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Responsible Fisheries Management (RFM) standard v1.3

Alaska Flatfish Complex

Certificate No.: 10000445829-MSC-ANSI-USA

4th Surveillance Report

Certification Body (CB)	MRAG Americas, Inc.
Assessment team	Erin Wilson (team lead), Dr. Giuseppe Scarcella, Amanda Stern-Pirlot
Fishery client	Alaska Seafood Cooperative
Assessment type	Fourth Surveillance
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2 Glossary

ABC	Allowable Biological Catch
ADFG	Alaska Department of Fish and Game
AFSC	Alaska Fisheries Science Center
ASMI	Alaska Seafood Marketing Institute
AWT	Alaska Wildlife Troopers
BOF	Board of Fisheries
BSAI	Bering Sea and Aleutian Islands
CCRF	Code of Conduct for Responsible Fisheries
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
CIE	Center for Independent Experts
C/P	Catcher/Processor
CSC	Certified Seafood Cooperative
DPS	Distinct Population Segment
EBS	Eastern Bering Sea
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F	Fishing Mortality
FAO	Food and Agriculture Organization of the United Nations
FMP	Fishery Management Plan
GOA	Gulf of Alaska
HCR	Harvest Control Rule
LLP	License Limitation Program
M	Natural Mortality
MCS	Monitoring, Control, and Surveillance
MRA	Maximum Retainable Allowance
MSRA	Magnuson-Stevens Fisheries Reauthorization Act
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
mt	Metric tons
NEPA	National Environmental Policy Act
nm	Nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council, or the Council
NPRB	North Pacific Research Board
OFL	Overfishing Level
OLE	Office of Law Enforcement
OY	Optimum Yield
PA	Precautionary Approach
PBR	Potential Biological Removal
PSC	Prohibited Species Catch
PWS	Prince William Sound
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (Report)
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
TAC	Total Allowable Catch
TSC	Technical Subcommittee

UoC	Unit of Certification
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VAST	Vector-Autoregressive Spatio-Temporal (Model)

3 Summary and Recommendations

3.1 Fundamental Clauses Summary

Fundamental Clause	Evidence adequacy rating	Justification
1. Structured and legally mandated management system	High	The AK flatfish fisheries are conducted in the U.S. EEZ waters of the BSAI and GOA. The principle legislative instrument for fisheries management in the U.S. is the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSRA) and is implemented by the NMFS. The North Pacific Fishery Management Council, (NPFMC or Council) is one of eight regional councils established by the MSRA to manage fisheries in the 200-mile EEZ. The Council primarily manages groundfish in the GOA and BSAI, targeting cod, pollock, flatfish, mackerel, sablefish, and rockfish species harvested by trawl, longline, jig, and pot gear. The Council works closely with the Alaska Department of Fish and Game (ADFG) and the Alaska Board of Fisheries (BOF) to coordinate management programs in federal and state waters (0-3 nm from shore). In coastal waters off the United States, the AK flatfish complex catch is under the jurisdiction of the BSAI Groundfish FMP, GOA Groundfish FMP, and the MSRA.
2. Participation in coastal area management frameworks, decision-making processes and activities related to the fishery in support of sustainable resource use and conflict avoidance	High	The Council and NMFS manage U.S. federal fisheries off Alaska (3-200 nm). Management is coordinated, and in some cases, jointly managed, with the State of Alaska. NOAA and NMFS are also responsible for carrying out the U.S. policies to manage and conserve marine protected resources. Applicable law that is directly relevant to the management of marine fisheries includes, but not limited to, the National Environmental Protection Act (NEPA), Endangered Species Act, Marine Mammal Protection Act (MMPA), Coastal Zone Management Act (CZMA), and the Administrative Procedures Act (APA). The MSRA requires discussions and decisions to take place in public sessions using publicly available information, which ensures transparency in the process. Opportunities are provided for the public to comment on notices of proposed rulemaking. The Council resolves disputes by majority vote as required in section 302 of the MSRA.
3. Management objectives shall be implemented through regulations and formulated in a plan or other framework.	High	The MSRA, National Standards and other legislation include explicit, well-defined short- and long-term objectives for sustainable fishing and conservation. NMFS incorporated precautionary concepts to ensure compliance with the Sustainable Fisheries Act 1996, which includes 10 National Standards for conservation and management of fisheries in the U.S. In addition to the National Standard Guidelines, the Council has established nine specific objectives, each with several sub-objectives, for BSAI and GOA groundfish fisheries in Alaska. These objectives include: Prevent Overfishing; Promote Sustainable Fisheries and Communities; Preserve Food Web; Manage Incidental Catch and Reduce Bycatch and Waste; Avoid Impacts to Seabirds and Marine Mammals; Reduce and Avoid Impacts to Habitat; Promote Equitable and Efficient Use of Fishery Resources;

