



WHEN TRUST MATTERS

SURVEILLANCE NO. 1

**RESPONSIBLE FISHERIES MANAGEMENT CERTIFICATION SCHEME,
VERSION 2.1**

Alaska Cod Fishery

Certification Body
Assessment team
Fishery client
Date

DNV Business Assurance USA
Jodi Bostrom, Giuseppe Scarcella, Paul Knapman
Alaska Fisheries Development Foundation
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ABBREVIATIONS AND ACRONYMS

ABC	Allowable biological catch
ADFG	Alaska Department of Fish and Game
AFDF	Alaska Fisheries Development Foundation
AFSC	Alaska Fisheries Science Center
AI	Aleutian Islands
AIC	Akaike information criterion
APA	At-sea Processors Association
BMSY	Biomass corresponding to the maximum sustainable yield (biological reference point); the peak value on a domed yield-per-recruit curve
BOF	Board of Fisheries
BSAI	Bering Sea and Aleutian Islands
CP	Catcher-processor
CV	Catcher vessel
EBS	Eastern Bering Sea
EIS	Environmental Impact Statement
EEZ	Exclusive economic zone
EFH	Essential fish habitat
ETP	Endangered, threatened, and protected (species)
FAO	Food and Agriculture Organization of the United Nations
FMP	Fishery management plan
GOA	Gulf of Alaska
HCR	Harvest control rule
LAPP	Limited access privilege program
MMPA	Marine Mammal Protection Act
MSC	Marine Stewardship Council
MSY	Maximum sustainable yield
mt	Metric tons
NBS	Northern Bering Sea
NEPA	National Environmental Policy Act
nm	Nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC or the Council	North Pacific Fishery Management Council
OFL	Overfishing level
PBR	Potential biological removal
PEIS	Programmatic Environmental Impact Statement
PSC	Prohibited species catch
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (report)
SSB	Spawning stock biomass
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
USCG	U.S. Coast Guard

1 EXECUTIVE SUMMARY

Table 1. General information and the fishery

Fishery name	Alaska Cod Fishery		
Fishery being assessed	Applicant Group: Alaska Cod Fishery Client Group Product Common Name (Species): Pacific cod (<i>Gadus macrocephalus</i>) Geographic Location: Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) within Alaska jurisdiction (200 nautical mile [nm] exclusive economic zone [EEZ]) Gear Types: Bottom trawl, longline, pot, and jig gears Principal Management Authority: Federal (National Marine Fisheries Service [NMFS] and the North Pacific Fishery Management Council [NPFM]) and state (Alaska Department of Fish and Game [ADFG] and Board of Fisheries [BOF])		
Date certified	December 6, 2011; recertified December 6, 2017; second recertification February 6, 2023	Date of certificate expiry	February 5, 2028
Surveillance type	Off-site surveillance		
Date of surveillance audit	March 27, 2024		
Surveillance stage	1st Surveillance		X
	2nd Surveillance		
	3rd Surveillance		
	4th Surveillance		
	Other (expedited, etc.)		
Surveillance team	Lead assessor: Jodi Bostrom Assessors: Giuseppe Scarcella, Paul Knapman		

The Responsible Fisheries Management (RFM) Certification Program is a voluntary program that is owned and managed by the Certified Seafood Collaborative (CSC) to provide an independent, third-party certification that can be used to verify that these fisheries are responsibly managed according to the RFM standard. Additionally, application to the RFM is only available for fisheries operating within the North American fisheries operating in the U.S. and Canadian 200 nm EEZ.

The RFM Certification Program uses the fundamental clauses of the RFM Fisheries Standard Version 2.1 and is in accordance with ISO 17065 accredited certification procedures. The assessment is based on the fundamental clauses specified in the RFM Fisheries Standard Version 2.1. It is based on four key components of responsible management derived from the Food and Agriculture Organization of the United Nations (FAO) Code of Conduct for Responsible Fisheries (CCRF) (1995) and Guidelines for the Eco-labeling of products from marine capture fisheries (2009).

- A The Fisheries Management System
- B Science, Stock Assessment Activities, and the Precautionary Approach
- C Management Measures, Implementation, Monitoring, and Control
- D Serious Impacts of the Fishery on the Ecosystem

The purpose of this annual surveillance report is to:

1. Establish and report on any material changes to the circumstances and practices affecting the original complying assessment of the fishery
2. Monitor any actions taken in response to non-conformances raised in the original assessment of the fisheries
3. Rescore any clauses where practice or circumstances have materially changed since the last audit

1.1 Audit conclusion

Fishery	Status of certification	Comment
The Pacific cod commercial fishing vessels within the Alaska Cod Fishery Client Group employing bottom trawl, longline, pot, and jig gears the GOA and BSAI within Alaska jurisdiction (200 nm U.S. EEZ) and subjected to federal (NMFS and Council) and state (ADFG and BOF) management.	Certified	During the first surveillance audit conducted on March 27, 2024, the surveillance team concluded that the non-conformance has been closed. Given the results of this audit, the team recommends the continued certification of this fishery according to the RFM Fisheries Standard v2.1.

2 ASSESSMENT TEAM DETAILS

Jodi Bostrom

DNV Lead Assessor and main area of responsibility
Fundamental clause D (Serious Impacts of the Fishery on the Ecosystem)

Jodi Bostrom is a senior assessor and team leader for Marine Stewardship Council (MSC) Fisheries and RFM Fisheries at DNV Business Assurance. She earned an M.Sc. in Environmental Science from American University and a B.Sc. in Zoology from the University of Wisconsin. She has over five years of experience in MSC fisheries assessment services. Prior to that, she worked for five years at the MSC as a Senior Fisheries Assessment Manager. Among other things, she developed the MSC's benthic habitats policy and the Consequence Spatial Analysis (a risk-based framework for assessing habitat impacts in data-deficient situations) as part of the MSC Standard revision. Prior to the MSC, Jodi spent 11 years with the US National Academy of Sciences' Ocean Studies Board where she worked on various projects from fisheries management and policy to bycatch and dredging impacts to eutrophication and sea level rise.

Paul Knapman

Main areas of responsibility
Fundamental clause A (Fisheries Management System) and C (Science, Stock Assessment Activities, and the Precautionary Approach)

Paul is an independent consultant based in Halifax, Nova Scotia, Canada. Paul began his career in fisheries more than 30 years ago as a fisheries officer in the UK, responsible for the enforcement of UK and EU fisheries regulations. He then joined the UK government's nature conservation advisors, establishing and managing their marine fisheries program. He developed an extensive program of work with fisheries managers, scientists, the fishing industry and ENGOs to integrate national and European fisheries and nature conservation requirements. He also helped lead a national four-year project contributing to the 2002 review of the Common Fisheries Policy. He then became Head of the largest inshore fisheries management organization in England, with responsibility for managing an extensive area of inshore fisheries on the North Sea coast. The organization's responsibilities and roles included: stock assessments; habitat monitoring; setting and ensuring compliance with total allowable catches and quotas; establishing and applying regional fisheries regulations; the development and implementation of fishery management plans; the lead authority for the largest marine protected area in England. In 2004, Paul moved to Canada and established his own consultancy providing analysis, advisory and developmental work on fisheries management policy in Canada and Europe. He drafted the first management plan for one of Canada's marine protected areas, undertook an extensive review on illegal, unreported, and unregulated fishing in the Baltic Sea and was appointed as rapporteur to the European Commission's Baltic Sea Regional Advisory Council. In 2008, Paul joined Moody Marine as their Americas Regional Manager, responsible for managing and developing their regional MSC business. He became General Manager of the business in 2012. Paul returned to consultancy in 2015.

Giuseppe Scarcella

Main area of responsibility
Fundamental clause B (Science, Stock Assessment Activities, and the Precautionary Approach)

Giuseppe Scarcella is an experienced fishery scientist and population analyst and modeler, with wide knowledge and experience in the assessment of demersal stocks. He holds a first degree in Marine Biology and Oceanography (110/110) from the Università Politecnica delle Marche, and a Ph.D. in marine Ecology and Biology from the same university, based on a thesis "Age and growth of two rockfish in the Adriatic Sea". After his degree he was offered a job as project scientist in several research programs about the structure and composition of fish assemblage in artificial reefs, off-shore platform and other artificial habitats in the Italian Research Council – Institute of Marine Science of Ancona now Institute for Biological Resources and Marine Biotechnologies. During the years of employment, he has gained experience in benthic ecology, statistical analyses of fish assemblages evolution in artificial habitats, fisheries ecology and impacts of fishing activities, stock assessment, otolith analysis, population dynamic and fisheries management. During the same years he attended courses of uni-multivariate statistics and stock assessment. He is also actively participating in the scientific advice process of FAO GFCM in the Mediterranean Sea and Scientific, Technical and Economic Committee for Fisheries for the European Commission. He is author and co-author of more than 50 scientific paper peer reviewed journals and more than 200 national and



international technical reports, most of them focused on the evolution of fish assemblages in artificial habitats and stock assessment and fishery management.

3 BACKGROUND ON THE FISHERY

3.1 Fishery description

Following the fourth surveillance audit of the last certification cycle, a non-conformance was placed on Fundamental Clause 3. All information on this fishery could be obtained from the original full assessment report, subsequent surveillance reports, and recertification reports available for download at <https://rfmcertification.org/certified-fishery-species/alaska-cod/>. Recent catch is similar to previous years, and recent data are presented in Table 2.

Table 2. Total allowable catch (TAC) and catch data for 2023

Species	Latin name	2023 TAC (metric ton; mt)	2023 Total Catch (mt)
Pacific cod in Eastern Bering Sea (EBS)	<i>Gadus macrocephalus</i>	127,409	118,389
Pacific cod in Aleutian Islands (AI)	<i>Gadus macrocephalus</i>	8,425	7,473
Pacific cod in GOA	<i>Gadus macrocephalus</i>	18,103	16,345

3.2 Previous assessments and surveillance audits

The Alaska cod fisheries were first certified under the requirements of the Alaska RFM standard v1.2 on December 6, 2011. The initial certification and four annual surveillance audits were carried out by the certification body Global Trust.

On April 15, 2017, the certificate for this fishery was transferred from Global Trust to DNV GL (now DNV). The certificate transfer and the fourth surveillance audit were carried out by DNV. During June-December 2017, the fishery went through the full reassessment against a newer version of the standard, v1.3. This reassessment did not result in any changes in the compliance of the fishery with the RFM standard, and no non-conformances were raised. The new certificate was, therefore, issued with the validity date until December 5, 2022.

In January 2021, the fourth surveillance of the recertification took place via an off-site surveillance audit, which was done in conjunction with the reassessment site visit, and the surveillance report was issued on May 27, 2022. Following the results of the second reassessment, the fishery was recertified against the RFM Fisheries Standard v2.1 with one non-conformance. The certificate was issued with the validity date until February 5, 2028.

4 THE ASSESSMENT PROCESS

The RFM assessment/reassessment evaluates the fishery against the conformance criteria outlined in the RFM’s Fishery Standard v2.1, which contains clauses that are categorized into four sections:

- Section A – The Fishery Management System
- Section B – Science and Stock Assessment Activities and the Precautionary Approach
- Section C – Management Measures, Implementation, Monitoring, and Control
- Section D – Serious Impacts of the Fishery on the Ecosystem

Scoring of each clause is based on a series of Evaluation Parameters: Process, Current Status/Appropriateness/Effectiveness, and Evidence Basis. The scoring guidelines, which are used for all clauses, are as follows:

- If all Evaluation Parameters are satisfied, the clause is scored in full conformance.
- If any single Evaluation Parameter is not satisfied, the clause is scored in minor non-conformance.
- If any two Evaluation Parameters are not satisfied, the clause is scored in major non-conformance.
- If any three or more Evaluation Parameters are not satisfied, the clause is scored in critical non-conformance.

During the assessment/reassessment, the fishery is assigned a confidence rating for each clause, which signifies the confidence of the assessment team that the fishery is demonstrated to be in conformity to the requirements of that clause. Clauses are scored according to the following confidence ratings:

- Low confidence rating (critical non-conformance level) – Information and/or evidence is completely absent or contradictory to whether an element of the fishery complies with the given requirements of a supporting clause. In these cases, a low confidence rating, equivalent to a critical non-conformance, is assigned.
- Medium confidence rating (major non-conformance) – Information and/or evidence is limited. In these cases, major improvement is needed to achieve full conformance, and a medium confidence rating with a major non-conformance is assigned.
- Medium confidence rating (minor non-conformance) – Information and/or evidence is broadly available; however, there are some information gaps. In these cases, minor improvement is needed to achieve full conformance, and a medium confidence rating with a minor non-conformance is assigned.
- High confidence rating (full conformance) – Sufficient information and/or evidence is available to demonstrate full conformance. In these cases, a high confidence rating is assigned.

Annual surveillance audits are undertaken to review any changes in the fishery since the last assessment, reassessment, or surveillance audit. Progress toward closing any non-conformances is also evaluated.

4.1 Surveillance audit meetings

The surveillance announcement was announced publicly on CSC’s website (<https://rfmcertification.org/certified-fishery-species/alaska-cod/>) on February 20, 2024. The audit took place via Microsoft Team on March 27, 2024. (Note that the RFM surveillance audit was held in conjunction with the fishery’s audit against the MSC Standard.)

4.2 Stakeholder input

Table 3 provides the agenda and list of participants. (Note that this RFM surveillance audit was held in conjunction with the fishery’s audit against the MSC Standard.) DNV received no written stakeholder input before the audit and no requests to meet with the team. The team did receive an update on the fishery, including the latest catch data, from the client after the audit.

Table 3. Surveillance agenda and participants

Time	Activity	Participants
9:00-9:15 am PDT	Opening meeting <ul style="list-style-type: none"> • Introductions, surveillance audit goals, etc. • Overview of the surveillance process 	Jodi Bostrom Giuseppe Scarcella Paul Knapman Kristy Clement Hannah Wilson Ann Robertson

9:15-10:00 am PDT	Principle 1 / Fundamental Clause B discussion <ul style="list-style-type: none"> • Review of catch data • Harvest strategy • Harvest control rules • Review of MSC condition 	Giuseppe Scarcella Jodi Bostrom Paul Knapman Kristy Clement Hannah Wilson Ann Robertson
10:00-10:45 am PDT	Principle 2 / Fundamental Clause D discussion <ul style="list-style-type: none"> • Updated catch data and VMS data • Updated non-target species' impacts • Updated habitat and ecosystem impacts 	Jodi Bostrom Giuseppe Scarcella Paul Knapman Kristy Clement Hannah Wilson Ann Robertson
10:45-11:00 am PDT	Break	
11:00-11:45 am PDT	Principle 3 / Fundamental Clauses A and C discussion <ul style="list-style-type: none"> • Update on management framework, personnel, etc. • Update on enforcement and compliance • Review of RFM non-conformance 	Paul Knapman Jodi Bostrom Giuseppe Scarcella Kristy Clement Hannah Wilson Ann Robertson
11:45 am - 12:15 pm PDT	MSC Traceability	Jodi Bostrom Giuseppe Scarcella Paul Knapman Kristy Clement Hannah Wilson Ann Robertson
12:15-12:30 pm PDT	Closing meeting, wrap up, and summary <ul style="list-style-type: none"> • Remaining questions from team • Points needing clarification • Overview of surveillance outcomes • Questions from clients • Next steps • Timing 	Jodi Bostrom Giuseppe Scarcella Paul Knapman Kristy Clement Hannah Wilson Ann Robertson

5 UPDATES TO AND CHANGES WITHIN THE FISHERY

5.1 Scientific stock assessment

Information for assessing the status of Pacific cod comes from the Stock Assessment and Fishery Evaluation (SAFE) reports: EBS (Barbeaux et al., 2023), AI (Spies et al., 2023), and GOA (Hulson et al., 2023a).

5.1.1 EBS Pacific cod

According to the 2023 stock assessment, EBS Pacific cod is neither overfished nor experiencing overfishing. Stock status is determined relative to B40% and B35%, which are regarded as reference points that trigger the harvest control rule (HCR). B40% can be considered a proxy for BMSY proxy reference point though it is really treated as a limit within management such that if female spawning stock biomass (SSB) is assessed as below B40%, maximum allowable fishing mortality rate is reduced. 20% of virgin biomass can be considered a proxy of PRI. In Barbeaux et al. (2023) the following substantive changes have been made in the EBS Pacific cod stock assessment in comparison with 2022 SAFE reports (Barbeaux et al., 2022).

Changes in the input data include:

- Catches for 1991-2022 were updated, and a preliminary catch estimate for 2023 was incorporated.
- Commercial fishery size compositions for 1991-2022 were updated, and a preliminary size composition from the 2023 commercial fishery was incorporated.
- The Vector Autoregressive Spatio-Temporal approach for the Alaska Fisheries Science Center (AFSC) Bering Sea (EBS + Northern Bering Sea [NBS]) bottom trawl index was updated for 2023.
- The size composition from the 2023 EBS+NBS survey was incorporated.
- The Vector Autoregressive Spatio-Temporal approach was used to estimate the age compositions from the combined EBS+NBS survey time series through 2022.
- Conditional age-at-length data for 1990-2022 from the bottom trawl survey were included in one model exploration.

The ensemble of models presented and accepted for use in 2022 were re-run with the updated data as parameterized in last year's assessment (Barbeaux et al., 2022). In addition, three alternative models were developed. Model 23.1.0.a is a simplified version of Model 22.2 with no annually varying parameters and use of the simple multinomial for size and age composition data instead of the Dirichlet Multinomial used in the 2022 ensemble models. Model 23.1.0.d is Model 23.1.0.a with fixed natural mortality, annually varying parameters on growth ($L_{1.5}$ and Richard's ρ) and survey selectivity. Model 23.2 is Model 23.1.0.d with conditional age at length data included. For the 2023 models, the input sample sizes for the size and age composition data use a bootstrap approach developed by Hulson et al. (2023b). Model 23.1.0.d is recommended as a single model replacement for the 2022 ensemble. The principal results of the present assessment, based on Model 23.1.0.d, are listed in Figure 1 and Table 4 (biomass and catch figures are in units of t) and compared with the corresponding quantities as specified last year.

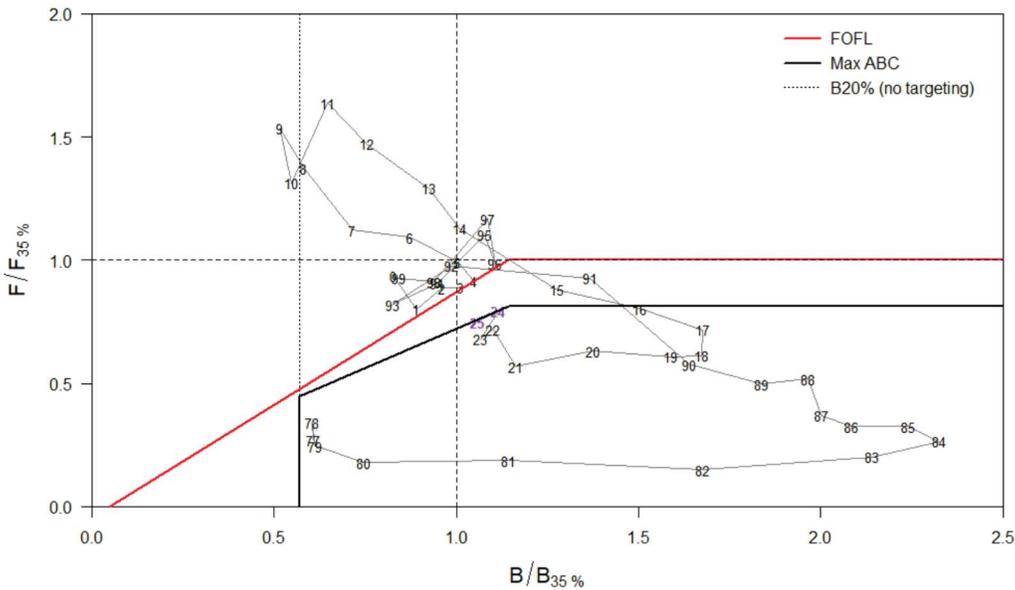


Figure 1. Trajectory of EBS Pacific cod fishing mortality and female SSB as estimated by ensemble model. Source: Barbeaux et al. 2023

Table 4. Summary of the assessment results. Source: Barbeaux et al. 2023

Quantity	As estimated or specified last year for:		As estimated or recommended this year for:	
	2023	2024	2024*	2025*
<i>M</i> (natural mortality rate)	0.34	0.34	0.386	0.386
Tier	3b	3b	3b	3b
Projected total (age 0+) biomass (t)	844,578	831,566	808,203	787,837
Projected female spawning biomass (t)	245,594	242,911	223,107	211,131
<i>B</i> _{100%}	668,477		567,465	
<i>B</i> _{40%}	267,391		226,986	
<i>B</i> _{35%}	233,467		198,612	
<i>F</i> _{OFL}	0.36	0.35	0.46	0.43
<i>maxF</i> _{ABC}	0.29	0.29	0.37	0.35
<i>F</i> _{ABC}	0.29	0.29	0.37	0.35
OFL (t)	172,495	166,814	200,995	180,798
maxABC (t)	144,834	140,159	167,952	150,876
ABC (t)	144,834	140,159	167,952	150,876
Status	As determined <i>this</i> year for:			
	2021	2022	2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Projections are based on assumed catches of 142,945 t, and 167,952 t in 2023 and 2024, respectively.

