, the alternatives being considered will increase the utilization of fishery resources. Rockfish not allowed to enter commerce can be used for personal consumption or charitable donations.

National Standard 6 — Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

None of the proposed alternatives are expected to affect the availability of and variability in the BSAI and GOA rockfish species fishery resource in future years. The effects of the alternatives were analyzed to determine the impacts to affected participants over a broad range of years and rockfish TAC levels. The harvest of rockfish species by fixed gear vessels would be managed to and limited by the TAC, regardless of the proposed action considered in this amendment.

National Standard 7 — Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The proposed action does not duplicate any other management action and is intended to simplify existing management actions by making the regulations more consistent and easy to understand. This action does not increase administrative burden or complicate the annual specifications publication and implementation process compared to the status quo. Therefore, the proposed measure would minimize cost.

National Standard 8 — Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of National Standard 2, in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

This action is not expected to have adverse impacts on communities or affect the sustained participation of any community. None of the action alternatives would extinguish harvest opportunities for fixed gear CVs that incidentally harvest rockfish. This action would increase utilization of these rockfish incidental catches and likely benefit fishing communities through more economic activity. Amounts of rockfish that are harvested in excess of the MCA may enter the donation stream and provide benefits to those in need.

National Standard 9 — 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.

Based on the Magnuson Stevens Act, retained rockfish is not considered bycatch, and as such, the alternatives considered in this action would increase retention of rockfish and thus reduce bycatch of rockfish. In addition, the proposed alternatives would likely provide incentives to avoid incidental catch of rockfish.

National Standard 10 — Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The action alternatives are not expected to have a measurable effect on safety at sea. The action alternatives would not modify existing safety regulations, authorized gear, the size or type of vessels that may be used in the fishery, or otherwise affect the amount of species that could be harvested. The action alternatives would not result in any changes in harvest limits that would be likely to encourage unsafe fishing practices. The primary impact of the action alternatives is to increase utilization of fish that are likely to be harvested. Any potential change in fishing operations or delivery patterns resulting from the action alternatives are expected to be minimal. While this may not provide a measurable effect on safety at sea, it could provide potential improvements to safety at sea. Current fishing and delivery practices in the BSAI and GOA have been determined to promote the safety of life at sea to the extent practicable

3.1.1 Section 303(a)(9) Fisheries Impact Statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that a fishery impact statement be prepared for each FMP amendment. A fishery impact statement is required to assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for (a) participants in the fisheries and fishing communities affected by the plan amendment; (b) participants in the fisheries conducted in adjacent areas under the authority of another Council; and (c) the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

The RIR prepared for this plan amendment constitutes the fishery impact statement. The likely effects of the proposed action are analyzed and described throughout the RIR. The effects on participants in the fisheries and fishing communities are analyzed in the RIR chapter of the analysis (Chapters 2). The effects of the proposed action on safety of human life at sea are evaluated in Section 2.7.2.13, and above under National Standard 10, in Section 3.1. Based on the information reported in this section, there is no need to update the Fishery Impact Statement included in the FMP.

The proposed action affects the groundfish fisheries in the EEZ off Alaska, which are under the jurisdiction of the North Pacific Fishery Management Council. Impacts on participants in fisheries conducted in adjacent areas under the jurisdiction of other Councils are not anticipated as a result of this action.

3.2 Council's Ecosystem Vision Statement

In February 2014, the Council adopted, as Council policy, the following:

Ecosystem Approach for the North Pacific Fishery Management Council

Value Statement

The Gulf of Alaska, Bering Sea, and Aleutian Islands are some of the most biologically productive and unique marine ecosystems in the world, supporting globally significant populations of marine mammals, seabirds, fish, and shellfish. This region produces over half the nation's seafood and supports robust fishing communities, recreational fisheries, and a subsistence way of life. The Arctic ecosystem is a dynamic environment that is experiencing an unprecedented rate of loss of sea ice and other effects of climate change, resulting in elevated levels of risk and uncertainty. The North Pacific Fishery

Management Council has an important stewardship responsibility for these resources, their productivity, and their sustainability for future generations.

Vision Statement

The Council envisions sustainable fisheries that provide benefits for harvesters, processors, recreational and subsistence users, and fishing communities, which (1) are maintained by healthy, productive, biodiverse, resilient marine ecosystems that support a range of services; (2) support robust populations of marine species at all trophic levels, including marine mammals and seabirds; and (3) are managed using a precautionary, transparent, and inclusive process that allows for analyses of tradeoffs, accounts for changing conditions, and mitigates threats.

Implementation Strategy

The Council intends that fishery management explicitly take into account environmental variability and uncertainty, changes and trends in climate and oceanographic conditions, fluctuations in productivity for managed species and associated ecosystem components, such as habitats and non-managed species, and relationships between marine species. Implementation will be responsive to changes in the ecosystem and our understanding of those dynamics, incorporate the best available science (including local and traditional knowledge), and engage scientists, managers, and the public.

The vision statement shall be given effect through all of the Council's work, including long-term planning initiatives, fishery management actions, and science planning to support ecosystem-based fishery management.

In considering this action, the Council is being consistent with its ecosystem approach policy. This action analyzes proposed management measures that would require full retention of all rockfish species for fixed gear CVs in the BSAI and GOA. The management measures under consideration also include an option to require full retention of rockfish even if the species is on prohibited species status but prohibit these retained rockfish from entering commerce. The purpose of this proposed action stems from the benefits of full retention of rockfish by fixed gear CVs. The potential benefits include improving the identification of species when CVs are subject to electronic monitoring, improve data collection by providing more accurate estimates of catch, reduce incentives to discard rockfish, reduce waste, reduce overall enforcement burden, and promote more consistent management between State and Federal fisheries.

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