		Increase Alaska Native Consultation; Improve Data Quality, Monitoring and Enforcement.
4. Effective fishery data collection	High	Stock Assessment and Fishery Evaluation (SAFE) reports provide complete descriptions of data collections and time series. Records of catch and effort are recorded through the e-landing (electronic fish tickets) catch recording system and collected in vessel logbooks. The observer program and trawl and longline surveys also gather additional fishery dependent and independent data.
5.Stock Assessment	High	The Alaska Fisheries Science Center (AFSC) conducts stock assessments and research on AK flatfish fisheries annually, producing SAFE reports for the fisheries. ADFG contributes to scientific research and surveys that are conducted in state waters. The stock assessments are peer reviewed by external experts. Based on the 2023 SAFE reports, these stocks in this assessment are not overfished, none are approaching an overfished condition and overfishing is not occurring.
6. Biological reference points and harvest control rules	High	Information for assessing the status of AK flatfish fisheries comes from the SAFE reports. The tier system harvest control rules (HCRs) specify the maximum permissible allowable biological catch (ABC), and the Overfishing Level (OFL) for each stock. As specified in the MSRA, if stocks decline below the Minimum Stock Size Threshold (MSST), a rebuilding plan must be implemented to bring the biomass back to the BMSY level (biomass relative to maximum sustainable yield [MSY]) within a specified timeframe.
7.Precautionary approach	High	The Council recommend harvest specifications, OFLs, ABC levels and TAC annually based on the SAFE reports, consistent with the Science and Statistical Committee (SSC) recommendations. Additionally, the tier approach assigns groundfish stock to a tier according to available data and uncertainty associated with the fishery. In the December 2023 NPFMC meeting, the Council recommended Total Allowable Catch (TACs) with specified overfishing limit (OFL) and Acceptable Biological Catch (ABC) for the 2024 – 2025. In setting TACs for 2024 and 2025, the Council accounts for Guideline Harvest Levels (GHLs) for groundfish fisheries in State waters. The Council's OFLs, ABC, and TACs take the GHLs into account (NPFMC 2023). The 2024-2025 BSAI harvest specifications can be found at the following link: https://www.federalregister.gov/documents/2024/03/11/2024-05093/fisheries-of-the-exclusive-economic-zone-off-alaska-bering-sea-and-aleutian-islands-final-2024 and the GO harvest specifications can be found at the following: https://www.fisheries.noaa.gov/alaska/commercial-fishing/2024-2025-alaska-groundfish-harvest-specifications?check_logged_in=1#gulf-of-alaska-goa.
8. Management measures to produce maximum sustainable levels	High	The MSRA, National Standards and other legislation include explicit, well-defined short- and long-term objectives for sustainable fishing and conservation.
9. Appropriate standards of fishers' competence	High	NMFS, the Council and ADFG have rules and regulations governing AK fisheries available on their websites. The BSAI and GOA FMPs also contain a summary of management measures that apply to these fisheries.
10. Effective legal and administrative framework for monitoring, surveillance, control	High	There are three entities that provide enforcement for Alaska fisheries: NOAA Office of Law Enforcement (OLE), US Coast Guard (USCG) and Alaska Wildlife Troopers (AWT). Monitoring, control, and surveillance (MCS) is carried out at-

and enforcement for all fishing within their jurisdiction.		sea and shore-side for the federal fisheries by the OLE and the USCG. The AWT fulfils the MCS function for the state water fisheries. Outreach was conducted by AK OLE throughout the year to meet with fleet representatives for the various AK fisheries and discuss issues and potential violations reported in the December 2023 Report to the NPFMC.
11. Framework for sanctions	High	The MSRA provides enforcement actions for violations, including citations, a civil money penalty, forfeiture action against the vessel and its catch, and in some cases, criminal prosecution. Current enforcement updates and violations are reported in the OLE Report to the Council on a quarterly basis. Personal interviews with AWT and the USCG confirm overall compliance with the AK flatfish fisheries, noting only minor infractions.
12. Impacts of the fishery on the ecosystem	High	Monitoring is carried out through the Observer Program operated by NMFS. The groundfish, Prohibited Species Catch (PSC), and non-target species catch composition for each fishery and area was updated for the most recent five full years (See Fundamental clause 12). There have been no notable trends in any of this data over the past five years that would indicate fishery changes in need of further investigation.
13. Enhanced fisheries	Not applicable	This is not an enhanced fishery.