It is important to note that the recommended 2024 and 2025 *F*_{ABC} and allowable biological catch (ABC) values listed in Table 4 may be subject to modification following consideration by the Plan Team and SSC. The summarized results of the risk analysis (see subsection in the “Harvest Recommendations” section) show no concern in term of assessment-related, population dynamics, environmental/ecosystem, and fishery performance considerations. In the event that the 2024 *F*_{ABC} or ABC values are changed from



those shown in Table 4, projected 2025 values of other non-constant quantities would need to change in response and would be reflected in the harvest specification tables.

In terms of management of the stock (i.e., harvest strategy, HCRs, and data collection), evidence was provided by stakeholders during the site visit that there was no notable change. In addition, the catches were below the TAC also in 2023 (see Table 5), and the observer program was regularly in place.

Table 5. History of BSAI (1977-2013) and EBS (2014-2023) Pacific cod catch, TAC, Alaska State guideline harvest level (2016-2022), ABC, and overfishing level (OFL) (t). Catch for 2023 is through October 3. Note that specifications through 2013 were for the combined BSAI region, so BSAI catch is shown rather than the EBS catches from Table 2.3 for the period 1977-2013. Source for historical specifications: NPFMC staff. Source: Barbeaux et al., 2023

Year	Catch	TAC	ABC	OFL	Year	Catch	TAC	GHL	ABC	OFL
1977	35,597	58,000			2001	176,749	188,000		188,000	248,000
1978	45,838	70,500			2002	197,356	200,000		223,000	294,000
1979	39,354	70,500			2003	207,900	207,500		223,000	324,000
1980	51,649	70,500	148,000		2004	212,621	215,500		223,000	350,000
1981	63,941	78,700	160,000		2005	205,633	206,000		206,000	265,000
1982	69,501	78,700	168,000		2006	193,029	189,768		194,000	230,000
1983	103,231	120,000	298,000		2007	174,484	170,720		176,000	207,000
1984	133,084	210,000	291,000		2008	171,030	170,720		176,000	207,000
1985	150,384	220,000	347,000		2009	175,756	176,540		182,000	212,000
1986	142,511	229,000	249,000		2010	171,850	168,780		174,000	205,000
1987	163,110	280,000	400,000		2011	220,089	227,950		235,000	272,000
1988	208,236	200,000	385,300		2012	250,840	261,000		314,000	369,000
1989	182,865	230,681	370,600		2013	250,301	260,000		307,000	359,000
1990	179,608	227,000	417,000		2014	238,715	246,897		255,000	299,000
1991	220,038	229,000	229,000		2015	232,821	240,000		255,000	346,000
1992	207,278	182,000	182,000	188,000	2016	247,617	238,680	16,320	255,000	390,000
1993	167,391	164,500	164,500	192,000	2017	237,845	223,704	15,296	239,000	284,000
1994	193,802	191,000	191,000	228,000	2018	199,851	188,136	12,864	201,000	238,000
1995	245,033	250,000	328,000	390,000	2019	178,903	166,475	15,204	181,000	216,000
1996	240,676	270,000	305,000	420,000	2020	155,657	141,799	14,074	155,873	191,386
1997	257,765	270,000	306,000	418,000	2021	121,734	111,380	12,426	123,805	147,949
1998	193,256	210,000	210,000	336,000	2022	148,813	136,466	16,917	153,383	183,012
1999	173,998	177,000	177,000	264,000	2023	123,208	127,409	17,425	144,834	172,495
2000	191,060	193,000	193,000	240,000						

5.1.2 AI Pacific cod

Harvest specifications for AI Pacific cod have been based on Tier 5 methodology since the AI and EBS stocks were first managed separately in 2014. Several age-structured models of this stock have been explored in assessments since that time. In Spies et al. (2023), three age structured models for the AI Pacific cod stock using data from 1991 through 2023 (Model 23.0, 23.1, and 23.2) as well as a Tier 5 harvest specification model.

Substantive changes have been made in the AI Pacific cod age-structured assessment relative to the November 2022 assessment (Spies et al., 2022). A version of this age-structured model was presented in 2022, with the following data used in the 2022 model and updated for the most recent year:

- Realized catches for 1991-2022 were used (through October 20, 2023), as well as a preliminary catch estimate through December 31, 2023.
- Commercial fishery size compositions for 1991-2022, as well as preliminary size composition from the 2023 commercial fisheries.

- AI trawl survey biomass index and size compositions from the 1991-2022 (there was no survey in 2023).
- AI trawl survey age composition from the 1991-2022.

There has been no change to the input data for Tier 5 model; it uses existing biomass estimates from 1991-2022, and the natural mortality estimate used in past models is retained for 2023. There have been changes in the assessment methodology. Model 13.4 is the Tier 5 random effects model implemented using the Rare Event Meta Analysis package (Sullivan et al. 2022).

The age-structured models presented below incorporate fishery data as a single fishery from 1991-2023. The single fishery combined catch data over trawl, pot, and longline gear. Survey age and length data were input as conditional age-at-length. Survey and fishery selectivity were modelled as constant over time and logistic, except in Model 23.1, which incorporated time blocks on fishery selectivity.

- Model 23.0: This model incorporates three time blocks on the growth parameter K, with breakpoints at 2003 and 2017. The first breakpoint accounts for a shift in growth determined using the methodology of Kapur et al. (2020). The second breakpoint was implemented to account for a shift to warmer temperatures during the past decade (Xiao and Ren 2022).
- Model 23.1: This model is similar to Model 23.0, except it incorporates five time blocks on the fishery selectivity parameter for ascending width, corresponding with shifts in the gear targeting Pacific cod. Selectivity breakpoints were set at 2002, 2012, 2016, and 2019.
- Model 23.2: This model is similar to Model 23.0, except there are two time blocks on the growth parameter K with a breakpoint at 2003. There are also two time blocks on natural mortality with a breakpoint in 2015 corresponding to the shift to warmer temperatures during the past decade (Xiao and Ren 2022).

These three age-structured models fit the survey index and length composition data well, achieved acceptable retrospective patterns, and improved upon the models presented in September 2023 and November 2022. All models provided similar estimates of biomass, natural mortality, and reference points. In addition, the three models had similar Akaike information criterion (AIC) values, with the lowest AIC in Model 23.2, followed by Model 23.1. Model 23.0 produced an acceptable Mohn's rho, 0.17; Model 23.1 produced a smaller retrospective pattern, 0.14, and Model 23.2 produced the best Mohn's rho = 0.06. Of the two models recommended by the September 2023 Plan Team meeting, Model 23.0 and 23.1, Model 23.1 would be the preferred model, due to a lower AIC value and acceptable retrospective pattern. However, Model 23.2 provides the best fit to the data, produced the lowest AIC of all models, and the best retrospective pattern and lowest absolute value Mohn's rho. In addition, the assumption that increased natural mortality due to higher temperatures is supported by evidence, whereas there is no evidence for a shift in growth during the past decade (as assumed by Models 23.0 and 23.1). Model 23.2 retains two time blocks on growth with a break at 2003, reflecting a documented change in growth. Model 23.2 also implements a time block on natural mortality with a break in 2015, roughly corresponding with the thermal regime shift in 2013/2014 (Xiao and Ren 2022). This model estimated a total biomass of 54,611 t for 2024. Model 23.2 ABCs were 10,660 t and 10,214 t for 2024 and 2025. Model 23.2 OFLs were 12,732 t and 17,304 t for 2024 and 2025. The Tier 5 ABCs and OFLs for 2024 and 2025 are the same as estimated in 2022, due to no new survey data. The 2022 (and 2023) random effect estimates of biomass represent a 37% decline from the estimate based on the 2018 Aleutian Islands survey. Model 13.4 incorporates this biomass estimate directly in the calculation of reference points; therefore, the random effects model estimated an exploitable biomass of 54,166 t, which resulted in OFLs (18,416 t) and ABCs (13,812 t) for 2024 and 2025.

Catch of Pacific cod as of October 20, 2023 was 7,311 t. Over the past five years (2018-2022), 92.6% of the catch has taken place by this date. Therefore, the full year's estimate of catch in 2023 was extrapolated to be 7,898 t. This is lower than the average catch over the past five years of 15,936 t.

Spies et al. (2023) recommended the Tier 3b assessment Model 23.2 for management quantities and no additional reduction in ABC due to risk table concerns. The principal results of the present assessment, based on the authors' recommended model, are listed in the Table 6.



Table 6. Summary table for Model 23.0. Last year’s assessment incorporated a Tier 5 model. Projections were based on annual catches of 7,898 t for 2023 and the ABC for 2024. Source: Spies et al., 2023

Quantity	As estimated or <i>specified</i> last year for:		As estimated or <i>recommended</i> this year for:	
	2023	2024	2024	2025
M (natural mortality rate)	0.34	0.34	0.34	0.34
Tier	5	5	3b	3b
Projected total (age 1+) biomass (t)	54,165	54,165	75,238	80,120
Projected female spawning biomass (t)	-	-	26,602	27,728
$B_{100\%}$	-	-	79,980	79,980
$B_{40\%}$	-	-	31,992	31,992
$B_{35\%}$	-	-	27,993	27,993
F_{OFL}	0.34	0.34	0.445	0.487
$maxF_{ABC}$	0.255	0.255	0.363	0.398
F_{ABC}	0.255	0.255	0.363	0.398
OFL	18,416	18,416	15,311	17,880
$maxABC$	13,812	13,812	12,757	14,955
ABC	13,812	13,812	12,757	14,955
Status	2021	2022	2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

Considering the status of female SSB relative to unexploited stock, it is possible to observe that the projected biomass in 2024 and 2025 are above PRI (20% of SSB0) and close to BMSY proxies. Taking this into account, the changes represent an improvement of the previous model. In terms of management of the stock (i.e., harvest strategy, HCRs and data collection), evidence was provided by stakeholders during the site visit that there was no notable change (see Table 7), and the observer program was regularly in place.



Table 7. Pacific cod catch in metric tons by year, TAC, ABC, and OFL, 1991-2023. Note that specifications were combined for the Bering Sea and AI cod stocks through 2013 and are shown for the AI alone for 2013 onwards. Catch for 2023 is through October 23. ABC and OFL for 2023 are based on this year's model output. TAC from 2023 is based on harvest specifications from 2022. Source: Spies et al., 2023.

Year	Catch (t)	ABC	TAC	OFL
1991	9,797	229,000	229,000	-
1992	43,067	182,000	182,000	188,000
1993	34,204	164,500	164,500	192,000
1994	21,539	191,000	191,000	228,000
1995	16,534	328,000	250,000	390,000
1996	31,609	305,000	270,000	420,000
1997	25,164	306,000	270,000	418,000
1998	34,726	210,000	210,000	336,000
1999	28,130	177,000	177,000	264,000
2000	39,684	193,000	193,000	240,000
2001	34,207	188,000	188,000	248,000
2002	30,800	223,000	200,000	294,000
2003	32,456	223,000	207,500	324,000
2004	28,873	223,000	215,500	350,000
2005	22,693	206,000	206,000	365,000
2006	24,211	194,000	189,768	230,000
2007	34,354	176,000	170,720	207,000
2008	31,228	176,000	170,720	207,000
2009	28,581	182,000	176,540	212,000
2010	29,006	174,000	168,780	205,000
2011	10,888	235,000	227,950	272,000
2012	18,220	314,000	261,000	369,000
2013	13,608	307,000	260,000	359,000
2014	10,603	15,100	6,997	20,100
2015	9,216	17,600	9,422	23,400
2016	13,245	17,600	12,839	23,400
2017	15,202	21,500	15,695	28,700
2018	20,414	21,500	15,695	28,700
2019	19,200	20,600	14,214	27,400
2020	14,250	20,600	13,796	27,400
2021	12,882	20,600	13,796	27,400
2022	10,547	20,600	13,796	27,400
2023	7,312	13,812	8,425	18,416

5.1.3 AI Pacific cod

Harvest specifications for AI Pacific cod have been based on Tier 5 methodology since the AI and EBS stocks were first managed separately in 2014. Several age-structured models of this stock have been explored in assessments since that time. In Spies et al. (2023), three age structured models for the AI Pacific cod stock using data from 1991 through 2023 (Model 23.0, 23.1, and 23.2) as well as a Tier 5 harvest specification model.

Substantive changes have been made in the AI Pacific cod age-structured assessment relative to the November 2022 assessment (Spies et al., 2022). A version of this age-structured model was presented in 2022, with the following data used in the 2022 model and updated for the most recent year:

- Realized catches for 1991-2022 were used (through October 20, 2023), as well as a preliminary catch estimate through December 31, 2023.
- Commercial fishery size compositions for 1991-2022, as well as preliminary size composition from the 2023 commercial fisheries.
- AI trawl survey biomass index and size compositions from the 1991-2022 (there was no survey in 2023).
- AI trawl survey age composition from the 1991-2022.

There has been no change to the input data for Tier 5 model; it uses existing biomass estimates from 1991-2022, and the natural mortality estimate used in past models is retained for 2023. There have been changes in the assessment methodology. Model 13.4 is the Tier 5 random effects model implemented using the Rare Event Meta Analysis package (Sullivan et al. 2022).

The age-structured models presented below incorporate fishery data as a single fishery from 1991-2023. The single fishery combined catch data over trawl, pot, and longline gear. Survey age and length data were input as conditional age-at-length. Survey and fishery selectivity were modelled as constant over time and logistic, except in Model 23.1, which incorporated time blocks on fishery selectivity.

- Model 23.0: This model incorporates three time blocks on the growth parameter K, with breakpoints at 2003 and 2017. The first breakpoint accounts for a shift in growth determined using the methodology of Kapur et al. (2020). The second breakpoint was implemented to account for a shift to warmer temperatures during the past decade (Xiao and Ren 2022).
- Model 23.1: This model is similar to Model 23.0, except it incorporates five time blocks on the fishery selectivity parameter for ascending width, corresponding with shifts in the gear targeting Pacific cod. Selectivity breakpoints were set at 2002, 2012, 2016, and 2019.
- Model 23.2: This model is similar to Model 23.0, except there are two time blocks on the growth parameter K with a breakpoint at 2003. There are also two time blocks on natural mortality with a breakpoint in 2015 corresponding to the shift to warmer temperatures during the past decade (Xiao and Ren 2022).

These three age-structured models fit the survey index and length composition data well, achieved acceptable retrospective patterns, and improved upon the models presented in September 2023 and November 2022. All models provided similar estimates of biomass, natural mortality, and reference points. In addition, the three models had similar AIC values, with the lowest AIC in Model 23.2, followed by Model 23.1. Model 23.0 produced an acceptable Mohn's rho, 0.17; Model 23.1 produced a smaller retrospective pattern, 0.14, and Model 23.2 produced the best Mohn's rho = 0.06. Of the two models recommended by the September 2023 Plan Team meeting, Model 23.0 and 23.1, Model 23.1 would be the preferred model, due to a lower AIC value and acceptable retrospective pattern. However, Model 23.2 provides the best fit to the data, produced the lowest AIC of all models, and the best retrospective pattern and lowest absolute value Mohn's rho. In addition, the assumption that increased natural mortality due to higher temperatures is supported by evidence, whereas there is no evidence for a shift in growth during the past decade (as assumed by Models 23.0 and 23.1). Model 23.2 retains two time blocks on growth with a break at 2003, reflecting a documented change in growth. Model 23.2 also implements a time block on natural mortality with a break in 2015, roughly corresponding with the thermal regime shift in 2013/2014 (Xiao and Ren 2022). This model estimated a total biomass of 54,611 t for 2024. Model 23.2 ABCs were 10,660 t and 10,214 t for 2024 and 2025. Model 23.2 OFLs were 12,732 t and 17,304 t for 2024 and 2025. The Tier 5 ABCs and OFLs for 2024 and 2025 are the same as estimated in 2022, due to no new survey data. The 2022 (and 2023) random effect estimates of biomass represent a 37% decline from the estimate based on the 2018 Aleutian Islands survey. Model 13.4 incorporates this biomass estimate directly in the calculation of reference points; therefore, the random effects model estimated an exploitable biomass of 54,166 t, which resulted in OFLs (18,416 t) and ABCs (13,812 t) for 2024 and 2025.

Catch of Pacific cod as of October 20, 2023 was 7,311 t. Over the past five years (2018-2022), 92.6% of the catch has taken place by this date. Therefore, the full year's estimate of catch in 2023 was extrapolated to be 7,898 t. This is lower than the average catch over the past five years of 15,936 t.

Spies et al. (2023) recommended the Tier 3b assessment Model 23.2 for management quantities and no additional reduction in ABC due to risk table concerns. The principal results of the present assessment, based on the authors' recommended model, are listed in the Table 6.

Table 8. Summary table for Model 23.0. Last year’s assessment incorporated a Tier 5 model. Projections were based on annual catches of 7,898 t for 2023 and the ABC for 2024. Source: Spies et al. 2023

Quantity	As estimated or <i>specified</i> <i>last year for:</i>		As estimated or <i>recommended</i> <i>this year for:</i>	
	2023	2024	2024	2025
M (natural mortality rate)	0.34	0.34	0.34	0.34
Tier	5	5	3b	3b
Projected total (age 1+) biomass (t)	54,165	54,165	75,238	80,120
Projected female spawning biomass (t)	-	-	26,602	27,728
$B_{100\%}$	-	-	79,980	79,980
$B_{40\%}$	-	-	31,992	31,992
$B_{35\%}$	-	-	27,993	27,993
F_{OFL}	0.34	0.34	0.445	0.487
$maxF_{ABC}$	0.255	0.255	0.363	0.398
F_{ABC}	0.255	0.255	0.363	0.398
OFL	18,416	18,416	15,311	17,880
$maxABC$	13,812	13,812	12,757	14,955
ABC	13,812	13,812	12,757	14,955
Status	2021	2022	2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

Considering the status of female SSB relative to unexploited stock, it is possible to observe that the projected biomass in 2024 and 2025 are above 20% of SSB0 and close to BMSY proxies. Taking this into account, the changes represent an improvement of the previous model. In terms of management of the stock (i.e., harvest strategy, HCRs and data collection), evidence was provided by stakeholders during the site visit that there was no notable change (see Table 7), and the observer program was regularly in place.



Table 9. Pacific cod catch in metric tons by year, TAC, ABC, and OFL, 1991-2023. Note that specifications were combined for the Bering Sea and AI cod stocks through 2013 and are shown for the AI alone for 2013 onwards. Catch for 2023 is through October 23. ABC and OFL for 2023 are based on this year’s model output. TAC from 2023 is based on harvest specifications from 2022. Source: Spies et al., 2023.

Year	Catch (t)	ABC	TAC	OFL
1991	9,797	229,000	229,000	-
1992	43,067	182,000	182,000	188,000
1993	34,204	164,500	164,500	192,000
1994	21,539	191,000	191,000	228,000
1995	16,534	328,000	250,000	390,000
1996	31,609	305,000	270,000	420,000
1997	25,164	306,000	270,000	418,000
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1999	28,130	177,000	177,000	264,000
2000	39,684	193,000	193,000	240,000
2001	34,207	188,000	188,000	248,000
2002	30,800	223,000	200,000	294,000
2003	32,456	223,000	207,500	324,000
2004	28,873	223,000	215,500	350,000
2005	22,693	206,000	206,000	365,000
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2009	28,581	182,000	176,540	212,000
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2011	10,888	235,000	227,950	272,000
2012	18,220	314,000	261,000	369,000
2013	13,608	307,000	260,000	359,000
2014	10,603	15,100	6,997	20,100
2015	9,216	17,600	9,422	23,400
2016	13,245	17,600	12,839	23,400
2017	15,202	21,500	15,695	28,700
2018	20,414	21,500	15,695	28,700
2019	19,200	20,600	14,214	27,400
2020	14,250	20,600	13,796	27,400
2021	12,882	20,600	13,796	27,400
2022	10,547	20,600	13,796	27,400
2023	7,312	13,812	8,425	18,416

5.1.4 GOA Pacific cod

Pacific cod in the GOA are assessed on an annual stock assessment schedule to coincide with the availability of new survey data. Hulson et al. (2023a) used a statistical age-structured model as the primary assessment tool for GOA Pacific cod that qualifies as a Tier 3 stock. The assessment consists of a population model, which uses survey and fishery data to generate a historical time series of population estimates, and a projection model, which uses results from the population model to predict future population estimates and recommended harvest levels.