3.2 Audit conclusion

Fishery: Alaska Flatfish Complex

Certification status: Currently certified against the RFM and Marine Stewardship Council (MSC) Standards.

Audit summary: This report contains the findings of the RFM 4th surveillance audit in relation to the AK flatfish bottom trawl fisheries. An onsite surveillance audit was held March 14th, 2024 in conjunction with the Marine Stewardship Council (MSC) surveillance audits for Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) flatfish fisheries, the BSAI Atka mackerel, Pacific Ocean perch (POP), and Northern rockfish and GOA Pacific Ocean perch, Northern rockfish, and Dusky rockfish. The AK flatfish complex was certified against the RFM standard in March 2021 and most recently certified against the MSC Standard in December 2020.

<u>Seven species in the BSAI area</u>

- Kamchatka flounder (*Atheresthes evermanni)*, arrowtooth flounder (*Atheresthes stomias)*, flathead sole (*Hippoglossoides elassodon)*, Northern rock sole (*Lepidopsetta polyxystra)*, yellowfin sole (*Pleuronectes asper, Limanda aspera)* and Alaska plaice (*Pleuronectes quadrituberculatus),* Greenland turbot *(Reinhardtius hippoglossoides)*

<u>Five species in the GOA</u>

- Arrowtooth flounder (*Atheresthes stomias)*, flathead sole (*Hippoglossoides elassodon)*, Northern rock sole (*Lepidopsetta polyxystra),* Rex sole (*Glytocephalus zachirus),* Southern Rock sole (*Lepidopsetta bilineata)*

Conclusion: MRAG Americas confirms that this fishery continues to meet the RFM Standard and shall remain certified.

Non-conformance and recommendations: No issues were identified, and no changes in the fishery occurred that would result in a change in certification from the last surveillance. The fisheries had no non-conformances or recommendations. No clauses were rescored. All information on this fishery could be obtained from the original full assessment report, subsequent surveillance reports, and re-assessment report available for the download at https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-flatfish/.

4 General Information

1	**Fishery name**	
	Alaska Flatfish Complex	
2	**Stock(s)**	
	Alaska plaice (Pleuronectes quadrituberculatus), BSAI Arrowtooth flounder (Atheresthes stomias), BSAI & GOA Flathead sole (Hippoglossoides elassodon), BSAI & GOA Greenland turbot (Reinhardtius hippoglossoides), BSAI Kamchatka flounder (Atheresthes evermanni), BSAI Northern rock sole (Lepidopsetta polyxstra), BSAI & GOA Yellowfin sole (Limanda aspera), BSAI Southern rock sole (Lepidopsetta bilineatus), GOA Rex sole (Glyptocephalus zachirus), GOA	
3	**Date certified**	**Date of expiry**
	March 10, 2021	December 3, 2024
4	**Surveillance type**	
	onsite	
5	**Surveillance number**	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	
	4th Surveillance	X
	Other (expedited etc)	
6	**Surveillance team details**	
	Ms. Erin Wilson (team leader) joined MRAG Americas, Inc. in February 2015, where she currently works as a Senior Manager in the Fisheries Certification Division. She serves as the team leader on several MSC assessments, including North and South Pacific albacore tuna fishery, US West Coast Groundfish fishery, and all the Alaska Groundfish fisheries, and has served as a team member for several other fishery assessments, including both MSC and Responsible Fisheries Management (RFM). Prior to joining MRAG Americas, she worked at the Oregon Department of Fish and Wildlife (ODFW) as a Natural Resource Specialist and Biological Technician for the Oregon Marine Reserves. She has collaborated on a multitude of projects that focus on marine science and conservation in both a biological and social science aspect. She has completed ISO 19011 Lead Auditor for Management Systems, SA8000, the SRA training for Fishery Progress, and all the MSC and RFM required trainings for team leader and assessment team member. She received a M.Sc. in Marine Resource Management from Oregon State University and a B.S. in Zoology from Colorado State University, along with a Spanish minor. MRAG Americas confirms Ms. Wilson has no conflicts of interest in relation to the fishery under assessment. **Ms. Amanda Stern-Pirlot** is an M.Sc graduate of the University of Bremen, Center for Marine Tropical Ecology (ZMT) in marine ecology and fisheries biology. Ms. Stern-Pirlot joined MRAG Americas in mid-June 2014 as MSC Certification Manager (now Director of the Fishery Certification Division) and is currently serving on several different assessment teams as team leader and team member. She has	