Relative to last year's assessment (Hulson et al., 2022), input data changes have been made in the current assessment by including the following data:

- Federal and state catch data for 2022 were updated and preliminary federal and state catch data for 2023
- Commercial federal and state fishery size composition data for 2022 were updated, and preliminary commercial federal and state fishery size composition data for 2023
- AFSC longline survey Pacific cod abundance index and length composition data for the GOA for 2023
- AFSC bottom trawl survey abundance index and length composition data for 2023
- Commercial federal conditional age-at-length data for 2022

Regarding changes in the methodology, the model used for 2023 (Model 19.1b) is last year's accepted model (Model 19.1a) with the adjustment of conditional age-at-length minimum sample size from 1 to 0.001. There were no other model changes made in this year's assessment. Model 19.1b indicates that the stock remains at low levels but is above B20%; for 2024 the stock is estimated to be at B29.7%, less than B40%, placing it in sub-tier "b" of Tier 3. For the 2024 fishery, Hulson et al. (2023a) recommended the maximum allowable ABC of 32,272 t. This ABC is a 31% increase from the 2023 ABC of 24,634 t. This increase is attributed to increases in both the AFSC bottom trawl survey population numbers (53% larger in 2023 compared to 2021) and the AFSC longline survey Relative Population Number index (32% larger in 2023 compared to 2022). The 2024 ABC is 42% larger than the 2024 ABC projected in last year's assessment. The corresponding reference values are summarized in Figure 2 and Table 10, with the recommended ABC and OFL values in bold. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished. Similarly, in term of management of the stock (i.e., harvest strategy, HCRs and data collection), evidence was provided by stakeholders during the site visit that there was no notable change (Table 11), and the observer program was regularly in place.

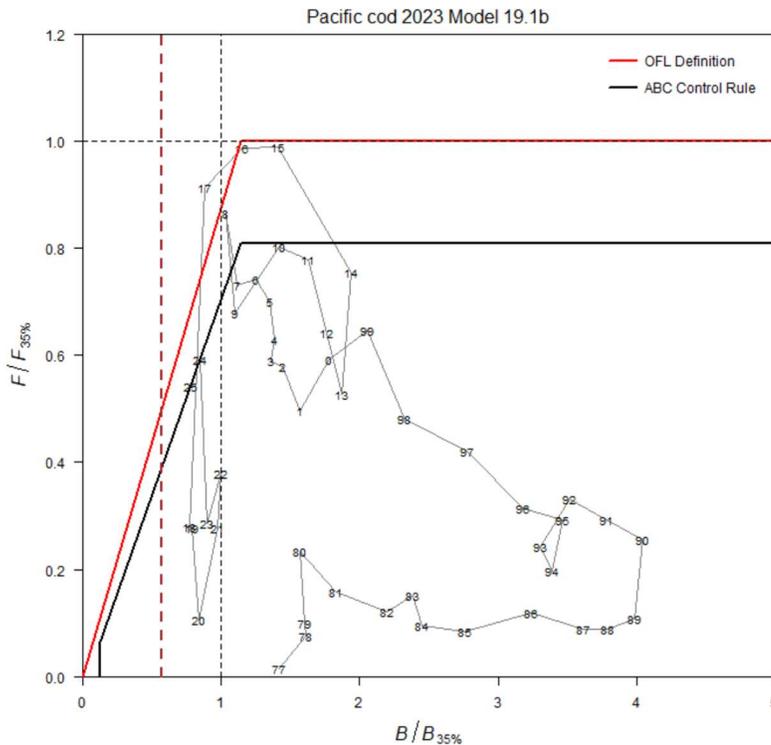


Figure 2. Ratio of historical F/F35% versus female SSB relative to B35% for GOA Pacific cod, 1977-2025 from the author’s recommended model. The Fs presented are the sum of the full Fs across fleets. Dashed red line is at B20%, Steller sea lion closure rule for GOA Pacific cod. Source: Hulson et al. 2023a

Table 10. Summary results of the assessment. Source: Hulson et al. 2023a

Quantity	As estimated or specified last year for:		As estimated or specified this year for:	
	2023	2024	2024	2025
M (natural mortality rate)	0.49*	0.49*	0.46*	0.46*
Tier	3b	3b	3b	3b
Projected total (age 0+) biomass (t)	163,477	193,510	184,242	203,207
Female spawning biomass (t)				
Projected	42,764	40,489	51,959	47,931
$B_{100\%}$	167,414	167,414	175,187	175,187
$B_{40\%}$	66,966	66,966	70,075	70,075
$B_{35\%}$	58,595	58,595	61,315	61,315
F_{OFL}	0.51	0.48	0.52	0.48
$maxF_{ABC}$	0.41	0.39	0.42	0.38
F_{ABC}	0.41	0.39	0.42	0.38
OFL (t)	29,737	27,507	38,712	33,970
maxABC (t)	24,634	22,683	32,272	28,184
ABC (t)	24,634	22,683	32,272	28,184
Status	As determined last year for:		As determined this year for:	
	2021	2022	2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Base natural mortality M varies between 0.46 and 0.79

** Assumed 2023 catch to be the 2023 ABC. For 2025 projections the 2024 catch was assumed to be at the projected ABC.



Table 11. History of Pacific cod catch (t, includes catch from State waters), Federal TAC (does not include State guideline harvest level), ABC, OFL and State of Alaska guideline harvest level (1997-Present). Catch for 2023 is current through 2023-10-16 and includes catch from State of Alaska waters fisheries and inside waters. The values in the column labelled “TAC” correspond to “optimum yield” for the years 1980-1986, “target quota” for the year 1987, and true TAC for the years 1988-present. Source: Hulson et al. 2023a

Year	Catch	TAC	ABC	OFL	GHL
1980	35,345	60,000	-	-	-
1981	36,131	70,000	-	-	-
1982	29,465	60,000	-	-	-
1983	36,540	60,000	-	-	-
1984	23,898	60,000	-	-	-
1985	14,428	60,000	-	-	-
1986	25,012	75,000	136,000	-	-
1987	32,939	50,000	125,000	-	-
1988	33,802	80,000	99,000	-	-
1989	43,293	71,200	71,200	-	-
1990	72,517	90,000	90,000	-	-
1991	76,301	77,900	77,900	-	-
1992	80,747	63,500	63,500	87,600	-
1993	56,488	56,700	56,700	78,100	-
1994	47,486	50,400	50,400	71,100	-
1995	68,985	69,200	69,200	126,000	-
1996	68,279	65,000	65,000	88,000	-
1997	77,170	69,115	81,500	180,000	12,385
1998	72,624	66,060	77,900	141,000	11,840
1999	82,543	67,835	84,400	134,000	16,565
2000	66,551	59,800	76,400	102,000	17,685
2001	51,531	52,110	67,800	91,200	15,690
2002	54,638	44,230	57,600	77,100	13,370
2003	52,582	40,540	52,800	70,100	12,260
2004	56,623	48,033	62,810	102,000	14,777
2005	47,585	44,433	58,100	86,200	13,667
2006	47,897	52,264	68,859	95,500	16,595
2007	52,261	52,264	68,859	97,600	16,595
2008	59,014	50,269	64,493	88,660	16,224
2009	53,196	41,807	55,300	66,000	13,493
2010	78,593	59,563	79,100	94,100	19,537
2011	85,368	65,100	86,800	102,600	21,700
2012	77,930	65,700	87,600	104,000	21,900
2013	68,576	60,600	80,800	97,200	20,200
2014	84,945	64,738	88,500	107,300	23,762
2015	79,480	75,202	102,850	140,300	27,648
2016	64,054	71,925	98,600	116,700	26,675
2017	48,727	64,442	88,342	105,378	23,900
2018	15,150	13,096	18,000	23,565	4,904
2019	15,715	12,368	17,000	23,669	4,632
2020	6,840	6,431	14,621	17,794	2,537
2021	19,175	17,321	23,627	28,977	6,306
2022	25,925	24,111	32,811	39,555	8,700
2023	18,231	18,103	24,634	29,737	6,532

5.2 Management practices of the competent management authority

5.2.1 Pacific Cod Trawl Cooperative Program

The [Pacific Cod Trawl Cooperative program](#) was approved by the Council in October 2021, through Amendment 122 to the BSAI Groundfish Fishery Management Plan (FMP). The purpose and need of the program were described in the original Council motion as:

Total allowable catch for Pacific cod in the BSAI has steadily decreased over the last few years. The pace of the fishery has contributed to an increasingly compressed season, resulting in decreased ability to maximize the value of the fishery, and negatively impacting all fishery participants (catcher vessels, motherships, shoreside processors, and communities). This race for fish also discourages fishing practices that can minimize bycatch and threatens the sustained viability of the fishery. The Council is considering the development of a cooperative-based program to improve the prosecution of the fishery, with the intent of promoting safety and stability in the harvesting and processing sectors, increasing the value of the fishery, minimizing bycatch to the extent practicable, providing for the sustained participation of fishery dependent communities, and ensuring the sustainability and viability of the resource.

Fishing began under this new program, which limited entry to the BSAI Pacific cod trawl fishery, on January 20, 2024. Amendment 122 allocates Pacific cod harvest quota share to qualifying groundfish [License Limitation Program](#) license holders and qualifying processors. It requires participants to form cooperatives to harvest the quota.

5.2.2 BSAI pot catcher vessels (CVs) ≥60 ft

The Council approved [a motion](#) in June 2023 requesting a discussion paper to compile information to address concerns being encountered by the pot cod fishery (including: decreasing Pacific cod TACs, an increase in the number of participating License Limitation Program licenses in the CV sector, the potential for additional new participants in both the CV and the catcher-processor (CP) sectors, a race among existing participants resulting in difficulties controlling bycatch of crab, and increasingly shortened seasons in recent years) and to receive data to support development of a cooperative limited access privilege program (LAPP)¹ for the pot sectors to address these concerns. Regulation of the pot cod sectors has not yet shifted to a limited access program, but the Council may initiate this change in the future.

5.2.3 Programmatic Environmental Impact Statement (PEIS)²

In June 2023, the Council initiated the development of a PEIS for all Council managed fisheries in the GOA and BSAI (NPFMC, [June 2023, Newsletter](#)). The intent of the proposed action is to develop new fisheries management policies, goals, and objectives for all federally managed fisheries in the North Pacific (i.e., those included in the FMPs for BSAI and GOA groundfish, BSAI crab, scallop, salmon, and the halibut fisheries). The following is the draft purpose and need statement and two alternatives as stated in the [June 2023 Council motion](#):

The federal action under consideration is to clarify the management policy and objectives for all federal fisheries managed under the Magnuson-Stevens Act and the Halibut Act under the jurisdiction of the North Pacific Fishery Management Council (Council) in the Gulf of Alaska, the Bering Sea, and Aleutian Islands, including objectives for adapting to the effects of climate change. The purpose of this action is to ensure that the management framework of the Council is adequate to meet current and forthcoming challenges in the federal fisheries, and to describe and implement that framework in a comprehensive manner to improve the Council's ecosystem-based management approach. Given changing conditions in the fisheries, new Council efforts, and significant climate-related impacts on the marine ecosystem, there is a need to evaluate the management policy and objectives for federal fishery management to be adaptable and responsive in order to better meet the objectives of the Magnuson Stevens Act and Halibut Act, to ensure long-term sustainability of the stocks managed under those statutes, and to sustain participation in and benefits from the fisheries over time. The Council intends to ensure that the management framework is structured to use the best available science, which includes climate science and local and traditional knowledge, and also recognizes Alaska tribes and communities that rely on subsistence resources.

Alternative 1: Maintain current ecosystem-based management policy and objectives for Council-managed fisheries (status quo).

Alternative 2: Adopt a more adaptive ecosystem-based management policy and objectives for Council-managed fisheries which would enable the Council to develop and implement climate-resiliency tools; new pathways to incorporate indigenous,

¹ Magnuson-Stevens Fishery Conservation and Management Act allows for LAPPs in which individuals receive a permit to harvest a defined portion of the total allowable catch for a particular fish stock.

² PEIS documents the first phase of a NEPA decision making process that evaluates the environmental impacts of broad agency actions, such as the development of programs or the setting of national policies.

local, and traditional knowledge; and new tools to assess and adapt to risk in the face of additional uncertainty in stock status and distribution due to climate driven marine ecosystem changes.

At the [February 2024 Council meeting](#), the next steps for the programmatic process were reviewed. As part of the preparation of an Environmental Impact Statement (EIS), the National Environmental Policy Act (NEPA) requires that there is an early and open process for determining the scope of the issues to be addressed, this is commonly known as “NEPA scoping”. In order to provide for meaningful public and Tribal engagement in this process, including the alternatives and scope of the action, the Council chose to extend the PEIS timeline. The Council will use the additional time to consider whether to alter the previously adopted alternatives, and what to include in the formal NEPA Notice of Intent NOI to Prepare a PEIS, currently scheduled to be published in fall 2024. The Council must intend to complete a Final PEIS within two years of publishing the Notice of Intent.

5.2.4 Climate Change Task Force

In December 2023, the Council endorsed and agreed to sponsor a proposal by the [Climate Change Task Force](#) to hold a two-day Climate Scenario Workshop during the June 2024 Council meeting in Kodiak. The overarching objective of the workshop is to synthesize and summarize the critical needs, resources, and process to develop and maintain a robust and inclusive decision-making process to respond to climate change effects in the North Pacific. The workshop will be focused on regional management process with attendees and participants invited to:

- Think broadly about potential solutions and tools within the existing process (incremental) but also beyond existing approaches (transformational)
- Identify the bigger picture changes that could be effective to address large climate impacts and changes

5.2.5 Orca mortalities in Bering Sea trawl fisheries

NMFS’s Protected Resources Division in Alaska issued a [public information statement](#) regarding mortality of orca whales in Bering Sea trawl fisheries, including the Amendment 80 fishery, which harvests Pacific cod as an allocated incidental (non-target) species. NMFS notes that the mortalities do not exceed the potential biological removal (PBR) authorized under the U.S. Marine Mammal Protection Act (MMPA). Incidental orca mortality also occurred in the pelagic trawl fishery for pollock and during a longline research survey conducted by NMFS. The orca population affected is not listed under the Endangered Species Act.

In October 2023, the Center for Biological Diversity [launched a lawsuit](#) against the federal government in response to the incidental orca mortalities. No further information was available at the time of this audit to know how this has progressed.

In December 2023, the National Oceanic and Atmospheric Administration (NOAA) published a [technical memorandum](#) summarizing 37 orca entanglement reports from 1991-2022. NMFS stated that these entanglements demonstrate the need for more research and development of orca predation deterrents or other mitigation measures for commercial fisheries.

5.2.6 Essential Fish Habitat (EFH)

The EFH five-year review is a mechanism to ensure NOAA Fisheries and fishery management councils incorporate the most recent and best science available into fishery management for EFH. EFH regulations state that the Council and NOAA Fisheries should conduct a complete review of EFH provisions of FMPs at least once every five years and revise or amend the EFH provisions as warranted based on available information. The purpose of the review is to evaluate: 1) published scientific literature, 2) unpublished scientific reports, 3) information solicited from interested parties, and 4) previously unavailable or inaccessible data.

The 2023 five-year review was presented to the Council in February 2023, and at the December 2023 meeting, the Council confirmed that the EFH sections of its FMPs will be updated and revised to address the results of the 2023 five-year review. The updates improved species distribution mapping using a more uniform approach as well as an update to the fishing effects model to remove a coding error that omitted unobserved catch events. All groundfish species had EFH impacts that were determined to be minimal and temporary.

5.2.7 Crab avoidance in the BSAI

As reported by the client, the primary challenge for directed Pacific cod sectors in the past year has been crab avoidance in the BSAI. At the [Council December 2023 meeting](#), all fishing sectors were invited to provide a status report on the voluntary crab avoidance measures that were put in place within their respective sectors for the 2023 season. Reports summarizing sector efforts to avoid interactions with crab were made available for [longline](#), [pot \(<60 ft sector\)](#), and [trawl \(Amendment 80 and American Fisheries Act\)](#),

along with [a letter detailing crab handling practices](#) requested by the crab sector (represented by the Alaska Bering Sea Crabbers) to reduce mortality of bycaught crab.

At the February 2024 Council meeting, the Council evaluated the effectiveness of closing a large area – the Bristol Bay Red King Crab Savings Area (Figure 3) – to commercial fishing with pelagic trawl, pot, and longline gear to address Bristol Bay red king crab stock and fishery declines. The Savings Area is already closed to bottom trawl gear. The Council also evaluated a pot gear closure of a large area in the eastern portion of Bristol Bay (NMFS Area 512) to meet the same objective (Figure 3). That area is already closed to all trawling.

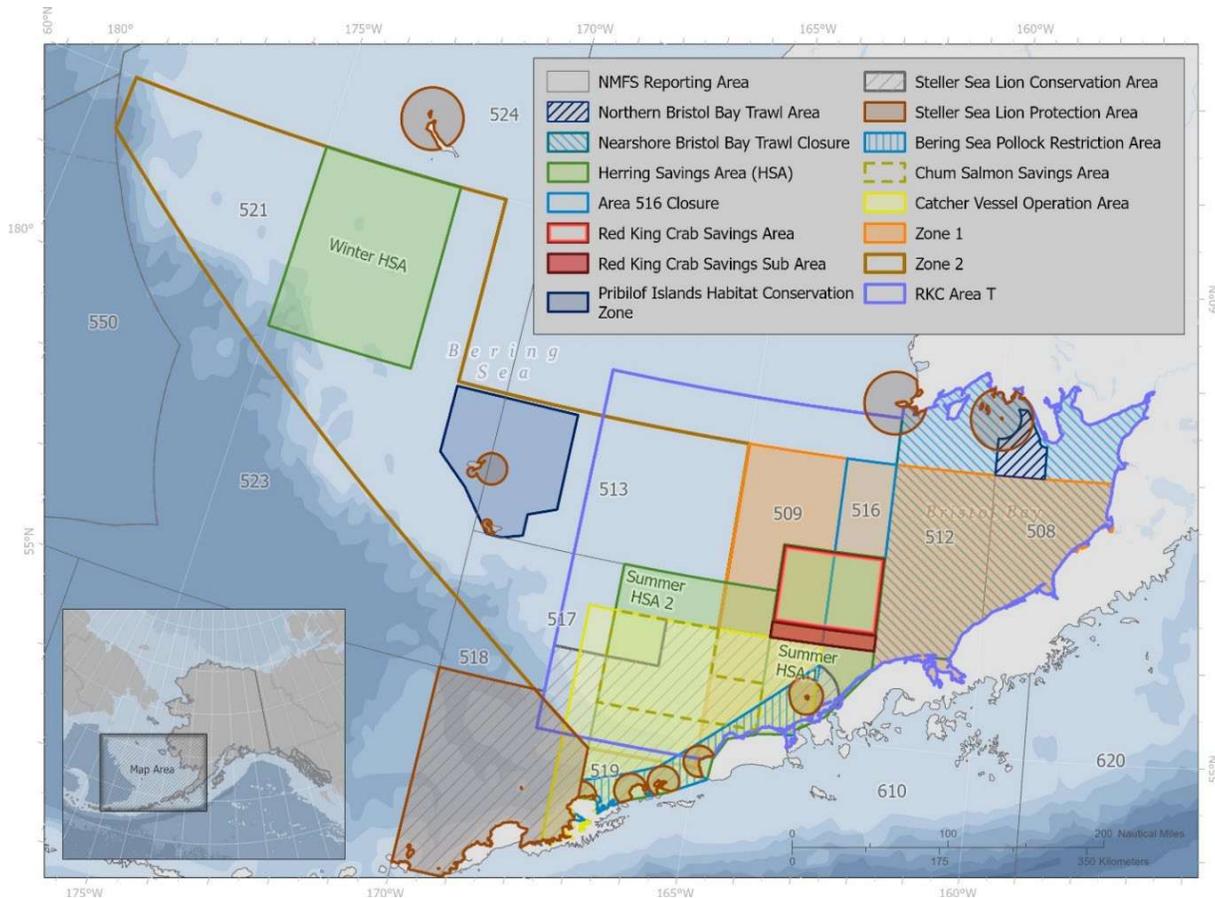


Figure 3. Closed and protected areas in the Bering Sea, noting the “Red King Crab Savings Area” in red outline, and other relevant groundfish management boundaries in the Bering Sea. Source: Cunningham and Olson 2024

The analysis provided to the Council highlighted results of new and ongoing research on the abundance and movement of Bristol Bay red king crab in and out of the areas at issue and the expansive network of existing closed areas in the BSAI for all trawl gear to protect crab, Steller sea lions, and benthic habitat.

The Council did not move forward with continued evaluation of static area closures at this time because the analysis concluded that the benefits to red king crab resulting from such closures were uncertain and unquantifiable and that there would likely be no effect on the crab population. Also critical to the Council’s decision was the analysis’ finding that the proposed closures would result in increased bycatch of salmon, herring, halibut, and other crab species, as some fishing that currently occurs in the proposed closure area has yielded low bycatch and high catch of target species. The Council intends to use ongoing research to develop closures and crab avoidance measures that change in space and time to respond to seasonal crab movement and will be adaptable to evolving ecosystem conditions that affect crab distribution and abundance. The Council established an unobserved mortality working group for crab that has met and will be providing a report to Council at their June 2025 meeting (NPFMC, [February 2024, Newsletter](#)).

5.3 Impacts of fishery on ecosystem

5.3.1 Associated and endangered, threatened, and protected (ETP) species

"The 'Main' and 'Minor' bycatch classification together makes up 95% of the associated species bycatch profile of a given target fishery. The top 95% is assessed, while the bottom 5% is not assessed. Of the 95% assessed, the top 80% is classified as Main Associated Species Catch, while the bottom 15% is classified as Minor Associated Species Catch" (RFM Guidance to Performance Evaluation v2.0). Additionally, "ETP species must be acknowledged as such when recognized by national legislation adopted at the state and federal level in Alaska, or when recognized through a binding international agreement. Alternatively, species listed under Appendix 1 of the Convention on International Trade in Endangered Species or under the International Union for the Conservation of Nature Red List and impacted negatively³ by the fishery (i.e., direct or indirect mortality) shall be assessed as ETP unless it can be proven that their status in Alaska waters is above the point where recruitment is impaired or where other similar proxies indicate that the species is not biologically depleted" (RFM Guidance to Performance Evaluation v2.0).

It is known that certain gear types are more impacting on certain species (e.g., longline are more likely to catch seabirds than demersal trawl). While gear-specific bycatch data are not available (except for seabirds and marine mammals), Section 6.1.2 provides details on the observer program and level of coverage.

Table 12 and Table 13 show catch data for the BSAI cod and GOA cod fisheries, respectively. None of the species are listed in Convention on International Trade in Endangered Species Appendix 1 or the International Union for the Conservation of Nature Red List; however, the ones labeled as prohibited species catch (PSC) (ETP) are protected by federal management measures limiting bycatch of these species. Overall, these catches and interactions are similar to previous years. Refer to Section 6.1.4 for more details.

³ "For ETP species, interactions with the stock under consideration shall not cause departure from agreed management measures, such as those designed to allow for species restoration across a given geographical area. In other words, any interaction with or bycatch of ETP species shall be minimal and not considered significant, and/or disruptive in terms of ensuring the effectiveness of agreed management measures set up in order to achieve the management and conservation objectives for the ETP species in question." (RFM's Guidance to Performance Evaluation v2.0)



Table 12. Catch data of target, non-target, PSC/ETP, and habitat species for 2019-2023 by the BSAI cod fishery. Blue = target species, green = main associated species, orange = minor associated species, yellow = PSC/ETP species, purple = habitats. Source: observer data

Species	Target, Main Associated, Minor Associated, Other Bycatch, PSC/ETP, or Habitat	Catch (in metric tons)						Five-Year Average	Percent of Total Average	Percent of Total Average Bycatch
		2019	2020	2021	2022	2023				
Pacific cod	Target	147,896.65	118,683.25	92,130.34	139,099.98	130,288.57	125,619.76	80.87%	NA	
Alaska plaice	Other bycatch	102.82	34.56	6.22	9.81	9.11	32.50	0.02%	0.11%	
Alaska skate	Main associated	1,889.26	1,511.14	1,281.07	20,480.13	17,370.59	8,506.44	5.48%	28.36%	
Aleutian skate	Minor associated	97.56	82.69	40.35	1,185.73	2,014.23	684.11	0.44%	2.28%	
Arrowtooth flounder	Minor associated	661.07	308.21	268.05	432.57	602.22	454.43	0.29%	1.51%	
Atka mackerel	Other bycatch	29.95	43.47	115.40	84.87	7.36	56.21	0.04%	0.19%	
Bairdi tanner crab*	PSC (ETP)	130,586.00	90,548.00	43,664.00	118,440.05	84,877.30	93,623.07	NA	NA	
Benthic urochordata	Other bycatch	49.50	13.41	0.39	0.55	3.59	13.49	0.01%	0.04%	
Big skate	Minor associated	205.38	101.30	71.91	235.11	570.75	236.89	0.15%	0.79%	
Bigmouth sculpin	Minor associated	312.42	239.80	0.00	0.00	0.00	110.44	0.07%	0.37%	
Birds, unidentified*	Other bycatch	190.30	368.75	148.77	264.66	216.19	237.73	NA	NA	
Bivalves	Other bycatch	3.86	4.42	1.14	5.90	4.22	3.91	0.00%	0.01%	
Black-footed albatross*	Other bycatch	0.00	0.00	0.00	7.08	0.00	1.42	NA	NA	
Blue king crab*	PSC (ETP)	4,185.00	1,161.00	361.00	4,563.41	1,143.79	2,282.84	NA	NA	
Butter sole	Other bycatch	42.13	45.48	23.52	45.48	149.62	61.25	0.04%	0.20%	
Chinook salmon*	PSC (ETP)	1,458.00	235.00	147.00	269.10	1,265.53	674.93	NA	NA	
Corals bryozoans, unidentified	Habitat	7.55	15.42	13.14	5.80	0.87	8.56	0.01%	0.03%	
Dusky rockfish	Other bycatch	13.04	14.94	32.24	19.55	10.99	18.15	0.01%	0.06%	
Eelpouts	Other bycatch	24.18	6.26	6.60	0.34	0.53	7.58	0.00%	0.03%	
English sole	Other bycatch	0.73	1.59	0.83	1.28	33.34	7.56	0.00%	0.03%	
Flatfish, unidentified	Minor associated	10.64	53.10	14.68	343.54	51.58	94.71	0.06%	0.32%	
Flathead sole	Minor associated	751.74	590.06	324.27	539.50	556.54	552.42	0.36%	1.84%	



Giant grenadier	Other bycatch	143.25	156.73	27.54	17.29	2.76	69.51	0.04%	0.23%
Golden king crab*	PSC (ETP)	3,409.00	3,304.00	25,977.00	3,470.26	3,422.90	7,916.63	NA	NA
Great sculpin	Minor associated	536.71	505.68	0.00	0.00	0.00	208.48	0.13%	0.69%
Groundfish, unidentified	Other bycatch	10.41	0.00	0.00	0.00	0.00	2.08	0.00%	0.01%
Gulls*	Other bycatch	161.76	179.94	142.10	691.46	126.87	260.42	NA	NA
Halibut	PSC (ETP)	472.63	244.61	182.42	370.14	355.26	325.01	0.21%	1.08%
Hermit crab, unidentified	Other bycatch	2.60	1.18	3.90	1.67	1.21	2.11	0.00%	0.01%
Herring	PSC (ETP)	0.31	0.18	0.56	0.08	0.98	0.42	0.00%	0.00%
Invertebrate, unidentified	Other bycatch	1.99	3.26	0.95	4.91	10.30	4.28	0.00%	0.01%
Kamchatka flounder	Other bycatch	68.59	41.90	68.88	72.48	64.37	63.24	0.04%	0.21%
Kittiwakes*	Other bycatch	5.19	20.90	6.14	24.20	18.11	14.91	NA	NA
Laysan albatross*	Other bycatch	10.78	0.00	36.67	44.01	34.01	25.09	NA	NA
Longnose skate	Other bycatch	1.12	2.00	9.21	3.73	4.35	4.08	0.00%	0.01%
Misc. crab	Other bycatch	4.24	9.84	5.13	17.76	22.66	11.92	0.01%	0.04%
Misc. fish	Other bycatch	31.83	22.17	17.43	29.04	46.28	29.35	0.02%	0.10%
Misc. flatfish	Other bycatch	0.00	0.00	0.00	15.56	7.60	4.63	0.00%	0.02%
Misc. flounder	Other bycatch	10.72	2.35	0.87	0.00	0.00	2.79	0.00%	0.01%
Murre*	Other bycatch	0.00	6.44	7.79	0.00	0.00	2.85	NA	NA
Non-Chinook salmon*	PSC (ETP)	494.00	115.00	88.00	108.73	68.76	174.90	NA	NA
Northern fulmar*	Other bycatch	2,543.20	2,140.68	778.85	1,679.68	1,575.43	1,743.57	NA	NA
Northern rockfish	Other bycatch	66.08	63.00	72.18	36.94	30.37	53.72	0.03%	0.18%
Octopus	Minor associated	238.18	672.32	154.32	222.38	110.92	279.62	0.18%	0.93%
Opilio tanner crab*	PSC (ETP)	133,665.00	158,964.00	87,898.57	69,927.71	57,667.57	101,624.57	NA	NA
Other alcids*	Other bycatch	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA
Other birds*	Other bycatch	0.00	7.50	0.00	81.75	0.00	17.85	0.01%	0.06%
Pacific ocean perch	Other bycatch	20.42	14.55	6.47	3.12	3.72	9.66	0.01%	0.03%
Pacific sleeper shark	Other bycatch	6.20	18.26	16.62	19.96	12.65	14.74	0.01%	0.05%
Plain sculpin	Other bycatch	17.70	25.95	0.00	0.00	0.00	8.73	0.01%	0.03%



Pollock	Main associated	7,602.30	5,585.72	4,378.16	6,328.01	7,187.00	6,216.24	4.00%	20.72%
Rattail grenadier, unidentified	Other bycatch	8.87	4.12	0.68	0.00	0.00	2.73	0.00%	0.01%
Red king crab*	PSC (ETP)	47,951.00	23,752.00	296,862.35	150,695.62	95,243.85	122,900.96	NA	NA
Rex sole	Other bycatch	19.75	10.87	5.33	18.89	25.89	16.14	0.01%	0.05%
Rock sole	Minor associated	958.98	411.61	360.80	670.95	1,334.99	747.47	0.48%	2.49%
Rockfish, unidentified	Other bycatch	82.70	108.65	143.77	33.32	15.09	76.71	0.05%	0.26%
Rougeye rockfish	Other bycatch	22.15	56.47	42.95	39.02	3.80	32.88	0.02%	0.11%
Sablefish	Minor associated	99.79	147.28	199.81	209.93	126.94	156.75	0.10%	0.52%
Salmon shark	Other bycatch	3.03	0.13	0.00	3.00	2.41	1.71	0.00%	0.01%
Sculpin	Main associated	16.20	18.34	0.00	2,812.62	2,082.15	985.86	0.63%	3.29%
Sculpin, unidentified	Minor associated	976.39	1,373.68	0.00	0.00	0.00	470.01	0.30%	1.57%
Scypho jellies	Other bycatch	80.56	29.30	67.78	99.85	99.75	75.45	0.05%	0.25%
Sea anemone, unidentified	Other bycatch	60.66	49.16	21.70	63.73	63.98	51.85	0.03%	0.17%
Sea pens, whips	Habitat	11.36	15.70	5.41	35.04	19.41	17.38	0.01%	0.06%
Sea star	Minor associated	452.98	245.91	207.76	494.44	339.68	348.15	0.22%	1.16%
Shearwaters*	Other bycatch	3,441.12	368.91	1,116.10	530.04	665.44	1,224.32	NA	NA
Shortraker rockfish	Other bycatch	28.12	8.73	31.46	3.01	2.71	14.81	0.01%	0.05%
Skate, unidentified	Main associated	10,901.15	11,910.94	11,486.61	1,076.56	833.29	7,241.71	4.66%	24.14%
Sleeper shark	Other bycatch	27.79	18.26	16.62	0.00	0.00	12.53	0.01%	0.04%
Snails	Other bycatch	0.00	0.00	0.00	36.88	36.62	14.70	0.01%	0.05%
Spiny dogfish	Other bycatch	2.56	0.92	0.84	1.26	3.58	1.83	0.00%	0.01%
Sponge, unidentified	Habitat	4.94	14.64	6.37	10.43	0.70	7.41	0.00%	0.02%
Starry flounder	Minor associated	109.78	78.53	64.60	33.99	187.95	94.97	0.06%	0.32%
Thornyhead rockfish	Other bycatch	6.05	14.38	18.55	16.26	0.24	11.10	0.01%	0.04%
Turbot	Other bycatch	68.20	63.23	11.81	17.94	28.41	37.92	0.02%	0.13%
Warty sculpin	Other bycatch	22.68	11.10	0.00	0.00	0.00	6.76	0.00%	0.02%
White blotched skate	Minor associated	15.35	45.56	21.66	311.87	327.21	144.33	0.09%	0.48%



Yellow Irish lord	Other bycatch	258.55	186.98	0.00	0.00	0.00	89.11	0.06%	0.30%
Yellowfin sole	Main associated	1,647.30	825.13	773.30	818.42	433.24	899.48	0.58%	3.00%
Total**	Other bycatch	177,219.66	144,768.45	112,762.60	176,440.65	165,502.61	155,338.80		

Notes:

Only species with percent of total average bycatch over 0.00% are shown in table.

* Number of individuals instead of metric tons

** Does not include species with individual numbers instead of weight

Table 13. Catch data of target, non-target, PSC/ETP, and habitat species for 2019-2023 by the GOA cod fishery. Blue = target species, green = main associated species, orange = minor associated species, yellow = PSC/ETP species, purple = habitats. Source: observer data

Species	Target, Main Associated, Minor Associated, Other Bycatch, PSC/ETP, or Habitat	Catch (in metric tons)						Percent of Total Average	Percent of Total Average Bycatch
		2019	2020	2021	2022	2023	Five-Year Average		
Pacific cod	Target	7,781.58	0.00	8,526.04	20,005.87	15,195.51	10,301.80	86.60%	NA
Alaska skate	Minor associated	0.29	0.00	5.31	0.79	3.47	1.97	0.02%	0.12%
Albatross, unidentified*	Other bycatch	0.00	0.00	0.00	11.16	0.00	2.23	NA	NA
Aleutian skate	Main associated	13.18	0.00	11.31	200.43	152.45	75.47	0.63%	4.66%
Arrowtooth flounder	Main associated	237.70	50.51	148.28	99.17	91.89	125.51	1.06%	7.75%
Atka mackerel	Minor associated	33.02	0.00	2.92	0.46	0.00	7.28	0.06%	0.45%
Bairdi tanner crab*	PSC (ETP)	29,714.89	166.01	30,379.10	24,692.96	28,090.17	22,608.63	NA	NA
Big skate	Main associated	163.41	4.36	202.51	360.08	363.31	218.73	1.84%	13.50%
Bigmouth sculpin	Minor associated	1.18	0.00	0.00	0.00	0.00	0.24	0.00%	0.01%
Birds, unidentified*	Other bycatch	0.00	0.00	10.13	0.00	8.84	3.79	NA	NA
Bivalves	Minor associated	0.25	0.00	0.00	0.65	0.01	0.18	0.00%	0.01%
Canary rockfish	Minor associated	0.16	0.00	0.12	0.07	0.16	0.10	0.00%	0.01%
Chinook salmon*	PSC (ETP)	187.58	0.00	3,827.35	0.00	856.95	974.38	NA	NA
Corals bryozoans, unidentified	Habitat	1.70	1.36	0.08	0.08	0.62	0.77	0.01%	0.05%
Dover sole	Minor associated	0.02	0.10	1.00	1.95	0.96	0.80	0.01%	0.05%
Dusky rockfish	Minor associated	7.79	0.81	4.79	4.54	3.00	4.19	0.04%	0.26%



English sole	Minor associated	3.96	0.00	2.13	0.22	0.76	1.41	0.01%	0.09%
Flatfish, unidentified	Minor associated	0.74	0.06	7.34	13.91	7.01	5.81	0.05%	0.36%
Flathead sole	Main associated	101.07	0.11	20.88	8.89	9.46	28.08	0.24%	1.73%
Giant grenadier	Main associated	0.13	0.00	79.55	48.08	0.00	25.55	0.21%	1.58%
Golden king crab*	PSC (ETP)	25.29	22.05	26.48	16.22	84.88	34.98	NA	NA
Great sculpin	Minor associated	4.28	0.00	0.00	0.00	0.00	0.86	0.01%	0.05%
Greenlings	Minor associated	0.82	0.00	0.46	0.30	0.37	0.39	0.00%	0.02%
Gulls*	Other bycatch	34.90	0.00	8.52	36.98	47.70	25.62	NA	NA
Halibut	PSC (ETP)	85.95	5.87	104.65	57.09	61.54	63.02	0.53%	3.89%
Hermit crab, unidentified	Minor associated	0.92	0.00	0.01	0.08	0.04	0.21	0.00%	0.01%
Herring	PSC (ETP)	0.06	0.01	0.00	0.00	0.00	0.01	0.00%	0.00%
Invertebrate, unidentified	Minor associated	0.08	0.86	0.01	0.78	1.96	0.74	0.01%	0.05%
Kamchatka flounder	Minor associated	0.16	0.00	0.15	0.44	0.77	0.30	0.00%	0.02%
Longnose skate	Main associated	86.19	7.49	121.72	190.52	336.68	148.52	1.25%	9.17%
Misc. crab	Minor associated	0.14	0.00	0.14	0.05	4.38	0.94	0.01%	0.06%
Misc. fish	Minor associated	15.97	0.00	34.74	36.87	21.79	21.87	0.18%	1.35%
Misc. flatfish	Minor associated	0.00	0.00	0.00	5.07	0.01	1.02	0.01%	0.06%
Non-Chinook salmon*	PSC (ETP)	4.78	1.24	0.00	0.02	0.12	1.23	NA	NA
Northern fulmar*	Other bycatch	0.00	0.00	22.47	226.73	18.81	53.60	NA	NA
Northern rockfish	Minor associated	3.58	0.00	4.42	1.24	2.82	2.41	0.02%	0.15%
Octopus	Main associated	231.97	12.04	37.75	109.72	95.75	97.45	0.82%	6.02%
Opilio tanner crab*	PSC (ETP)	0.00	9.48	0.00	0.00	0.00	1.90	NA	NA
Pacific ocean perch	Minor associated	19.53	7.77	1.72	7.06	0.00	7.22	0.06%	0.45%
Pacific sleeper shark	Minor associated	0.00	0.00	0.00	3.67	1.42	1.02	0.01%	0.06%
Pollock	Main associated	102.54	15.75	293.53	183.38	107.03	140.45	1.18%	8.67%
Quillback rockfish	Minor associated	3.87	0.34	7.24	7.80	10.09	5.87	0.05%	0.36%
Redbanded rockfish	Minor associated	0.09	0.33	0.04	0.18	0.27	0.18	0.00%	0.01%
Red king crab*	PSC (ETP)	0.00	0.00	22.93	0.00	0.00	4.59	NA	NA



Rex sole	Minor associated	29.68	0.00	1.65	8.75	7.75	9.57	0.08%	0.59%
Rock sole	Main associated	73.74	0.04	16.19	125.70	21.36	47.41	0.40%	2.93%
Rockfish, unidentified	Minor associated	2.96	3.31	5.54	46.45	18.61	15.38	0.13%	0.95%
Rougheye rockfish	Minor associated	1.83	0.25	3.34	1.05	1.79	1.65	0.01%	0.10%
Sablefish	Main associated	87.95	29.68	141.41	121.94	84.73	93.14	0.78%	5.75%
Sculpin	Main associated	0.24	0.20	122.24	177.93	120.06	84.14	0.71%	5.19%
Sculpin, unidentified	Minor associated	79.41	0.00	0.00	0.00	0.00	15.88	0.13%	0.98%
Scypho jellies	Minor associated	2.65	0.15	0.19	0.03	0.09	0.62	0.01%	0.04%
Sea anemone, unidentified	Minor associated	1.39	0.00	1.15	1.16	1.78	1.10	0.01%	0.07%
Sea pens, whips	Habitat	0.51	0.00	0.05	1.54	0.26	0.47	0.00%	0.03%
Sea star	Main associated	41.52	12.65	18.84	22.82	19.53	23.07	0.19%	1.42%
Shark	Minor associated	1.06	0.00	0.59	0.13	0.00	0.36	0.00%	0.02%
Short-tailed albatross*	Other bycatch	0.00	0.00	0.00	0.00	2.17	0.43	NA	NA
Shortraker rockfish	Minor associated	1.36	0.07	4.92	1.99	1.98	2.06	0.02%	0.13%
Silvergray rockfish	Minor associated	0.05	0.00	0.32	0.66	0.74	0.35	0.00%	0.02%
Skate	Main associated	222.45	2.74	278.32	202.85	122.58	165.79	1.39%	10.23%
Sleeper shark	Minor associated	10.19	0.00	0.62	0.00	0.00	2.16	0.02%	0.13%
Snails	Minor associated	4.78	0.47	0.27	2.22	3.80	2.31	0.02%	0.14%
Spiny dogfish	Main associated	104.15	12.84	186.52	70.28	166.06	107.97	0.91%	6.66%
Sponge, unidentified	Habitat	5.88	0.00	0.05	1.18	0.72	1.57	0.01%	0.10%
Starry flounder	Minor associated	0.06	0.00	0.20	0.00	1.05	0.26	0.00%	0.02%
State-managed rockfish	Minor associated	3.54	0.00	2.34	2.55	2.03	2.09	0.02%	0.13%
Thornyhead rockfish	Minor associated	1.77	0.02	0.90	4.31	7.14	2.83	0.02%	0.17%
Tiger rockfish	Minor associated	0.20	0.00	0.33	0.26	0.66	0.29	0.00%	0.02%
Turbot	Minor associated	0.00	0.00	0.00	0.00	5.56	1.11	0.01%	0.07%
Urchins, dollars, cucumbers	Minor associated	0.32	0.00	0.03	0.64	0.25	0.25	0.00%	0.02%
Yellow Irish lord	Minor associated	15.90	0.00	0.00	0.00	0.00	3.18	0.03%	0.20%



Yelloweye rockfish	Minor associated	16.78	0.33	13.89	13.08	57.38	20.29	0.17%	1.25%
Yellowfin sole	Minor associated	0.90	0.00	0.52	0.90	0.29	0.52	0.00%	0.03%
Total**		9,613.66	170.52	10,419.28	22,157.89	17,119.71	11,896.21		

Notes:

Only species with percent of total average bycatch over 0.00% are shown in table.