	worked together with other scientists, conservationists, fisheries managers and producer groups on international fisheries sustainability issues for over 15 years. With the Institute for Marine Research (IFM-GEOMAR) in Kiel, Germany, she led a work package on simple indicators for sustainable within the EU-funded international cooperation project INCOFISH, followed by five years within the Standards Department at the Marine Stewardship Council (MSC) in London, developing standards, policies and assessment methods informed by best practices in fisheries management around the globe. Most recently she has worked with the Alaska pollock industry as a resources analyst, within the North Pacific Fisheries Management Council process, focusing on bycatch and ecosystem-based management issues, and managing the day-to-day operations of the offshore pollock cooperative. She has co-authored a dozen publications on fisheries sustainability in the developing world and the functioning of the MSC as an instrument for transforming fisheries to a sustainable basis. MRAG Americas confirms Ms. Stern-Pirlot has no conflicts of interest in relation to the fishery under assessment. **Dr. Giuseppe Scarcella** is an experienced fishery scientist and population analyst and modeller, 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 Unversità 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 (CNR-ISMAR, now CNR-IRBIM). During the years of employment at CNR-ISMAR he has gained experience in benthic ecology, statistical analyses of fish assemblage 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. At the moment he is member of the Scientific, Technical and Economic Committee for Fisheries for the European Commission (STECF). He is author and co-author of more than 50 scientific paper peer reviewed journals and more than 150 national and international technical reports, most of them focused on the evolution of fish assemblages in artificial habitats and stock assessment of demersal species. For some years now, Dr Scarcella has been working in fisheries certification applying the Marine Stewardship Council standard for sustainable fisheries, currently concentrating on Principle 1 of the Standard. Furthermore, Dr Scarcella holds the credential as Fishery team leader (MSC v2.0) and he completed the MSC procedure training 2.1. He also holds the credential as certifier of Responsible Fisheries Management (RFM).
7	**Audit/review time and location**
	An onsite surveillance audit was held the week of March 14th, 2024 in conjunction with the 4th surveillance audit and MSC and RFM full reassessment of BSAI&GOA Atka mackerel, Pacific Ocean perch and Northern Rockfish and GOA Pacific Ocean perch, Northern rockfish and Dusky rockfish.

The Alaska RFM program is a voluntary program that has been developed by the Alaska Seafood Marketing Institute (ASMI) to provide an independent, third- party certification that can be used to verify that these fisheries are responsibly managed according to the Alaska RFM standard.

This assessment is based on the fundamental clauses specified in the Alaska RFM Conformance Criteria v1.3. It is based on six major components of responsible management derived from the United Nations Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries (1995) and Guidelines for the Eco-labeling of products from marine capture fisheries (2009). The fundamental clauses are:

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

The purpose of this annual Surveillance Report is:

To establish and report on any material changes to the circumstances and practices affecting the original complying assessment of the fishery;
To monitor any actions taken in response to non-conformances raised in the original assessment of the fisheries;
To re-score any clauses where practice or circumstances have materially changed since the last audit.

5 Fishery and certification background

Recent catch data are presented below:

Table 1 Total Allowable Catch for AK Flatfish Complex

Total Allowable Catch (TAC) and catch data UoA 1 BSAI Kamchatka flounder				
TAC	Year	**2023**	Amount	**7,579 mt**
UoA share of TAC	Year	**2023**	Amount	**7,579 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**6,950 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**7,520 mt**
Total Allowable Catch (TAC) and catch data UoA 2 BSAI Arrowtooth flounder				
TAC	Year	**2023**	Amount	**15,000 mt**
UoA share of TAC	Year	**2023**	Amount	**15,000 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**7,072 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**7,367 mt**
Total Allowable Catch (TAC) and catch data UoA 3 BSAI Flathead sole				
TAC	Year	**2023**	Amount	**35,500 mt**
UoA share of TAC	Year	**2023**	Amount	**35,500 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**8,629 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**12,984 mt**
Total Allowable Catch (TAC) and catch data UoA 4 BSAI Northern rock sole				
TAC	Year	**2023**	Amount	**66,000 mt**
UoA share of TAC	Year	**2023**	Amount	**66,000 mt**

UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**24,346 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**16,889 mt**

Total Allowable Catch (TAC) and catch data UoA 5 BSAI Yellowfin sole				
TAC	Year	**2023**	Amount	**230,000 mt**
UoA share of TAC	Year	**2023**	Amount	**230,000 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**103,665 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**152,543 mt**

Total Allowable Catch (TAC) and catch data UoA 6 BSAI Alaska plaice				
TAC	Year	**2023**	Amount	**17,875 mt**
UoA share of TAC	Year	**2023**	Amount	**17,500 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**15,252 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**11,106 mt**

Total Allowable Catch (TAC) and catch data UoA 7 GOA Arrowtooth flounder				
TAC	Year	**2023**	Amount	**94,286 mt**
UoA share of TAC	Year	**2023**	Amount	**94,286 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**9,255 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**7,416 mt**

Total Allowable Catch (TAC) and catch data UoA 8 GOA Flathead sole				
TAC	Year	**2023**	Amount	**35,337 mt**

UoA share of TAC	Year	**2023**	Amount	**35,337 mt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**468 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**408 mt**

Total Allowable Catch (TAC) and catch data UoA 9 GOA Northern rock sole				
TAC	Year	**2023**	Amount	**66,000 mt****
UoA share of TAC	Year	**2023**	Amount	**66,000 mt****
UoA share of total TAC	Year	**2023**	Amount	**100%***
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**427** mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**725** mt**

* = Shallow-Water Flatfish
**= Northern and southern rock sole combined

Total Allowable Catch (TAC) and catch data UoA 10 GOA Rex sole				
TAC	Year	**2023**	Amount	**20,664 kt**
UoA share of TAC	Year	**2023**	Amount	**20,664 kt**
UoA share of total TAC	Year	**2023**	Amount	**100%**
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**416 mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**536 mt**

Total Allowable Catch (TAC) and catch data UoA 11 GOA Southern rock sole				
TAC	Year	**2023**	Amount	**66,000 mt****
UoA share of TAC	Year	**2023**	Amount	**66,000 mt****
UoA share of total TAC	Year	**2023**	Amount	**100%***
Total green weight catch by UoC	Year (most recent)	**2023**	Amount	**427**mt**
Total green weight catch by UoC	Year (second most recent)	**2022**	Amount	**725** mt**

* = Shallow-Water Flatfish
**= Northern and southern rock sole combined

The Alaska flatfish complex fishery was first certified under the requirements of the Alaska RFM standard v1.2 on December 5, 2013. During the fourth surveillance audit, the fishery was transferred under the RFM standard v1.3, and certificate validity was extended from the original expiry date of December 4, 2018, to December 4, 2019. The permission for certificate extension was granted by ASMI. The re-assessment in December 2019 did not result in any changes in the compliance of the fishery with the RFM standard, and no non-conformities were raised. The new certificate was therefore issued with the validity date until December 3, 2024. The first surveillance audit was carried out by DNV and found no non-conformities (DNV 2021).

6 Assessment Process

6.1 Site visits

An onsite site visit was held at the offices of the Alaska Seafood Cooperative on March 14th, 2024 in conjunction with the MSC reassessment of BSAI&GOA Atka mackerel, Pacific Ocean Perch, and rockfish and the Responsible Fisheries Management (RFM) reassessments for BSAI&GOA Ak flatfish and BSAI &GOA Atka mackerel and rockfish. The following table lists the stakeholders contacted for this surveillance audit.

Table 2 Stakeholders contacted for the 4th Surveillance audit AK flatfish complex

Yukon Salmon Fisheries Association
Kawerak
WWF-US
WWF-RU
Food and Water Watch
Monterey Bay Aquarium
Oceana
Ruby Advisory Committee of ADFG
Western Interior Alaska Subsistence Regional Advisory Council
Alaska Natives
IPHC
Greenpeace
Intrafish
Undercurrent News
Alaska Fisheries Development Foundation
Marine Stewardship Council
At-Sea Processors Association
North Pacific Fisheries Management Council
Alaska Fisheries Science Center

Below is a general agenda that was used to guide conversations in relation to this audit.