* Number of individuals instead of metric tons

** Does not include species with individual numbers instead of weight

5.3.2 Habitats and ecosystem

There have been no changes in where the fishery operates, its relative footprint, or how the fishery impacts the habitat and ecosystem. See Fundamental Clause 6.1.4 for more details.

5.4 External factors (such as environmental issues) that may affect the fishery and its management

The effects of environmental variation on production of cod in the BSAI and GOA have been studied extensively in terms of physical oceanography, ecosystem variability, and fish production. NMFS and the regional offices coordinate the production of a vast amount of new environmental and other information expected to improve groundfish fishery management in Alaska. Several ecosystem-wide oceanographic phenomena have been identified. The Pacific Decadal Oscillation, with decadal changes in ‘warm’ and ‘cold’ phases has been correlated with a number of factors, including sea level pressure, precipitation, and salmon landing in the Pacific Ocean (<https://www.fisheries.noaa.gov/feature-story/understanding-ocean-changes-and-climate-just-got-harder>).

Groundfish species show interannual variability in recruitment that may be related to El Niño Southern Oscillation driven climate variability. Years of strong onshore transport, typical of warm years in the BS, often corresponds with strong recruitment. The extent and timing of the presence of sea ice in the BS also determines the area where cold bottom water temperatures will persist throughout the following spring and summer. This EBS area of cold water, known as the cold pool, varies with the annual extent and duration of the ice pack and can influence fish distributions.

Past conditions have been an unusually warm phase. In 2014-2016, sea surface temperatures were as much as 3° C (about 5.4° F) higher than average, lasted for months, and appeared on large-scale temperature maps as a red-orange mass of warm water many hundreds of miles across (aka ‘the blob’). This appeared to be different from normal patterns of ocean conditions such as the El Niño Southern Oscillation or Pacific Decadal Oscillation (PDO). Figure 4 show sea surface temperature changes in the PDO for 1950-2021.

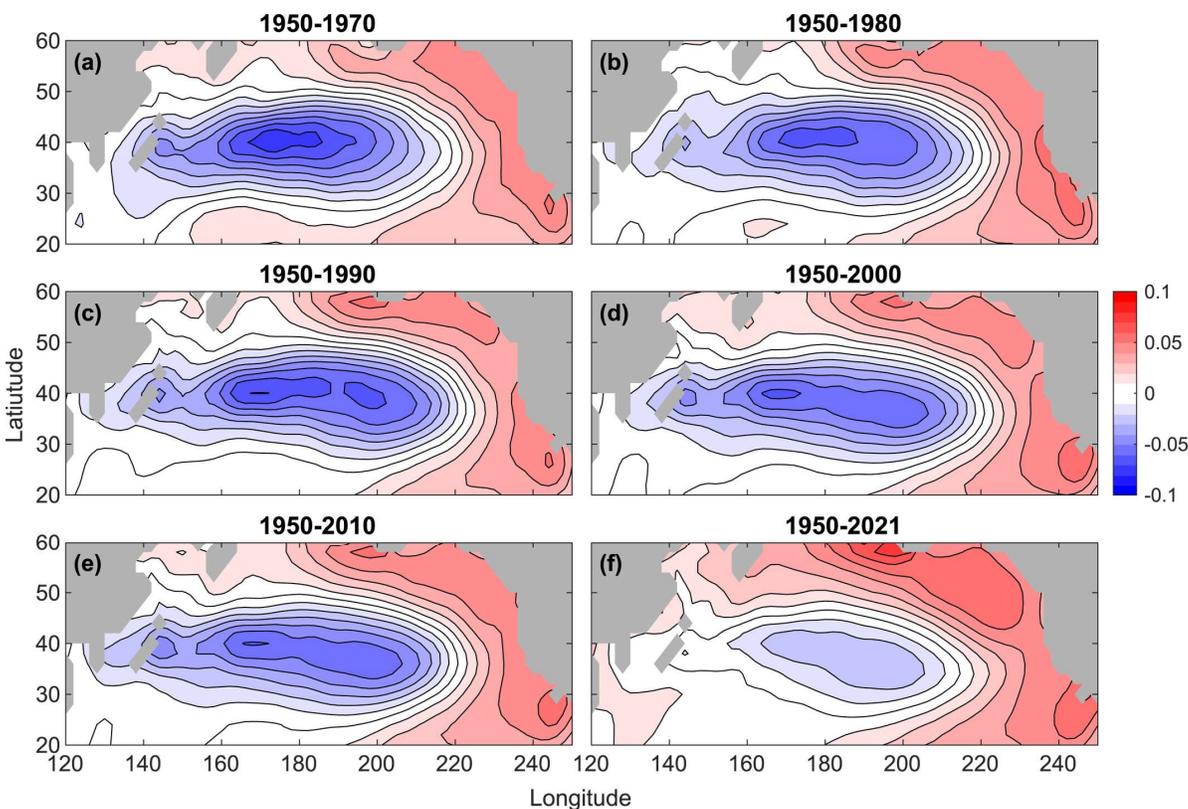


Figure 4. Sea surface temperature changes within the PDO for the period 1950-2021. Source: Werb and Rudnick 2023

6 ASSESSMENT OUTCOME SUMMARY / FUNDAMENTAL CLAUSES SUMMARIES

According to the RFM Standard Version 2.1, the following fisheries management issues would cause a fishery to fail assessment:

- Dynamiting, poisoning, and other comparable destructive fishing practices.
- Significant IUU fishing activities in the country jurisdiction.
- Shark finning (i.e., removal and retention of shark fins while the remainder of the shark is discarded in the ocean).
- Slavery and slave labor on board fishing vessels.
- Any significant lack of compliance with the requirements of an international fisheries agreement to which the United States is signatory. A fishery will have to be formally cited by the international governing body that has competence with the international treaty in question and that the United States has been notified of that citation of non-compliance.

As was the case during the second reassessment, there is no evidence that the fishery has undertaken such practices or has been non-compliant. At the last recertification, Supporting Clause 3.1 achieved a score of 7, owing to the lack of long-term management objectives within Alaska state-managed groundfish fisheries. This resulted in a medium confidence rating and application of a minor non-conformity. Action has been undertaken, and evidence provided by the client enabled the audit team to conclude that the Supporting Clause can be rescored at 10 and the non-conformity closed. Table 14 shows the scores for each supporting clause at recertification and the scoring change. Additional information is provided in the sections below.

Table 14. Scoring table

Key Component	Fundamental Clause	Supporting Clause	Applicable?	Score	Confidence Rating	Conformance Level	NC Number	
A – Fisheries Management System	1	1.1	Yes	10	High	Full		
		1.2	Yes	10	High	Full		
		1.2.1	Yes	10	High	Full		
		1.3	Yes	10	High	Full		
		1.3.1	Yes	10	High	Full		
		1.4	Yes	10	High	Full		
		1.4.1	Yes	10	High	Full		
		1.5	Yes	10	High	Full		
		1.6	Yes	10	High	Full		
		1.6.1	No	NA	NA	NA	NA	
		1.7	Yes	10	High	Full		
		1.8	Yes	10	High	Full		
	1.9	No	NA	NA	NA	NA		
	2	2.1	Yes	10	High	Full		
		2.1.1	Yes	10	High	Full		
		2.1.2	Yes	10	High	Full		
		2.2	Yes	10	High	Full		
		2.3	Yes	10	High	Full		
		2.4	Yes	10	High	Full		
		2.5	Yes	10	High	Full		
		2.6	Yes	10	High	Full		
	2.7	Yes	10	High	Full			
	3	3.1	Yes	7	10	Medium High	Minor-NC Full	1 – Closed
		3.1.1	Yes	10	High	Full		
		3.1.2	Yes	10	High	Full		
		3.1.3	Yes	10	High	Full		
		3.2	NA	NA	NA	NA	NA	
		3.2.1	Yes	10	High	Full		
		3.2.2	Yes	10	High	Full		
	3.2.3	Yes	10	High	Full			

B – Science, Stock Assessment Activities, and the Precautionary Approach	4	3.2.4	Yes	10	High	Full	
		4.1	Yes	10	High	Full	
		4.1.1	Yes	10	High	Full	
		4.1.2	Yes	10	High	Full	
		4.2	Yes	10	High	Full	
		4.2.1	Yes	10	High	Full	
		4.3	Yes	10	High	Full	
		4.4	Yes	10	High	Full	
		4.5	Yes	10	High	Full	
		4.6	Yes	10	High	Full	
		4.7	Yes	10	High	Full	
		4.8	Yes	10	High	Full	
		4.9	No	NA	NA	NA	
	4.10	No	NA	NA	NA		
	4.11	No	NA	NA	NA		
	5	5.1	Yes	10	High	Full	
		5.1.1	Yes	10	High	Full	
		5.1.2	Yes	10	High	Full	
		5.2	Yes	10	High	Full	
		5.3	Yes	10	High	Full	
		5.4	Yes	10	High	Full	
	6	5.5	Yes	10	High	Full	
		6.1	Yes	10	High	Full	
		6.2	Yes	10	High	Full	
		6.3	Yes	10	High	Full	
		6.4	Yes	10	High	Full	
	7	6.5	Yes	10	High	Full	
		7.1	Yes	10	High	Full	
		7.1.1	Yes	10	High	Full	
		7.1.2	Yes	10	High	Full	
	C – Management Measures, Implementation, Monitoring, and Control	8	7.2	No	NA	NA	NA
8.1			Yes	10	High	Full	
8.1.1			Yes	10	High	Full	
8.1.2			Yes	10	High	Full	
8.2			Yes	10	High	Full	
8.3			Yes	10	High	Full	
8.4			Yes	10	High	Full	
8.4.1			Yes	10	High	Full	
8.5			Yes	10	High	Full	
8.5.1			Yes	10	High	Full	
8.6			Yes	10	High	Full	
8.7			Yes	10	High	Full	
8.8			Yes	10	High	Full	
8.9			Yes	10	High	Full	
8.10		No	NA	NA	NA		
8.11	Yes	10	High	Full			
8.12	Yes	10	High	Full			
8.13	No	NA	NA	NA			
9	9.1	Yes	10	High	Full		

		9.2	Yes	10	High	Full		
		9.3	Yes	10	High	Full		
		10	10.1	Yes	10	High	Full	
			10.2	Yes	10	High	Full	
			10.3	No	NA	NA	NA	
			10.3.1	No	NA	NA	NA	
			10.4	No	NA	NA	NA	
			10.4.1	No	NA	NA	NA	
		11	11.1	Yes	10	High	Full	
			11.2	Yes	10	High	Full	
			11.3	Yes	10	High	Full	
			11.4	No	NA	NA	NA	
	D – Serious Impacts of the Fishery on the Ecosystem	12	12.1	Yes	10	High	Full	
			12.2	No	NA	NA	NA	
12.2.1			Yes	10	High	Full		
12.2.2			Yes	10	High	Full		
12.2.3			Yes	10	High	Full		
12.2.4			Yes	10	High	Full		
12.2.5			Yes	10	High	Full		
12.2.6			Yes	10	High	Full		
12.2.7			Yes	10	High	Full		
12.2.8			Yes	10	High	Full		
12.2.9			Yes	10	High	Full		
12.2.10			Yes	10	High	Full		
12.2.11			Yes	10	High	Full		
12.3			Yes	10	High	Full		
12.4			Yes	10	High	Full		
12.5			Yes	10	High	Full		
12.6			Yes	10	High	Full		
12.7		Yes	10	High	Full			
		13	13.1	No	NA	NA	NA	
			13.1.1	No	NA	NA	NA	
			13.2	No	NA	NA	NA	
			13.2.1	No	NA	NA	NA	
			13.3	No	NA	NA	NA	
			13.4	No	NA	NA	NA	
			13.5	No	NA	NA	NA	
			13.6	No	NA	NA	NA	
			13.7	No	NA	NA	NA	
			13.7.1	No	NA	NA	NA	
			13.7.2	No	NA	NA	NA	
			13.7.3	No	NA	NA	NA	
	13.8		No	NA	NA	NA		
	13.9	No	NA	NA	NA			
	13.10	No	NA	NA	NA			
	13.11	No	NA	NA	NA			
	13.12	No	NA	NA	NA			
	13.13	No	NA	NA	NA			

6.1 Update on consistency with Fundamental Clauses

6.1.1 Key Component A: The Fisheries Management System

<p>Fundamental Clause 1. There shall be a structured and legally mandated management system based upon and respecting international, State, and local fishery laws, for the responsible utilization of the stock under consideration and conservation of the marine environment.</p>	
<p>1.1 There shall be an effective legal and administrative framework established at international, State and local levels appropriate for fishery resource conservation and management. The management system and the fishery operate in compliance with the requirements of international, State, and local laws and regulations, including the requirements of any regional and/or international fisheries management agreement.</p> <p>1.2 Management measures shall consider (1) stock status (i.e., overfished, biomass) and genetic diversity (stock structure) over its entire area of distribution, and (2) other biological characteristics of the fish stock (stock) including age of maturity and reproductive potential.</p> <p>1.2.1 Previously agreed management measures established and applied in the same region is region shall be taken into account by management.</p> <p>1.3 Where transboundary, shared, straddling, highly migratory, or high seas stocks are exploited by two or more States (neighboring or not), the applicant and appropriate management organizations concerned shall cooperate and take part in the formal fishery commission or arrangements appointed to ensure effective conservation and management of the stock(s) in question and their environment.</p> <p>1.3.1 Conservation and management measures established for the <i>stock under consideration</i> within the jurisdiction of the relevant States for transboundary, shared, straddling, highly migratory, or high seas stocks, shall be compatible in a manner consistent with the rights, competence, and interests of the States concerned.</p> <p>1.4 A State’s fishery management organization not member or participant of a sub-regional or regional fisheries management organization shall cooperate, in accordance with relevant international agreements and law, in the conservation and management of the relevant fisheries resources by giving effect to any relevant measures adopted by such organization or arrangement.</p> <p>1.4.1 A fishery management organization seeking to take any action through a non-fishery organization which may affect the conservation and management measures taken by a competent sub-regional or regional fisheries management organization or arrangement shall consult with the latter, in advance to the extent practicable, and take its views into account.</p> <p>1.5 The applicant’s fishery management system, when appropriate for the <i>stock under consideration</i>, shall actively foster cooperation between States with regard to (1) information gathering and exchange, (2) fisheries research, (3) fisheries management, and (4) fisheries development.</p> <p>1.6 A fishery management organization and sub-regional or regional fisheries management organizations and arrangements, as appropriate, shall agree on the means by which the activities of such organizations and arrangements will be financed, bearing in mind, <i>inter alia</i>, the relative benefits derived from the fishery and the differing capacities of States to provide financial and other contributions. Where appropriate, and when possible, such organizations and arrangements shall aim to recover the costs of fisheries conservation, management, and research.</p> <p>1.6.1 Without prejudice to relevant international agreements, States or fishery management organizations shall encourage banks and financial institutions not to require, as a condition of a loan or mortgage, fishing vessels or fishing support vessels to be flagged in a jurisdiction other than that of the State of beneficial ownership where such a requirement would have the effect of increasing the likelihood of non-compliance with international conservation and management measures.</p> <p>1.7 Within the fishery management system, procedures shall be in place to keep the efficacy of current conservation and management measures and their possible interactions under continuous review, and to revise or abolish them in the light of new information.</p> <p>1.8 The management arrangements and decision-making processes for the fishery shall be organized in a transparent manner.</p> <p>1.9 Management organizations not party to the Agreement to Promote Compliance with International Conservation and Management Measures by Vessels Fishing in the High Seas shall be encouraged to accept the Agreement and to adopt laws and regulations consistent with the provisions of the Agreement.</p>	
<p>Summary of relevant changes</p>	<p>Clauses 1.1, 1.2, 1.2.1, 1.7, 1.8 No relevant changes were reported.</p> <p>Clauses 1.3, 1.3.1, 1.4, 1.4.1, 1.5, 1.6, 1.6.1, and 1.9 Not applicable.</p>



References	NA
Summary of consistency with RFM Fisheries Standard	The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.



Fundamental Clause 2. Management organizations shall participate in coastal area management, decision making processes and activities related to the fishery and its users, supporting sustainable and integrated resource use, and conflict avoidance.

- 2.1 Within the fisheries management organization’s jurisdiction, an appropriate policy, legal, and institutional framework shall be adopted in order to achieve sustainable and integrated use of living marine resources, (1) taking into account the fragility of coastal ecosystems and finite nature of their natural resources, (2) allowing for determination of the possible uses of coastal resources and governing access to them, and (3) recognizing the rights and needs of coastal communities and their customary practices to the extent compatible with sustainable development. In setting policies for the management of coastal areas, States shall take due account of the risks and uncertainties involved.
 - 2.1.1 States shall establish mechanisms for cooperation and coordination in planning, development, conservation, and management of coastal areas.
 - 2.1.2 The fisheries management organization shall ensure that the authority or authorities representing the fisheries sector and fishing communities in the coastal management process have the appropriate technical capacities and financial resources.
- 2.2 Representatives of the fisheries sector and fishing communities shall be consulted in the decision-making processes involving activities related to coastal area management planning and development. The public, as well as others affected, shall also be kept aware of the need for protection and management of coastal resources, and shall participate in the coastal management process.
- 2.3 Fisheries practices that avoid conflict among fishers and other users of the coastal area (e.g., fisheries enhancement facilities, tourism, energy) shall be adopted, and fishing shall be regulated in such a way as to avoid risk of conflict among fishers using different vessels, gear, and fishing methods. Procedures and mechanisms shall be established at the appropriate administrative level to settle conflicts that arise within the fisheries sector and between fisheries resource users and other coastal users.
- 2.4 States’ fisheries management organizations and sub-regional or regional fisheries management organizations and arrangements shall give due publicity to conservation and management measures and ensure that laws, regulations, and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures shall be explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures.
- 2.5 The economic, social, and cultural value of coastal resources shall be assessed by the appropriate fisheries management organization in order to assist decision making on their allocation and use.
- 2.6 States shall cooperate to support and improve coastal area management, and in accordance with capacities, measures shall be taken to establish or promote (1) systems for research and monitoring of the coastal environment, and (2) multidisciplinary research of the coastal area using physical, chemical, biological, economic, social, legal, and institutional capabilities.
- 2.7 In the case of a States’ activities that may have an adverse environmental effect on coastal areas of other States, States shall provide timely information and if possible, prior notification to potentially affected States, and consult with those States as early as possible.

Summary of relevant changes

Clauses 2.1, 2.1.1, 2.1.2, 2.2, and 2.3
 The Council approved some updates to EFH information in four FMPs, including the [BSAI](#) and [GOA](#) groundfish FMPs. These changes included updating EFH description, fishing effects, non-fishing impacts to EFH, and updating EFH research objectives. More recently, the Council received a report ([available here](#)) outlining major EFH consultations conducted by the NMFS Alaska Region Habitat Division from April 2023-2024.

Clauses 2.4, 2.5, and 2.6
 In June 2023, the Council initiated the development of a Programmatic Environmental Impact Statement (PEIS) for all Council managed fisheries in the GOA and BSAI (NPFMC, [June 2023, Newsletter](#)). The intent of the proposed action is to develop new fisheries management policies, goals, and objectives for all federally managed fisheries in the North Pacific, i.e., those included in the Fisheries Management Plans (FMPs) for BSAI and GOA groundfish, BSAI crab, scallop, salmon, and the halibut fisheries.

At the [February 2024 Council meeting](#), the next steps for the programmatic process were reviewed. As part of the preparation of an EIS, the National Environmental Policy Act (NEPA) requires that there is an early and open process for determining the scope of the issues to be addressed, this is commonly known as “NEPA scoping”. In order to provide for meaningful public and Tribal engagement in this process, including the alternatives and scope of the action, the Council chose to extend the PEIS timeline. The Council will use the additional time to consider whether to alter the previously adopted alternatives, and what to include in



	<p>the formal NEPA NOI to Prepare a PEIS, currently scheduled to be published in fall 2024. The Council must intend to complete a Final PEIS within two years of publishing the NOI.</p> <p>Clause 2.7 No relevant changes were reported.</p>
<p>References</p>	<p>Appendix A to the Environmental Assessment for Amendment to the BSAI Groundfish FMP https://meetings.npfmc.org/CommentReview/DownloadFile?p=1c048be3-6015-48ec-8fee-c194b74eba32.pdf&fileName=C5%20Appendix%20A%20-%20BSAI%20Groundfish.pdf</p> <p>Appendix B to the Environmental Assessment for Amendment to the BSAI Groundfish FMP https://meetings.npfmc.org/CommentReview/DownloadFile?p=514568dd-2cc6-456a-bc87-5fa0479543ae.pdf&fileName=C5%20Appendix%20B%20-%20GOA%20Groundfish.pdf</p> <p>NMFS Annual Essential Fish Habitat Report https://meetings.npfmc.org/CommentReview/DownloadFile?p=44a19181-535e-484a-97cd-fac77b04e7aa.pdf&fileName=B2%20NMFS%20EFH%20Report.pdf</p> <p>NPFMC Newsletter, June 2023. https://www.npfmc.org/newsletters/</p> <p>NPFMC Newsletter, February 2024. https://www.npfmc.org/newsletters/</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

Fundamental Clause 3. Management objectives shall be implemented through management rules and actions formulated in a plan or other framework.

- 3.1 Long-term management objectives shall be translated into a plan or other management document (taking into account uncertainty and imprecision) and be subscribed to by all interested parties.
 - 3.1.1 There shall be management objectives seeking to ensure that ETP species are protected from adverse impacts resulting from interactions with the unit of certification and any fisheries enhancement activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.
 - 3.1.2 There shall be management objectives seeking to avoid, minimize, or mitigate impacts of the unit of certification on the *stock* under consideration's essential habitats, and on habitats that are highly vulnerable to damage by the unit of certification's fishing gear.
 - 3.1.3 There shall be management objectives seeking to minimize adverse impacts of the unit of certification (including any fishery enhancement) on the structure, and function of the ecosystems that are likely to be irreversible or very slowly reversible.
- 3.2 Management measures shall provide, *inter alia*, that:
 - 3.2.1 Excess fishing capacity shall be avoided, and exploitation of the stocks shall remain economically viable.
 - 3.2.2 The economic conditions under which fishing industries operate shall promote responsible fisheries.
 - 3.2.3 The interests of fishers, including those engaged in subsistence, small-scale, and artisanal fisheries shall be taken into account.
 - 3.2.4 Biodiversity of aquatic ecosystems shall be conserved and ETP species shall be protected. Where relevant, there shall be management objectives, and as necessary, management measures.

Summary of relevant changes

Clause 3.1
 At the last reassessment of the fishery this clause achieved a score of 7, owing to the lack of long-term management objectives within Alaska state managed groundfish fisheries. This resulted in a medium confidence rating and application of a minor non-conformity. The same score, medium confidence rating, and minor non-conformity were applied to the pollock fishery that was also reassessed in parallel with the Pacific cod fishery. Working with the client for the pollock fishery (the [At-sea Processors Association - \[APA\]](#)) a proposal (Proposal 161) was submitted to the ADFG BOF during the Committee of the Whole at the October 2022 meeting to include objectives that would encompass all groundfish species managed at the state level. The proposal was intended to document the broad goals and objectives that the BOF uses to guide groundfish management. At the [BOF Statewide Finfish and Supplemental Issues meeting in March 2023](#) the BOF approved proposal 161 ([RC055](#)) and [Section 5 AAC 28.015](#) has been amended to include explicit and measurable short- and long-term objectives:

As stated in 5 AAC 28.015. Guiding policy on groundfish fisheries resource management:
 The Board of Fisheries and the department when taking actions regarding the management of groundfish fisheries should be based on the following principles and criteria:

1. Conservation of the groundfish resource to ensure sustained yield, which requires that the total allowable catch in any fishery be based upon the biological abundance of the stock;
2. Minimization of bycatch of other associated fish and shellfish and prevention of the localized depletion of stocks; (3) protection of the habitat and other associated fish and shellfish species from non-sustainable fishing practices with consideration of ecosystem interactions;
3. Maintenance of slower harvest rates by methods and means and time and area restrictions to ensure adequate reporting and analysis necessary for management of the fishery and ensuring adherence to annual and seasonal total allowable catch limits;
4. Extension of the length of fishing seasons by methods and means and time and area restrictions to provide for the maximum benefit to the state and to regions and local areas of the state;
5. Harvest of the resource in a manner that emphasizes the quality and value of the fishery product;
6. Provide opportunities for subsistence, sport, commercial and personal use fisheries;
7. Cooperation with federal agencies associated with groundfish fisheries;
8. Management of the groundfish fisheries are based on information that, in the commissioner's discretion, will tend to promote the purposes of Alaska statutes pertaining to fisheries management.

This has resulted in this supporting clause being rescored at 10, and the minor non-conformance is closed.

Clauses 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, and 3.2.4
 No relevant changes were reported.



	<p>Clause 3.2 Not applicable.</p>
<p>References</p>	<p>BOF Statewide Finfish and Supplemental Issues meeting in March 2023, https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.meetinginfo&date=03-10-2023&meeting=anchorage BOF approved proposal 161 (RC055) https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2022-2023/state/rcs/RC055_Member_Jensen_Substitute_Language_Proposal_161.pdf Alaska Admin code 5AAC 28.015 https://casetext.com/regulation/alaska-administrative-code/title-5-fish-and-game/part-1-commercial-and-subsistence-fishing-and-private-nonprofit-salmon-hatcheries/chapter-28-groundfish-fishery/article-2-general-specifications/section-5-aac-28015-guiding-policy-on-groundfish-fisheries-resource-management</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>



6.1.2 Key Component B: Science and Stock Assessment Activities, and the Precautionary Approach

Fundamental Clause 4. There shall be effective fishery data (dependent and independent) collection and analysis systems for stock management purposes.

- 4.1 All significant fishery removals and mortality of the target species (shall be considered by management. Specifically, reliable and accurate data required for assessing the status of fishery(ies) and ecosystems—including data on retained catch, bycatch, discards, and waste—shall be collected. Data can include relevant traditional, fisher, or community knowledge, provided their validity can be objectively verified. These data shall be collected, at an appropriate time and level of aggregation, by relevant management organizations connected with the fishery, and provided to relevant States regional, and international fisheries organizations.
 - 4.1.1 Timely, complete, and reliable statistics shall be compiled on catch and fishing effort and maintained in accordance with applicable international standards and practices, and in sufficient detail to allow sound statistical analysis for stock assessment. Such data shall be updated regularly and verified through an appropriate system. The use of research results as a basis for setting management objectives, reference points, and performance criteria, as well as for ensuring adequate linkage between applied research and fisheries management (e.g., adoption of scientific advice) shall be promoted. Results of analysis shall be distributed accordingly as a contribution to fisheries conservation, management, and development.
 - 4.1.2 In the absence of specific information on the *stock under consideration*, generic evidence based on similar stocks can be used. However, the greater the risk of overfishing, the more specific evidence is necessary to ascertain the sustainability of intensive fisheries.
- 4.2 An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures shall be established.
 - 4.2.1 Where necessary, fisheries management organizations and regional fisheries management organizations and other such arrangements should strive to achieve a level and scope of observer programs sufficient to provide quantitative estimates of total catch, discards, and incidental takes of living aquatic resources.
- 4.3 A fisheries management organization, regional fisheries management organizations or arrangements shall compile data and make them available, in a manner consistent with any applicable confidentiality requirements, in a timely manner and in an agreed format to all members of these organizations and other interested parties in accordance with agreed procedures.
- 4.4 States shall stimulate the research required to support policies related to fish as food.
- 4.5 There shall be sufficient knowledge of the economic, social, marketing, and institutional aspects of fisheries collected through data gathering, analysis, and research, as well as comparable data generated for ongoing monitoring, analysis, and policy formulation.
- 4.6 The fisheries management organization shall investigate and document traditional fisheries knowledge and technologies—in particular those applied to small-scale fisheries—in order to assess their application to sustainable fisheries conservation, management, and development.
- 4.7 If a fisheries management organization is conducting scientific research activities in waters of another State, it shall ensure that their vessels comply with the laws and regulations of that State and international law.
- 4.8 Adoption of uniform guidelines governing fisheries research conducted on the high seas shall be promoted and, where appropriate, support the establishment of policies that include, *inter alia*, facilitating research at the international and sharing the research results with affected States.
- 4.9 If appropriate, the fisheries management organization and relevant international organizations shall promote and enhance the research capacities of developing countries, *inter alia*, in the areas of data collection and analysis, information, science and technology, human resource development, and provision of research facilities, in order for them to participate effectively in the conservation, management, and sustainable use of living aquatic resources.
- 4.10 Competent national organizations shall, where appropriate, render technical and financial support to States upon request and when engaged in research investigations aimed at evaluating stocks which have been previously unfished or very lightly fished.
- 4.11 Relevant technical and financial international organizations shall, upon request, support States in their research efforts, devoting special attention to developing countries—in particular the least developed among them and small developing island countries.

Summary of relevant changes	In the Alaska Pacific cod fishery, no changes have been evidenced in the in the key aspects of fishery data (dependent and independent) collection and analysis systems for stock management purposes. This has been evidenced by the stakeholders during the site visit as well as by the SAFE reports for EBS (Barbeaux et al., 2023), AI (Spies et al., 2023), and GOA (Hulson et al., 2023a).
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	<p>The Alaska Pacific cod fishery is highly regulated, and data collection methods are typically standardized and closely monitored. For instance, the use of vessel monitoring systems (VMS) and observer programs ensures continuous data collection on catch sizes, locations, and bycatch rates.</p> <p>The Alaska Pacific cod fishery continues to implement long-term monitoring programs to track stock health and assess the impact of fishing activities. These programs involve systematic surveys, such as acoustic surveys, which provide crucial data for stock assessments.</p> <p>The regulatory framework governing the Alaska Pacific cod fishery, such as the Magnuson-Stevens Fishery Conservation and Management Act, emphasizes the use of sound science in fisheries management. In the case any changes in data collection or analysis methods would likely undergo rigorous review and scrutiny to ensure they maintain or improve the accuracy of stock assessments.</p>
<p>References</p>	<p>Barbeaux, S.J., L. Barnett, M. Hall, P. Hulson, J. Nielsen, S.K. Shotwell, E. Siddon, I. Spies, and J. Thorson. 2023. 2. Assessment of the Pacific Cod Stock in the Eastern Bering Sea. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/EBSpcod.pdf.</p> <p>Hulson, P.-J.F., S.J. Barbeaux, B. Ferriss, K. Echave, J. Nielsen, S.K. Shotwell, B. Laurel, and I. Spies. 2023a. 2. Assessment of the Pacific cod stock in the Gulf of Alaska. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/GOApcod.pdf.</p> <p>Spies, I., S. Barbeaux, P. Hulson, and I. Ortiz. 2023. 2A. Assessment of the Pacific cod stock in the Aleutian Islands. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/AIpcod.pdf.</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

Fundamental Clause 5. There shall be regular stock assessment activities appropriate for the fishery, its range, the species biology, and the ecosystem, undertaken in accordance with acknowledged scientific standards to support its optimum utilization.

- 5.1 An appropriate institutional framework shall be established to determine the applied research required and its proper use (i.e., assess/evaluate stock assessment model/practices) for fishery management purposes.
 - 5.1.1 Less elaborate stock assessment methods are frequently used for small-scale or low-value capture fisheries resulting in greater uncertainty about the status of the *stock under consideration*. A more precautionary approach to managing fisheries on such resources shall be required, including, where appropriate, a lower level of resource utilization. A record of good management performance may be considered as supporting evidence of the adequacy of the management system.
 - 5.1.2 The fisheries management organization shall ensure that appropriate research is conducted into all aspects of fisheries including biology, ecology, technology, environmental science, economics, and fishery enhancement. Analysis results shall be distributed in a timely and readily understandable fashion in order that the best scientific evidence available contributes to fisheries conservation, management, and development. The fisheries management organization shall also ensure the availability of research facilities and provide appropriate training, staffing, and institution building to conduct the research.
- 5.2 There shall be established research capacity necessary to assess and monitor (1) the effects of climate or other environmental change on stocks and aquatic ecosystems, (2) the status of the stock under State jurisdiction, and (3) the impacts of ecosystem changes resulting from fishing activity, pollution, or habitat alteration.
- 5.3 Management organizations shall cooperate with relevant international organizations to encourage research in order to ensure optimum utilization of fishery resources.
- 5.4 The fishery management organizations shall directly, or in conjunction with other States, develop collaborative technical and research programs to improve understanding of the biology, environment, and status of transboundary, shared, straddling, highly migratory and high seas stocks.
- 5.5 Data generated by research shall be analyzed and the results of such analyses published in a way that ensures confidentiality is respected, where appropriate.

Summary of relevant changes	<p>Information for assessing the status of Alaska Pacific cod comes from the SAFE reports (https://www.fisheries.noaa.gov/tags/north-pacific-groundfish-stock-assessments) – EBS (Barbeaux et al., 2023), AI (Spies et al., 2023), and GOA (Hulson et al., 2023a) – and is discussed in detail in Section 5.1.</p> <p>No changes have been evidenced in the Alaska Pacific cod fishery considering the stock assessment activities. Stock assessment methods for the Alaska Pacific cod fishery continue to be typically designed to account for the species' biology, behavior, and habitat preferences. These methods often include a combination of acoustic surveys, trawl surveys, and genetic analyses, tailored to the specific characteristics of the Pacific cod population and its ecosystem.</p> <p>Stock assessments in the Alaska Pacific cod fishery continue to be conducted in accordance with internationally recognized scientific standards, such as those outlined by NPFMC. These standards ensure that assessment methodologies are robust, transparent, and subject to peer review. Moreover, effective stock assessment in the Alaska Pacific cod fishery considers not only the abundance and distribution of Pacific cod but also the broader ecosystem dynamics. This may involve assessing interactions with other species, such as prey availability, predator-prey relationships, and environmental factors influencing Pacific cod populations. If there have been no changes in the incorporation of ecosystem considerations into stock assessments, it suggests a holistic approach to fisheries management that aligns with the ecosystem-based management principles.</p> <p>Collaboration between industry stakeholders, scientists, and regulatory agencies continue to be robustly established and is crucial for ensuring the success of stock assessment activities.</p>
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References	<p>Barbeaux, S.J., L. Barnett, M. Hall, P. Hulson, J. Nielsen, S.K. Shotwell, E. Siddon, I. Spies, and J. Thorson. 2023. 2. Assessment of the Pacific Cod Stock in the Eastern Bering Sea. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/EBSpcod.pdf.</p> <p>Hulson, P.-J.F., S.J. Barbeaux, B. Ferriss, K. Echave, J. Nielsen, S.K. Shotwell, B. Laurel, and I. Spies. 2023a. 2. Assessment of the Pacific cod stock in the Gulf of Alaska. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/GOApcod.pdf.</p> <p>Spies, I., S. Barbeaux, P. Hulson, and I. Ortiz. 2023. 2A. Assessment of the Pacific cod stock in the Aleutian Islands. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/AIpcod.pdf.</p>
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Summary of consistency with	The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.
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Fundamental Clause 6. The current state of the stock shall be defined in relation to reference points, relevant proxies, or verifiable substitutes that allow effective management objectives and targets to be set. Remedial actions shall be available and taken where reference points or other suitable proxies are approached or exceeded.

- 6.1 The fishery management organization shall establish safe target reference point(s) for management. Management targets are consistent with achieving maximum sustainable yield (MSY), a suitable proxy, or a lesser fishing mortality—if that is optimal in the circumstances of the fishery (e.g., multispecies fisheries) or is needed to avoid adverse impacts on dependent predators.
- 6.2 The fishery management organization shall establish appropriate limit reference point(s) for exploitation (i.e., consistent with avoiding recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible; RFM v2.1 Guidance Appendix 1, Part 1⁴). When a limit reference point is approached, measures shall be taken to ensure that it will not be exceeded. For instance, if fishing mortality (or its proxy) is above the associated limit reference point, actions should be taken to decrease the fishing mortality (or its proxy) below that limit reference point.
- 6.3 Data and assessment procedures that measure the position of the fishery in relation to the reference points shall be established. Accordingly, the *stock under consideration* shall not be overfished (i.e., above limit reference point or proxy) and the level of fishing permitted shall be commensurate with the current state of the fishery resources, maintaining its future availability, and taking into account that long-term changes in productivity can occur due to natural variability and/or impacts other than fishing (RFM v2.1 Guidance Appendix 1, Part 1⁵).
- 6.4 Accordingly, contingency plans shall be agreed in advance to allow an appropriate management response to serious threats to the resource as a result of overfishing, adverse environmental changes, or other phenomena that may have adverse impacts on the fishery resource (RFM v2.1 Guidance Appendix 1, Part 2⁶). Such measures may be temporary and shall be based on best scientific evidence available.
- 6.5 Measures shall be introduced to identify and protect depleted stocks and those stocks threatened with depletion, and to facilitate the sustained recovery/restoration of such stocks. Also, efforts shall be made to ensure that resources and habitats critical to the well-being of such stocks, which have received adverse impacts by fishing or other human activities, are restored.

Summary of relevant changes	Information for assessing the status of Alaska Pacific cod comes from the SAFE reports (https://www.fisheries.noaa.gov/tags/north-pacific-groundfish-stock-assessments) – EBS (Barbeaux et al., 2023), AI (Spies et al., 2023), and GOA (Hulson et al., 2023a) – and is discussed in detail in Section 5.1. It is clear that the three stocks continue to be in safe status with biomass above reference levels and exploitation below fishing mortality at MSY.
References	Barbeaux, S.J., L. Barnett, M. Hall, P. Hulson, J. Nielsen, S.K. Shotwell, E. Siddon, I. Spies, and J. Thorson. 2023. 2. Assessment of the Pacific Cod Stock in the Eastern Bering Sea. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/EBSpcod.pdf . Hulson, P.-J.F., S.J. Barbeaux, B. Ferriss, K. Echave, J. Nielsen, S.K. Shotwell, B. Laurel, and I. Spies. 2023a. 2. Assessment of the Pacific cod stock in the Gulf of Alaska. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/GOApcod.pdf . Spies, I., S. Barbeaux, P. Hulson, and I. Ortiz. 2023. 2A. Assessment of the Pacific cod stock in the Aleutian Islands. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/AIpcod.pdf .
Summary of consistency with RFM Fisheries Standard	The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.