Client Meeting Agenda
Marine Stewardship Council's (MSC) and the Responsible Fisheries Management (RFM) assessments for BSAI & GOA flatfish, Atka mackerel, rockfish and POP
Date: March 14th, 2024
Location: 4241 21st Ave W, Suite 302, Seattle WA, 98199 (and remote)

Attendees: Beth Concepcion (Client representative); Erin Wilson (Team lead), Dr. Giuseppe Scarcella, Amanda Stern-Pirlot, Michealene Corlett
Other potential attendees:
Mary Beth Tooley, Ruth Christiansen, Annika Saltman, Frank O'Hara III, Chris Woodley, Sarah Webster

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Objectives:

MRAG Americas is conducting the following audits for the BSAI&GOA Atka mackerel, POP and rockfish and BSAI &GOA flatfish fisheries against the Marine Stewardship Council's (MSC) Standard and/or the Responsible Fisheries Management (RFM) Standard for sustainability.

- MSC Reassessment and 4th surveillance audit for BSAI &GOA Atka mackerel, rockfish and Pacific Ocean Perch
- MSC 3rd surveillance audit for BSAI &GOA flatfish fisheries
- RFM reassessment and 4th surveillance audit for BSAI &GOA Atka mackerel and rockfish fisheries
- RFM reassessment and 4th surveillance audit for BSAI &GOA flatfish fisheries

The objectives of this audit is to meet with managers and stakeholders and gather the best available information to assess whether these fisheries continue to meet the requirements of the MSC and RFM Standard for recertification.

9:30 – 10:15 AM Introductions, review of agenda and process requirements

1. Introductions
    - Introductions of the team, their roles, and responsibilities regarding scoring the fishery
    - Client group
2. Overview of the MSC Process
    - The assessment will focus on the following three core Principles:
        - Principle 1 – Sustainable target fish stocks
        - Principle 2 – Environmental impact of fishing
        - Principle 3 – Effective Management
    - Where to find additional materials: Guide to the MSC process
3. Overview of the RFM process
    - V1.3 for the 4th surveillance and v2.01 for the reassessment; Certificate No.: 10000445828-MSC-ANSI-USA
    - Four Components:
        A. The Fisheries Management System
        B. Science and Stock Assessment Activities and the Precautionary Approach
        C. Management Measures, Implementation, Monitoring and Control
        D. Serious Impacts of the Fishery on the Ecosystem
    - General information on the scoring: The four Components encompass 13 Fundamental Clauses, which encompasses 125 Supporting Clauses. Each Supporting Clause is evaluated against performance Evaluation Parameters (EPs), which include 1) process evaluation; 2) current status/appropriateness/effectiveness; and 3)evidence basis. After the assessment team determines whether each EP is met for a Supporting Clause, that clause receives a score, a confidence rating and conformance level (e.g. Full conformance, or Minor, Major or Critical Non-conformance). Further details regarding the RFM process, information and the Standard ,etc. can be found at the following link: https://rfmcertification.org

10:15 -11:30 AM Review general topics and/or updates for fisheries for both MSC and RFM assessments

General Topics for discussion:

- General overview of the fishery, including information on the fleet, number of vessels, markets, etc.
- Any potential changes to scientific information, including stock assessments
- Any changes in management/regulation, or recent reviews (e.g. updates on EFH, protected species, bycatch mitigation)
- Changes in personnel, both within the Cooperative, the management agencies, etc.
- Updates on bycatch, any unusual events
- Enforcement update
- Meet with Captain

11:30 – 11:45 Break

11:45 – 12:30 Review traceability

- Will work through MSC template for traceability
- Topics include: evidence needs to be presented, e.g. fish tickets, invoices, etc., that has gear, area caught, species, etc.; sorting procedures; how to ensure no mixing of certified with non-certified product, other methods to ensure systems in place (dockside monitoring, observers, permits, etc.); how product is transported, any intermediary actors (e.g. auctions), and where CoC begins

12:30 – ? Questions, review timelines, wrap-up

- MSC Surveillance reports due 60 days from site visit
- Next drafts, process requirements
- Other meetings scheduled
    - John Gauvin 8AM on Friday, March 15th
    - Anne Marie Eich and Hannah Myers 2:00 PM Friday, March 15th, 2024
- Address any information still needed

Thirty days prior to the audit site visit, all stakeholders were informed of the visit and given the opportunity to provide information to the auditors in advance of, or during, the site visit. Managers, stock assessment authors and various stakeholders provided information by email, joined remotely or participated in person during the site visit. Below is a list of the attendees that participated in this site visit.