⁴ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

⁵ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

⁶ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

<p>Fundamental Clause 7. Management actions and measures for the conservation of stock and the ecosystem shall be based on the precautionary approach. Where information is deficient a suitable method using risk management shall be adopted to consider uncertainty.</p>	
<p>7.1 The precautionary approach shall be applied widely to conservation, management, and exploitation of ecosystems to protect them and preserve the ecosystem. This should take due account of fishery enhancement procedures, where appropriate. Absence of scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Relevant uncertainties shall be taken into account through a suitable method of risk management, including those associated with the use of introduced or translocated species.⁷</p> <p>7.1.1 In implementing the PA, the fishery management organization shall take into account, <i>inter alia</i>, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality, the impact of fishing activities (including discards) on non-target and associated or dependent predators, and environmental and socioeconomic conditions.</p> <p>7.1.2 In the absence of adequate scientific information, appropriate research shall be initiated in a timely fashion.</p> <p>7.2 In the case of new or exploratory fisheries, the fishery management organization shall adopt, as soon as possible, cautious conservation and management measures, including, <i>inter alia</i>, catch limits and effort limits. Such measures should remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment should be implemented. Management measures should, if appropriate, allow for the gradual development of the fisheries.</p>	
<p>Summary of relevant changes</p>	<p>In the Alaska Pacific cod fishery, no changes have been evidenced in the in the key aspects of management actions and measures for the conservation of stocks and the ecosystem. The measures continue to be based on the precautionary approach. This has been evidenced by the stakeholders during the site visit as well as by the SAFE reports – EBS (Barbeaux et al., 2023), AI (Spies et al., 2023), and GOA (Hulson et al., 2023a).</p> <p>The precautionary approach continues to be a fundamental principle guiding fisheries management worldwide, including in the Alaska Pacific cod fishery. It emphasizes proactive measures to prevent overfishing and minimize impacts on the ecosystem, even in the presence of scientific uncertainty. The management measures in the Alaska Pacific cod fishery, such as catch limits, gear regulations, and area closures, are typically designed to align with the precautionary approach. These measures aim to ensure sustainable harvest levels while accounting for uncertainty in stock assessments and ecosystem dynamics.</p> <p>In situations where information is deficient or uncertain, risk management strategies are often employed to inform management decisions. However, this condition has not been observed in the Alaska Pacific cod fishery.</p> <p>Effective implementation of the precautionary approach and risk management strategies relies on collaboration with scientific experts and stakeholders. Regulatory agencies, such as NPFMC and ADFG, continue to work closely with scientists to assess the status of Pacific cod stocks, evaluate ecosystem impacts, and develop management recommendations.</p>
<p>References</p>	<p>Barbeaux, S.J., L. Barnett, M. Hall, P. Hulson, J. Nielsen, S.K. Shotwell, E. Siddon, I. Spies, and J. Thorson. 2023. 2. Assessment of the Pacific Cod Stock in the Eastern Bering Sea. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/EBSpcod.pdf.</p> <p>Hulson, P.-J.F., S.J. Barbeaux, B. Ferriss, K. Echave, J. Nielsen, S.K. Shotwell, B. Laurel, and I. Spies. 2023a. 2. Assessment of the Pacific cod stock in the Gulf of Alaska. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/GOApcod.pdf.</p> <p>Spies, I., S. Barbeaux, P. Hulson, and I. Ortiz. 2023. 2A. Assessment of the Pacific cod stock in the Aleutian Islands. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/AIpcod.pdf.</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

⁷ FAO Technical Guidelines for Responsible Fisheries No. 2 – Precautionary approach to capture fisheries and species introductions. <http://www.fao.org/docrep/003/w3592e/w3592e00.htm>

6.1.3 Key Component C: Management Measures, Implementation, Monitoring, and Control

<p>Fundamental Clause 8. Management shall adopt and implement effective management measures designed to maintain stocks at levels capable of producing maximum sustainable yields, including harvest control rules and technical measures applicable to sustainable utilization of the fishery, and based upon verifiable evidence and advice from available objective scientific and traditional sources.</p>	
<p>8.1 Conservation and management measures shall be designed to ensure the long-term sustainability of fishery resources at levels which promote optimum utilization and are based on verifiable and objective scientific and/or traditional, fisher, or community sources.</p> <p>8.1.1 When evaluating alternative conservation and management measures, the fishery management organization shall consider their cost-effectiveness and social impact.</p> <p>8.1.2 Responsible fisheries management organizations shall adopt and implement measures necessary to ensure the management of bycatch and reduction of discards as part of fisheries management (1) in accordance with the PA, as reflected in Article 6 of the UN Fish Stocks Agreement, and as set out in Article 6.5 and 7.5 of the Code; (2) in accordance with the responsible use of fish as set out in the Code; and (3) based on the best scientific evidence available, taking into account fishers' knowledge.</p> <p>8.2 The fishery management organization shall prohibit dynamiting, poisoning, and other similar destructive fishing practices.</p> <p>8.3 The fishery management organization shall seek to identify domestic parties having a legitimate interest in the use and management of the fishery. When deciding on use, conservation, and management of the resource, due recognition shall be given, where relevant, in accordance with national laws and regulations, to the traditional practices, needs, and interests of indigenous people and local fishing communities which are highly dependent on these resources for their livelihood. Arrangements shall be made to consult all the interested parties and gain their collaboration in achieving responsible fisheries.</p> <p>8.4 Where excess capacity exists, mechanisms shall be established to reduce capacity to levels commensurate with sustainable use of the resource. Fleet capacity operating in the fishery shall be measured and monitored. The fishery management organization shall maintain, in accordance with recognized international standards and practices, statistical data, updated at regular intervals, on all fishing operations and a record of all authorizations to fish allowed by them.</p> <p>8.4.1 Studies shall be promoted that provide an understanding of the costs, benefits, and effects of alternative management options designed to rationalize fishing, especially options relating to excess fishing capacity and excessive levels of fishing effort.</p> <p>8.5 Technical measures regarding the <i>stock under consideration</i> shall be taken into account, where appropriate, in relation to fish size, mesh size, gear, closed seasons or areas, areas reserved for particular (e.g., artisanal fisheries), and protection of juveniles or spawners.</p> <p>8.5.1 Appropriate measures shall be applied to minimize catch, waste, and discards of non-target species (both fish and non-fish species), and impacts on associated, dependent, or endangered species.</p> <p>8.6 Gear marking requirements shall take into account uniform and internationally recognizable gear marking systems.</p> <p>8.7 The fishery management organization and relevant groups from the fishing industry shall measure performance and encourage the development, implementation, and use of selective, environmentally safe, and cost-effective gear, technologies, and techniques that are sufficiently selective as to minimize catch, waste, discards of non-target species (both fish and non-fish species) and impacts on associated or dependent predators. The use of fishing gear and practices that lead to discarding the catch shall be discouraged, and the use of fishing gear and practices that increase survival rates of escaping fish shall be promoted. Inconsistent methods, practices, and gears shall be phased out accordingly.</p> <p>8.8 Technologies, materials, and operational methods or measures—including, to the extent practicable, the development and use of selective, environmentally safe, and cost-effective fishing gear and techniques—shall be applied to minimize the loss of fishing gear, the ghost fishing effects of lost or abandoned fishing gear, pollution, and waste.</p> <p>8.9 The intent of fishing selectivity and fishing impacts-related regulations shall not be circumvented by technical devices. Information on new developments and requirements shall be made available to all fishers.</p> <p>8.10 Assessment and scientific evaluation shall be carried out on the impacts of habitat disturbance on the fisheries and ecosystems prior to the commercial-scale introduction of new fishing gear, methods, and operations. Accordingly, the impacts of such introductions shall be monitored.</p> <p>8.11 International cooperation shall be encouraged for research programs involving fishing gear selectivity, fishing methods and strategies, dissemination of the results of such research programs, and the transfer of technology.</p> <p>8.12 The fishery management organization and relevant institutions involved in the fishery shall collaborate in developing standard methodologies for research into fishing gear selectivity, fishing methods and strategies, and on the behavior of</p>	

target and non-target species regarding such fishing gear—as an aid for management decisions and with a view to minimizing non-utilized catches.

8.13 Where appropriate, policies shall be developed for increasing stock populations and enhancing fishing opportunities through the use of artificial structures. The fishery management organization shall ensure that, when selecting the materials to be used in the creation of artificial reefs, as well as when selecting the geographical location of such artificial reefs, the provisions of relevant international conventions concerning the environment and the safety of navigation are observed.

<p>Summary of relevant changes</p>	<p>Clauses 8.1, 8.1.1, 8.1.2, 8.4, 8.4.1, 8.5, and 8.7 As reported by the client, the primary challenge for directed Pacific cod sectors in the past year has been crab avoidance in the BSAI. At the Council December 2023 meeting all fishing sectors were invited to provide a status report on the voluntary crab avoidance measures that were put in place within their respective sectors for the 2023 season. Reports summarizing sector efforts to avoid interactions with crab were made available for longline, pot (<60 ft sector), and trawl (Amendment 80 and American Fisheries Act), along with a letter detailing crab handling practices requested by the crab sector (represented by the Alaska Bering Sea Crabbers) to reduce mortality of bycaught crab.</p> <p>At the February 2024 Council meeting, the Council evaluated the effectiveness of closing a large area – the Bristol Bay Red King Crab Savings Area (Figure 3) – to commercial fishing with pelagic trawl, pot, and longline gear to address Bristol Bay red king crab stock and fishery declines. The Savings Area is already closed to bottom trawl gear. The Council also evaluated a pot gear closure of a large area in the eastern portion of Bristol Bay (NMFS Area 512) to meet the same objective (Figure 3). That area is already closed to all trawling.</p> <p>The Council chose not to take any action to close the Red King Crab Savings Area (see Figure 3) because the analysis concluded that the benefits to red king crab resulting from such closures were uncertain and unquantifiable, and that there would likely be no effect on the crab population. Also critical to the Council’s decision was the analysis’ finding that the proposed closures would result in increased bycatch of salmon, herring, halibut, and other crab species, as some fishing that currently occurs in the proposed closure area has yielded low bycatch and high catch of target species. The Council intends to use ongoing research to develop closures and crab avoidance measures that change in space and time to respond to seasonal crab movement and will be adaptable to evolving ecosystem conditions that affect crab distribution and abundance. The Council established an unobserved mortality working group for crab that has met and will be providing a report to Council at their June 2025 meeting (NPFMC, February 2024, Newsletter).</p> <p>The Council approved a motion in June 2023 requesting a discussion paper to compile information to address concerns being encountered by the pot cod fishery (including: decreasing Pacific cod TACs, an increase in the number of participating License Limitation Program licenses in the CV sector, the potential for additional new participants in both the CV and the CP sectors, a race among existing participants resulting in difficulties controlling bycatch of crab, and increasingly shortened seasons in recent years) and to receive data to support development of a cooperative LAPP for the pot sectors to address these concerns. Regulation of the pot cod sectors has not yet shifted to a limited access program, but the Council may initiate this change in the future.</p> <p>Clause 8.3 In June 2023, the Council initiated the development of a PEIS for all Council managed fisheries in the GOA and BSAI. The intent of the proposed action is to develop new fisheries management policies, goals, and objectives for all federally managed fisheries in the North Pacific, i.e., those included in the FMPs for BSAI and GOA groundfish, BSAI crab, scallop, salmon, and the halibut fisheries.</p> <p>At the February 2024 Council meeting, the next steps for the programmatic process were reviewed. As part of the preparation of an EIS, NEPA requires that there is an early and open process for determining the scope of the issues to be addressed, this is commonly known as “NEPA scoping”. In order to provide for meaningful public and Tribal engagement in this process, including the alternatives and scope of the action, the Council chose to extend the PEIS timeline. The Council will use the additional time to consider whether to alter the previously adopted alternatives, and what to include in the formal NEPA NOI to Prepare a PEIS, currently scheduled to be published in fall 2024. The Council must intend to complete a Final PEIS within two years of publishing the NOI.</p> <p>Clauses 8.2, 8.6, 8.8, 8.9, 8.11, and 8.12 No relevant changes were reported.</p>
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	<p>Clauses 8.10 and 8.13 Not applicable</p>
<p>References</p>	<p>Cunningham, S. and Olson, A. 2024. Groundfish Area Closures within the Bristol Bay Red King Crab Stock Assessment Area. Environmental assessment/regulatory impact review for proposed amendment to the fishery management plan for groundfish of the Bering Sea / Aleutian Islands Management Area. https://meetings.npfmc.org/CommentReview/DownloadFile?p=0cb90fa5-5e0e-40fc-9af1-00cf97ce18b6.pdf&fileName=C2%20BBRKC%20Analysis.pdf.</p> <p>NPFMC Newsletter, April 2023. https://www.npfmc.org/newsletters/.</p> <p>NPFMC Newsletter, June 2023. https://www.npfmc.org/newsletters/.</p> <p>NPFMC Newsletter, February 2024. https://www.npfmc.org/newsletters/.</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

Fundamental Clause 9. Fishing operations shall be carried out by fishers with appropriate standards of competence in accordance with international standards, guidelines and regulations.	
9.1	States shall advance, through education and training programs, the education and skills of fishers and, where appropriate, their professional qualifications. Such programs shall take into account agreed international standards and guidelines.
9.2	States, with the assistance of relevant international organizations, shall endeavor to ensure, through education and training, that all those engaged in fishing operations be given information on the most important provisions of the FAO CCRF (1995), as well as provisions of relevant international conventions and applicable environmental and other standards that are essential to ensure responsible fishing operations.
9.3	The fishery management organization shall, as appropriate, maintain records of fishers which shall, whenever possible, contain information on their service and qualifications, including certificates of competency, in accordance with their State's laws.
Summary of relevant changes	Clauses 9.1, 9.2, and 9.3 No relevant changes were reported.
References	NA
Summary of consistency with RFM Fisheries Standard	The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.

<p>Fundamental Clause 10. An effective legal and administrative framework shall be established and compliance ensured, through effective mechanisms for monitoring, surveillance, control, and enforcement for all fishing activities within the jurisdiction.</p>	
<p>10.1 Effective mechanisms shall be established for fisheries monitoring, surveillance, control, and enforcement measures including, where appropriate, observer programs, inspection schemes, and vessel monitoring systems, to ensure compliance with the conservation and management measures for the fishery in question. This could include relevant traditional, fisher, or community approaches, provided their performance could be objectively verified.</p> <p>10.2 Fishing vessels shall not be allowed to operate on the stock under consideration in question without specific authorization.</p> <p>10.3 States involved in the fishery shall, in accordance with international law, and within the framework of fisheries management organizations or arrangements, cooperate to establish systems for monitoring, control, surveillance, and enforcement of applicable measures with respect to fishing operations and related activities in waters outside the States jurisdiction.</p> <p>10.3.1 Fishery management organizations which are members of or participants in fisheries management organizations or arrangements, shall implement internationally agreed measures adopted in the framework of such organizations or arrangements and consistent with international law to deter the activities of vessels flying the flag of non-members or non-participants engaging in activities that undermine the effectiveness of conservation and management measures established by such organizations or arrangements. In that respect, port States shall also proceed, as necessary, to assist other States in achieving the objectives of the FAO CCRF (1995) and should make known to other States details of regulations and measures they have established for this purpose without discrimination for any vessel of any other State.</p> <p>10.4 jurisdiction of other States, unless such vessels have been issued with a Certificate of Registry and have been authorized to fish by the competent authorities. Such vessels shall carry on board the Certificate of Registry and their authorization to fish.</p> <p>10.4.1 Fishing vessels authorized to fish on the high seas or in waters under the jurisdiction of a State other than the flag State shall be marked in accordance with uniform and internationally recognizable vessel marking systems such as the FAO Standard Specifications and Guidelines for Marking and Identification of Fishing Vessels.</p>	
<p>Summary of relevant changes</p>	<p>Clauses 10.1 and 10.2 No major compliance issues in 2023 were reported.</p> <p>Clauses 10.3, 10.3.1, 10.4, and 10.4.1 Not applicable.</p>
<p>References</p>	<p>17th Coast Guard District Enforcement Report, March 2024. https://meetings.npfmc.org/CommentReview/DownloadFile?p=48bb7fd7-1c33-49e5-a03e-c98caaec85c.pdf&fileName=B5%20USCG%20April%202024%20Report.pdf. Office of Law Enforcement, Alaska Enforcement Division, December Report to the NPFMC https://meetings.npfmc.org/CommentReview/DownloadFile?p=475936fa-58f5-4403-b98a-21a19244e4ef.pdf&fileName=B4%20OLE%20Report.pdf.</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

<p>Fundamental Clause 11. There shall be a framework for sanctions for violations and illegal activities of adequate severity to support compliance and discourage violations.</p>	
<p>11.1 States laws of adequate severity shall be in place that provide for effective sanctions.</p> <p>11.2 Sanctions applicable to violations and illegal activities shall be adequate in severity to be effective in securing compliance and discouraging violations wherever they occur. Sanctions shall also be in force to affect authorization to fish and/or to serve as masters or officers of a fishing vessel in the event of noncompliance with conservation and management measures.</p> <p>11.3 Fisheries management organizations shall ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction are of sufficient severity to effectively prevent, deter, and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fishing. This may include the adoption of a civil sanction regime based on an administrative penalty scheme. Fisheries management organizations shall ensure the consistent and transparent application of sanctions.</p> <p>11.4 Flag States shall take enforcement measures towards fishing vessels entitled to fly their flag, which have been found by the State to have contravened applicable conservation and management measures. The State shall, where appropriate, make the contravention of such measures an offense under national legislation.</p>	
<p>Summary of relevant changes</p>	<p>Clauses 11.1, 11.2, and 11.3 No relevant changes were reported.</p> <p>Clause 11.4 Not applicable.</p>
<p>References</p>	<p>NA</p>
<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>

6.1.4 Key Component D: Serious Impacts of the Fishery on the Ecosystem

Fundamental Clause 12. Considerations of fishery interactions and effects on the ecosystem shall be based on the best scientific evidence available, local knowledge where it can be objectively verified, and a risk assessment-based management approach for determining most probable adverse impacts. Adverse impacts of the fishery on the ecosystem shall be appropriately assessed and effectively addressed.

- 12.1 The fishery management organization shall assess the impacts of environmental factors on target stocks and associated or dependent species in the same ecosystem, and the relationship among the populations in the ecosystem.
- 12.2 The most probable adverse impacts from human activities, including fishery effects on the ecosystem/environment, shall be assessed and, where appropriate, addressed and or/corrected, taking into account available scientific information and local knowledge. This may take the form of an immediate management response or a further analysis of the identified risk. In this context, full consideration should be given to the special circumstances and requirements in developing fisheries, including financial and technical assistance, technology transfer, training, and scientific cooperation. In the absence of specific information on the ecosystem impacts of fishing on the unit of certification, generic evidence based on similar fishery situations can be used for fisheries with low risk of severe adverse impact. However, the greater the risk, the more specific evidence shall be necessary to ascertain the adequacy of mitigation measures.
 - 12.2.1 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on main associated species (RFM v2.1 Guidance Appendix 1, Parts 3 and 7⁸), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge. Accordingly, these catches (including discards) shall be monitored and shall not threaten these non-target species with serious risk of extinction, recruitment overfishing, or other impacts that are likely to be irreversible or very slowly reversible. If such impacts arise, effective remedial action shall be taken.
 - 12.2.2 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on minor associated species (RFM v2.1 Guidance Appendix 1, Parts 3 and 7⁹), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge. Accordingly, these catches (including discards) shall be monitored and shall not threaten these non-target species with serious risk of extinction, recruitment overfishing, or other impacts that are likely to be irreversible or very slowly reversible. If such impacts arise, effective remedial action shall be taken.
 - 12.2.3 There shall be outcome indicator(s) consistent with achieving management objectives for non-target species (i.e., avoiding overfishing and other impacts that are likely to be irreversible or very slowly reversible).
 - 12.2.4 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on ETP species (RFM v2.1 Guidance Appendix 1, Parts 4 and 7¹⁰), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge.
 - 12.2.5 There shall be outcome indicator(s) consistent with achieving management objectives seeking to ensure that ETP species are protected from adverse impacts resulting from interactions with the unit of certification and any associated enhanced fishery activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.
 - 12.2.6 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on habitats (RFM v2.1 Guidance Appendix 1, Parts 5 and 7¹¹), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge.
 - 12.2.7 There shall be knowledge of the essential habitats for the *stock under consideration* and potential fishery impacts on them. Impacts on essential habitats, and on habitats that are highly vulnerable to damage by the fishing gear involved, shall be avoided, minimized, or mitigated. In assessing fishery impacts, the full spatial range of the relevant habitat shall be considered, not just the part of the spatial range that is potentially affected by fishing.
 - 12.2.8 There shall be outcome indicator(s) consistent with achieving management objectives for avoiding, minimizing, or mitigating the impacts of the unit of certification on essential habitats for the *stock under consideration* and on habitats that are highly vulnerable to damage by the fishing gear of the unit of certification.
 - 12.2.9 The fishery management organization shall consider the most probable adverse impacts of the fishery under assessment on the ecosystem (RFM v2.1 Guidance Appendix 1, Part 6¹²), by assessing and, where appropriate, addressing and or/correcting them, taking into account available scientific information and local knowledge.
 - 12.2.10 There shall be outcome indicator(s) consistent with achieving management objectives seeking to minimize adverse impacts of the unit of certification (including any fishery enhanced activities) on the structure, processes,

⁸ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

⁹ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

¹⁰ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

¹¹ Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

¹² Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1)

and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible. Any modifications to the habitat for enhancing the stock under consideration must be reversible and not cause serious or irreversible harm to the natural ecosystem's structure, processes, and function.

12.2.11 The fishery management organization shall consider the most probable adverse human impacts on the stock/ecosystem under consideration, by assessing and, where appropriate, addressing and or/correcting them, taking into account available scientific information and local knowledge.

- 12.3 The role of the *stock under consideration* in the food web shall be considered, and if it is a key prey species¹³ in the ecosystem, management objectives and measures shall be in place to avoid severe adverse impacts on dependent predators.
- 12.4 There shall be outcome indicator(s) consistent with achieving management objectives seeking to avoid severe adverse impacts on dependent predators resulting from the unit of certification fishing on a *stock under consideration* that is a key prey species.¹⁴
- 12.5 States shall introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).
- 12.6 Research shall be promoted on the environmental and social impacts of fishing gear especially on the impact of such gear on biodiversity and coastal fishing communities.
- 12.7 The fishery management organization shall make use, where appropriate, of Marine Protected Areas (MPAs). The general objectives for establishing MPAs shall include ensuring sustainability of fish stocks and fisheries and protecting marine biodiversity and critical habitats.

Summary of relevant changes

Clauses 12.1, 12.3, and 12.4

NOAA and NOAA Fisheries continues to have a series of programs monitoring and modelling oceanographic processes in Alaska and adjoining waters. The data, together with a range of other environmental monitoring information such as plankton, low trophic level fish species, fish populations, and population dynamics of higher predators are all assembled through NMFS. The relationship between environmental factors (biotic and abiotic) and BSAI and GOA cod are evaluated annually in the SAFE process (Barbeaux et al. 2023; Hulson et al. 2023a, Spies et al. 2023). All significant and commercial species are assessed individually according to the SAFE Tier system. Most of the species' SAFE reports contain details on ecosystem effects on the species (e.g., prey availability) and fishery effects on the ecosystem. The SAFE evaluations provide a process by which a wide range of relevant environmental information is assembled and evaluated in relation to its potential effects. Ecosystem Status Reports are done annually for EBS, AI, and GOA, updating the climate, biological, and fishing effects in each region (Siddon 2023, Ortiz and Zador 2023, Ferriss 2023). In addition, the relationship between different populations in the ecosystem is evaluated through ongoing ecosystem and multi-species modelling programs within NMFS. These information sources are presented and considered annually at Council meetings.

TAC-setting within the Council demonstrably follows the precautionary principle. This is also informed by the range of ecosystem indicators reported to the plan teams as part of the SAFE process. These indicators include mammalian predators of groundfish (e.g., Northern fur seals, Seller sea lions), which are considered by the stock assessment plan teams, SSC, and the Council in setting TACs. For mammalian predators of groundfish (e.g., cod, pollock), outcome indicators of direct mortality are required by the MMPA and ESA in terms of allowable mortalities.

As noted in Section 5.4, recent conditions have been unusually warm with sea surface temperatures as much as 3° C (about 5.4° F) higher than average. Additionally, in recent years, the annual ice cover in the BS has decreased dramatically, which has likely affected several species' survivability and reproductive success. These changes have been and continue to be investigated. The Council's SSC and the Groundfish Plan Teams are considering these factors on an ongoing basis as they assess the groundfish stocks (e.g., Barbeaux et al. 2023; Hulson et al. 2023a, Spies et al. 2023).

Clauses 12.2, 12.2.1, 12.2.2, and 12.2.3

¹³ See Appendix 1 page 150 of the Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1).

¹⁴ See Appendix 1 page 150 of the Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in North America (v2.1).

	<p>There is a comprehensive set of measures in place to minimize catch, waste, and discards of non-target species, as described above. Each of the BSAI and GOA cod fisheries have limited non-target catches with cod making up more than 80% in both regions (Table 12 and Table 13).</p> <p><u>BSAI cod fishery</u></p> <p>For the cod fishery, there are some main associated species with each making up less than 6% of the total average catch. The main associated species include:</p> <ul style="list-style-type: none"> • Alaska skate – According to Tribuzio et al. (2023), the stock is not overfished. • Pollock – RFM and MSC certified; not overfished • Sculpin – According to Spies et al. (2019a), the stock complex is not overfished. Also, the grouping makes up 0.63% of total catch and 3.29% of total bycatch; however, this is a complex that is made up of several sculpin species so no single species is likely to be main associated species. • Skate, unidentified - Regarding Alaska skate catch within the BSAI UoAs, NMFS (pers. comm.) stated that the species identification improved in 2022. Previously, most of the skate catch was reported under “skate, unidentified”. Tribuzio et al. (2023) states that “the Alaska skate is the dominant species of skate caught in the BSAI FMP area, accounting for over 90% of the skate biomass on the eastern Bering Sea (EBS) continental shelf (most commonly at depths of 50-200 m).” It is likely that in coming years, the “skate, unidentified” catch will fall below the main associated threshold. • Yellowfin sole – RFM and MSC certified; not overfished <p>There are several minor associated species with each of them making up <0.5% of the total average catch. Given the large number of minor associated species but the low catch rate, the assessment team has determined that it is unnecessary to list each one of them here. Refer to Table 12 for more details. None of the minor associated species are overfished so none are likely to be negatively impacted by the cod fishery.</p> <p>Overall, these main and minor associated species and their catch amounts are similar to previous years. Therefore, the combined with operational measures employed by industry to meet the specific targets are effective at achieving the specified management objectives.</p> <p><u>GOA cod fishery</u></p> <p>For the GOA fishery, there are some main associated species with each making up less than 2% of the total average catch. The main associated species include:</p> <ul style="list-style-type: none"> • Aleutian skate – Falls within “other skate (<i>Bathyraja</i>)” and is not overfished (Cronin-Fine 2023). • Arrowtooth flounder – MSC certified; not overfished • Big skate – According to Cronin-Fine (2023), stock is not overfished. • Flathead sole – RFM and MSC certified; not overfished • Giant grenadier – According to Rodgveller and Siwicke (2020), stock is not overfished. • Longnose skate – According to Cronin-Fine (2023), stock is not overfished. • Octopus – According to Ormseth (2021), stock is not overfished. • Pollock – RFM and MSC certified; not overfished • Rock sole –MSC certified; not overfished • Sablefish – RFM and MSC certified; not overfished • Sculpin – According to Spies et al. (2019b), the stock complex is not overfished. Also, the grouping makes up 0.71% of total catch and 5.19% of total bycatch; however, this is a complex that is made up of several sculpin species so no single species is likely to be main associated species. It is unlikely that the fishery under assessment is negatively impacting the species. • Sea star – Grouping makes up 0.19% of total catch and 1.42% of total bycatch so unlikely that the fishery under assessment is negatively impacting the species. • Spiny dogfish – Does not appear to be overfished (https://www.fisheries.noaa.gov/species/pacific-spiny-dogfish). Makes up 0.91% of total catch and 6.66% of total bycatch so unlikely that the fishery under assessment is negatively impacting the species. <p>There are several minor associated species with each making up <0.2% of the total average catch. Given the large number of minor associated species but the low catch rate, the assessment team has determined that it is unnecessary to list each one of them here. Refer to Table 13 for more details. None of the minor associated species are overfished so none are likely to be negatively impacted by the cod fishery.</p>
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	<p>Overall, these main and minor species and their catch amounts are similar to previous years. Therefore, the combined with operational measures employed by industry to meet the specific targets are effective at achieving the specified management objectives.</p> <p>Clauses 12.2.4 and 12.2.5</p> <p>There continues to be a process in place for the development of management objectives to ensure that endangered species are protected from adverse impacts from interactions with the unit of certification. The endangered species inhabiting the BSAI and GOA are primarily under the responsibility of the USFWS for seabird species and NOAA Fisheries for other protected species. For these fisheries, this is primarily marine mammals.</p> <p>NMFS annually categorizes all U.S. commercial fisheries under the MMPA List of Fisheries according to the levels of marine mammal mortality and serious injury (https://www.fisheries.noaa.gov/national/marine-mammal-protection/list-fisheries-summary-tables). Category III fisheries interact with marine mammal stocks with annual mortality and serious injury <1% of the marine mammal's PBR level and total fishery-related mortality <10% of PBR. Any fishery in Category III is considered to have achieved the target level of mortality and serious injury. Category II fisheries have a level of mortality and serious injury that is >1% but is <50% of the stock's PBR level, if total fishery related mortality is >10% of the PBR. Category I fisheries have frequent mortality and serious injury of marine mammal resulting in annual mortality >50% of PRB. The BSAI cod pot fishery is a Category II (occasional interactions), the BSAI cod longline and trawl fisheries are Category III (remote likelihood or no known interaction), and the GOA cod longline and trawl fisheries are Category III. (As of 2021, the other gears were no longer classified due to the lack of any interactions in the last three year.) Observer program data continue to provide annual estimates of takes of endangered species – fish, seabirds, and marine mammals in the BSAI and GOA cod fisheries.</p> <p><u>BSAI cod fishery</u></p> <p>The pot fishery interacted with the following number of species during the period 2016-2020 (Freed et al. 2022):</p> <ul style="list-style-type: none"> • Harbor seal (Bristol Bay) – 0 • Humpback whale (Hawai'i, Mexico-North Pacific, and Western North Pacific – 3 <p>The longline fishery interacted with the following number of species during the period 2016-2020 (Freed et al. 2022):</p> <ul style="list-style-type: none"> • Northern fur seal (Eastern Pacific) – 0 • Steller sea lion (Western U.S.) – 1 <p>The trawl fishery interacted with the following number of species during the period 2016-2020 (Freed et al. 2022):</p> <ul style="list-style-type: none"> • Bearded seal (Alaska) – 0 • Ribbon seal – 0 • Steller sea lion (Western U.S.) – 2 <p>As noted above, marine mammals are rarely taken incidentally in the BSAI cod trawl fishery. Overall, all of these catch numbers are significantly less than the species' PBRs (Young et al. 2023). Considering the cumulative impacts of all certified BSAI fisheries, the catch numbers are also below PBRs.</p> <p>Regarding Steller sea lions, there has been a sustained increase in the population size in the BS with some decreasing in the AI. Work is ongoing to determine which life history traits (age-specific reproductive or survival rates) are implicated in the regional dynamics of Steller sea lions and to better understand the links between foraging behavior, diet, and population dynamics. Once completed these studies may provide new insight into the factors underlying recent population trends. Additionally, mitigation measures are in place to limit interactions (e.g., closed areas for Steller sea lion breeding; NOAA Fisheries 2022a, 2023a).</p> <p>Seabird interactions with fishing gear are recorded through the NMFS Observer Program (summarized in Tide and Eich 2022), and population trends are monitored by the USFWS (summarized in Dragoo et al. 2020). The catch numbers of seabird species in this fishery are minimal, and data show no significant changes to the amount of bycatch. The only recent (2017-2021) seabird bycatch are black-footed albatross, gulls, kittiwakes, Laysan albatross, murre, northern fulmar, and shearwaters; none of these is an ESA-</p>
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listed species. Short-tailed albatross remain the main endangered bird species of concern in the Alaska fisheries, and this fishery has not caught any in at least the last 10 years.

Three ESA-threatened salmon stocks that migrate to Alaskan waters include Lower Columbia River Chinook salmon, upper Willamette River Chinook salmon, and Lower Columbia River Chinook, spring. The bycatch of ESA-listed Chinook salmon by the BSAI cod fishery increased in 2023. However, all recent catch totals remain within the 45,000 PSC limit. Data continue to be collected, and the bycatch numbers are analyzed annually (NOAA Fisheries 2023b, 2024). Cumulatively, the catch numbers are also below limits.

GOA cod fishery

The GOA Pacific cod longline and trawl fisheries continue to be Category III. (As of 2021, the other gears were no longer classified due to the lack of any interactions in the last three year.) The longline fishery interacted with the following number of species during the period 2016-2020 (Freed et al. 2022):

- Harbor seal (Cook Inlet/Shelikof Strait) – 1
- Steller sea lion (Western U.S.) – 0

The trawl fishery interacted with the following number of species during the period 2016-2020 (Freed et al. 2022):

- Steller sea lion (Western U.S.) – 1

As noted above, marine mammals are rarely taken incidentally in the GOA cod trawl fishery. These catch numbers are significantly less than the species’ PBRs. Cumulatively, the catch numbers are also below the PBR. Recent surveys indicate that in the GOA pup and non-pup numbers have increased, showing positive population trends.

Seabird interactions with fishing gear are recorded through the NMFS Observer Program (summarized in Tide and Eich 2022), and population trends are monitored by the USFWS (summarized in Dragoo et al. 2020). The catch numbers of seabird species in this fishery are minimal, and data show no significant changes to the amount of bycatch. The only recent (2017-2021) seabird bycatch are gulls, northern fulmar, and short-tailed albatross. Short-tailed albatross remain the main endangered bird species of concern in the Alaska fisheries, and this fishery has caught only 2 in at least the last 10 years.

Clauses 12.2.6, 12.2.7, 12.2.8, and 12.7

In April 2022, a new five-year review of EFH was announced. The review evaluated:

- 1) published scientific literature
- 2) unpublished scientific reports
- 3) information solicited from interested parties
- 4) previously unavailable or inaccessible data

In 2023, the Council revised the EFH sections of its FMPs to address the results of the five-year review, and the results of the review led to improved species distribution mapping using a more uniform approach as well as an update to the fishing effects model to remove a coding error that omitted unobserved catch events (<https://www.fisheries.noaa.gov/alaska/habitat-conservation/alaska-essential-fish-habitat-reviews>). All groundfish species had EFH impacts that were determined to be minimal and temporary.

There were two key issues regarding pelagic trawl gear:

1. The Council chose not to take action to close the Red King Crab Savings Area due to concerns that fishing effort by pot, longline, and pelagic trawl gear could be having adverse effects on the recovery of the severely depleted Bristol Bay red king crab stock. However, the Council established an unobserved mortality working group for crab that has met and will provide a report to Council at their June 2025 meeting.
2. A discussion paper was produced for the Council looking at the pelagic trawl gear definition to both align current regulations with objectives of the Council, which are to promote gear innovation and improvements as well as fixing more straightforward regulatory items (fix the codend not intended as part of the pelagic trawl/floater in salmon excluders, etc.). There is some interest in removing outdated regulations and improving the definition to meet the future needs of innovation and development particularly regarding benthic habitat impacts of pelagic trawl gear.

Clauses 12.2.9, 12.2.10, and 12.2.11

	<p>Management measures continue to be in place, based on a sound and fishery-related evidence platforms and extensive evaluations, designed to achieve the stated objectives for relevant ecosystem components. These specifically include marine mammals, seabirds, prohibited species, target and bycatch species, essential fish habitat, HAPCs, and food-web effects. Also, ongoing monitoring and ecosystem modelling are in place to meet the overarching objective of effective ecosystem-based management.</p> <p>Bait used within the longline fishery is primary <i>Illex spp.</i> squid that is caught outside of the United States and purchased by the cod fishery (D. Gaudet, pers. comm.). The squid species are not an ETP species.</p> <p>Clause 12.5 All fishing vessels operating in federal waters are required to comply with MARPOL Annex V, which specifically prohibits the at-sea disposal of all plastics. Vessels operating in the North Pacific therefore have three options: 1) non-plastics can be disposed of at sea within the legal restrictions, 2) they can incinerate wastes onboard the vessel, or 3) they can hold the wastes for shoreside disposal at port. Vessels are required to post oil pollution and garbage placards; have a written solid waste management plan that describes procedures for collecting, processing, storing, and discharging garbage; and have a designated person in charge of carrying out the plan. The BSAI and GOA cod fishing vessels continue to be compliant with MARPOL Annex V (AFDF, pers. comm.).</p> <p>Clause 12.6 The Council’s overarching policy continues to include the objective of applying judicious and responsible fisheries management practices, based on sound scientific research and analysis. Also, all management measures are to be based on the best scientific information available. Key to delivering this scientific evidence base remains the work of the AFSC and their five-year strategic plan NOAA Fisheries 2022b). Research is often promoted and encouraged by academic institutions, furthering the aim of the Council. Research continues into community development associated with fisheries. Industry is also regularly involved in research.</p>
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<p>Summary of consistency with RFM Fisheries Standard</p>	<p>The fishery continues to meet the requirements of this Fundamental Clause of the RFM Fisheries Standard.</p>



7 NON-CONFORMANCES

One minor NC was raised on supporting Clause 3.1 during the 4th surveillance of the previous certification cycle of the Alaska cod fishery (Table 15). The corrective action plan from the client is provided in Table 16.

Table 15. Non-conformance 1

1	Non-conformance number
	1
2	Fundamental Clause
	Fundamental Clause 3, Supporting Clause 3.1
3	Score
	Minor non-conformance
4	Non-conformance
	<p>At the last assessment of the fishery (2017), it was concluded that both the federal and state components of the management systems met the requirements of supporting clause 3.1, “Long term management objectives shall be translated into a plan or other management document (taking into account uncertainty and imprecision) and be subscribed to by all interested parties.”</p> <p>At the 4th annual audit of the fishery, the reassessment of the fishery against version 2.1 of the RFM standard also commenced. In the course of discussions associated with the reassessment with regard to supporting clause 3.1, it became clear that the state component of the management system did not meet the requirements of the clause. This came to light when information showed that 5 ACC 28.089 [Guiding principles for groundfish fishery regulations, 1996] that was introduced and applied to ADFG’s initial groundfish management plans had been repealed in March 2013 and, in so doing, removed the only piece of ADFG documentation that explicitly sets out “long term management objectives in a plan or other management document (taking into account uncertainty and imprecision) and be subscribed to by all interested parties” in relation to the state managed Pacific cod fisheries. As a result, a minor non-conformance was raised.</p>
5	Milestone(s)
	By February 2028 (the end of the next five-year certification cycle), short and long-term objectives need to be explicit within the State’s fishery specific management system.



6	Summary of action plan
	<p>By February 2028, the fishery will demonstrate a plan to ensure short- and long-term fishery objectives are in place for Pacific cod in State of Alaska waters. AFDF has already worked with ADFG and stakeholders to develop and submit a BOF proposal for inclusion of explicit fishery objectives. This proposal will be addressed by the BOF at its scheduled meeting for the cod fishery in October 2022. Until the condition is met, at the time of each annual audit, AFDF will submit a progress report to the audit team specifically describing progress toward satisfying this minor non-conformance.</p>
7	Progress against milestone(s)
	<p>The same score, medium confidence rating, and minor conformity were applied to the pollock fishery that was also reassessed in parallel with the Pacific cod fishery. The Pacific cod fishery client group, working with the pollock fishery client group (APA) submitted a proposal (Proposal 161) to the ADFG BOF during the Committee of the Whole at the October 2022 meeting to include objectives that would encompass all groundfish species managed at the state level. The proposal was intended to document the broad goals and objectives that the BOF uses to guide groundfish management. At the BOF Statewide Finfish and Supplemental Issues meeting in March 2023 the BOF approved Proposal 161 (RC055) and Section 5 AAC 28.015 has been amended to include explicit and measurable short- and long-term objectives:</p> <p>As stated in 5 AAC 28.015. Guiding policy on groundfish fisheries resource management: The BOF and the department when taking actions regarding the management of groundfish fisheries should be based on the following principles and criteria:</p> <ol style="list-style-type: none"> 1. Conservation of the groundfish resource to ensure sustained yield, which requires that the TAC in any fishery be based upon the biological abundance of the stock; 2. Minimization of bycatch of other associated fish and shellfish and prevention of the localized depletion of stocks; 3. Protection of the habitat and other associated fish and shellfish species from non-sustainable fishing practices with consideration of ecosystem interactions; 4. Maintenance of slower harvest rates by methods and means and time and area restrictions to ensure adequate reporting and analysis necessary for management of the fishery and ensuring adherence to annual and seasonal TAC limits; 5. Extension of the length of fishing seasons by methods and means and time and area restrictions to provide for the maximum benefit to the state and to regions and local areas of the state; 6. Harvest of the resource in a manner that emphasizes the quality and value of the fishery product; 7. Provide opportunities for subsistence, sport, commercial and personal use fisheries; 8. Cooperation with federal agencies associated with groundfish fisheries; 9. Management of the groundfish fisheries are based on information that, in the commissioner's discretion, will tend to promote the purposes of Alaska statutes pertaining to fisheries management. <p>This has resulted in this supporting clause being rescored at 10, and the minor non-conformance is closed at this surveillance audit.</p>

Table 16. Corrective action plan 1

Milestone	Action	Roles & Responsibilities	Outputs
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<p>December 2022</p>	<p>AFDF has already worked with ADFG and stakeholders to develop and submit a BOF proposal (attached) for inclusion of explicit fishery objectives. This proposal will be addressed by the BOF at its scheduled meeting for the cod fishery in October 2022.</p>	<p>Key lead: Julie Decker, AFDF Other entities involved: DFG, Alaska BOF</p>	<p>At the time of each annual audit, AFDF will submit to the audit time a progress report specifically describing progress toward satisfying this minor non-conformance.</p>
<p>February 2028</p>	<p>The Alaska cod fishery will demonstrate a plan to ensure short- and long-term fishery objectives are in place for Pacific cod in State of Alaska waters.</p>	<p>Key lead: Julie Decker, AFDF Other entities involved: ADFG, Alaska BOF</p>	<p>At the time of each annual audit, AFDF will submit to the audit team a progress report specifically describing progress toward satisfying this minor non-conformance.</p>

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9 APPENDICES

Appendix 1: Stakeholder submissions

No stakeholder comments were received during the announced consultation opportunities.



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DNV Business Assurance USA, Inc.

1400 Ravello Dr.

Katy, TX 77449

Phone 877-368-3530

www.dnvcert.com/contactus@dnv.com