Name	Title/Role	Organization
Erin Wilson	Assessment team leader and Principle 3 Assessor	MRAG Americas
Amanda Stern-Pirlot	Principle 2 Assessor	MRAG Americas
Michealene Corlett	MRAG Quality Manager (Observer for this assessment)	MRAG Americas
Dr. Giuseppe Scarcella	Principle 1 Assessor	MRAG Americas assessment team member
Beth Concepcion	AKSC Manager	AKSC (Client Representative)
Ruth Christiansen	Director Government Affairs	Ocean Peace
Mary Beth Tooley	Government Affairs	O'Hara Corp.
Frank O'Hara III	Executive Vice President	O'Hara Corp.
Sara Webster	Biologist	AKSC
Chris Woodley	Groundfish Forum Executive Director	AKSC
TJ Durnan	Captain	AKSC
Sana Watterson	Quality Assurance and Traceability Operations	O'Hara
John Gauvin	AKSC Science Projects Director	AKSC
Dr. Anne Marie Eich	Director Protected Resources Policy	NOAA/NMFS
Dr. Hannah Myers	Postdoctoral Scholar	Oregon State University
Melissa Haltuch	Manager of the Status of the Stocks and Multispecies Assessments	Alaska Fisheries Science Center

6.2 Stakeholder input

No stakeholder comments were received during the Alaska flatfish complex RFM 4th surveillance audit.

7 Assessment Outcome / Fundamental Clauses Summaries

Much of this text was adapted from MRAG's 2023 3rd surveillance report.

7.1 The Fisheries Management System (A)

Fundamental Clause 1.

There shall be a structured and legally mandated management system based upon and respecting International, National and local fishery laws, for the responsible utilization of the stock under consideration and conservation of the marine environment.

No. supporting clauses	13

Applicable supporting clauses	6
Non-applicable supporting clauses	7 (1.3, 1.3.1, 1.4, 1.4.1, 1.5, 1.6.1, 1.9)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

Considerable resources in the form of stock assessment, ecosystem monitoring and management expertise and capacity; management organizations and structures (e.g., National Marine Fisheries Service (NMFS) Alaska region, the North Pacific Fishery Management Council (NPFMC, or Council), NOAA Fisheries Office of Law Enforcement (OLE), United States Coast Guard (USCG), Observer Program) are dedicated to fisheries, including AK flatfish complex, in Alaskan federal waters. National legislation and the regulatory process by which the Council and NMFS are directed and follow, enable the management of the resource at regional and localized levels. The adaptive and consultative management approach adopted by the Council actively promotes stakeholder participation. The NOAA Office of General Council (OGC) reviews any proposed management action to assure compliance with the Magnuson-Stevens Reauthorization Act (MSRA). International obligations (e.g., combating Illegal, Unreported and Unregulated (IUU) fishing) and the enforcement of federal regulations are upheld by the federal departments such as USCG and OLE.

The BSAI and GOA flatfish stocks are assessed independently using assessment models that take into account all sources of fishing mortality and are based on complete catch reporting systems including extensive observer data. Catch at age models synthesize data on biomass and age composition from the fishery and integrated trawl surveys conducted by the AFSC to estimate the abundance at age of BSAI and GOA flatfish stocks. Each year several assessment models are developed and evaluated by scientists using alternative life history and fishery and survey selectivity assumptions. Additionally, in BSAI and GOA models exploring stock status in relation to changing environmental conditions have also been developed and evaluated, in some of the models also flatfish stocks are considered (see: https://www.fisheries.noaa.gov/resource/data/ecosystem-status-report-2023-eastern-bering-sea; https://www.fisheries.noaa.gov/resource/data/ecosystem-status-report-2023-aleutian-islands; https://www.fisheries.noaa.gov/resource/data/ecosystem-status-report-2023-gulf-alaska).

Each model uses information on the status of the stock and potential effects of current management practices.

The North Pacific Council routinely reviews its management plans and actions as part of standard operating procedure.

The Council's FMPs explicitly describe the Council's commitment to review management issues and this is reflected in the numerous Council meetings that take place each year. Similarly, the BOF websites have dedicated pages to their public meetings and agendas and outcomes reflect a commitment to review previously agreed management measures.

There is an agreed system to finance the fishery management organizations and arrangements. In general, the costs of fisheries management and conservation are funded through Congressional and state appropriations that follow the federal and state budget cycles. Cost recovery from certain fleet sectors, including BSAI and GOA flatfish stocks, is also in operation. The MSA authorizes and requires the collection of cost recovery fees for the incremental costs of limited access privilege programs. Cost recovery fees recover the actual costs directly related to the management, data collection, and enforcement of the programs. The current groundfish observer program is a further example of management being financially supported through cost recovery. Estimates of the costs for federal and state management, research, and enforcement of the groundfish stocks in the BSAI and GOA are reported in the BSAI and GOA Groundfish FMPs.

There are procedures at multiple levels to review management measures, and the MSA is reviewed by Congress every five years and is periodically revised and reauthorized. The adaptive management approach taken in the BSAI and GOA flatfish stocks fisheries requires regular and periodic review. Component parts of the FMPs are regularly reviewed, including outcome indicators, and various levels of Environmental Impact Statements (EIS) are undertaken when the FMPs are amended in order to review the environmental and socio-economic consequences, as well as assess the effectiveness of the changes. Stakeholders are actively encouraged to participate in Council and BOF meetings and, in so doing, opportunity to review management measures is provided. Stock status is reviewed and updated annually, producing SAFE reports for the BSAI and GOA flatfish stocks. ADFG also conducts scientific research and surveys on its state-managed flatfish fisheries. These SAFE reports document stock status and significant

trends or changes in the resource, marine ecosystems and fishery over time. The reports also assess the relative success of existing state and Federal fishery management programs and based on stock status indicators, provide recommendations for annual quotas and other fishery management measures.

The Council (and NMFS) as well as the BOF (and ADFG) provide substantial amounts of information on their websites, including agenda of meetings, discussion papers, and records of decisions. The Council and the BOF actively encourage stakeholder participation, and all Council and BOF deliberations are conducted in open, public session. Anyone may submit regulatory proposals, and all such proposals are given due consideration by both the Council and the BOF.

There is no material change in compliance with any of the following supporting clauses. The BSAI and GOA flatfish stocks in Alaska are not considered to be transboundary, straddling, highly migratory, or high seas stocks and so clauses 1.3, 1.3.1, 1.4, 1.4.1, 1.5, 1.6.1, and 1.9 are not applicable.

1.1 There shall be an effective legal and administrative framework established at local and national level appropriate for fishery resource conservation and management. The management system and the fishery operate in compliance with the requirements of local, national and international laws and regulations, including the requirements of any regional fisheries management agreement.

1.2 Management measures shall consider 1) the whole stock biological unit (i.e. structure and composition contributing to its resilience) over its entire area of distribution, 2) the area through which the species migrates during its life cycle and 3) other biological characteristics of the stock.

1.2.1 Previously agreed management measures established and applied in the same region shall be taken into account by management.

1.3 Where trans-boundary, straddling or highly migratory fish stocks and high seas fish stocks are exploited by two or more States, the Applicant Management Organizations concerned shall cooperate and take part in formal fishery commission or arrangements that have been appointed to ensure effective conservation and management of the stock/s in question.

1.3.1 Conservation and management measures established for such stock within the jurisdiction of the relevant States for shared, straddling, high seas and highly migratory stocks, shall be compatible. Compatibility shall be achieved in a manner consistent with the rights, competences and interests of the States concerned.

1.4 A State not member/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/arrangement.

1.4.1 States 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.

1.5 The Applicant fishery's management system shall actively foster cooperation between States with regard to 1) information gathering and exchange, 2) fisheries research, 3) fisheries management, and 4) fisheries development.

1.6 States 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, inter alia, the relative benefits derived from the fishery and the differing capacities of countries 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.

1.6.1 Without prejudice to relevant international agreements, States 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.

1.7 Procedures shall be in place to keep the efficacy of current conservation and management measures and their possible interactions under continuous review to revise or abolish them in the light of new information.

- *Review procedures shall be established within the management system.*

- *A mechanism for revision of management measures shall exist.*

1.8 The management arrangements and decision making processes for the fishery shall be organized in a transparent manner.

- *Management arrangements*
- *Decision-making*

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.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 2.

Management organizations shall participate in coastal area management institutional frameworks, decision-making processes and activities related to the fishery and its users, in support of sustainable and integrated resource use, and conflict avoidance.

No. supporting clauses	10
Applicable supporting clauses	9
Non-applicable supporting clauses	1 (2.7)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

In managing the Alaska flatfish complex fisheries, NMFS, in conjunction with the Council and ADFG, participate in coastal area management-related issues through processes established by the NEPA, which requires that all federal agencies' funding or permitting decisions be made with full consideration of the impact to the natural and human environment. An environmental review process is required that includes a risk evaluation and evaluation of alternatives including a "no action" alternative. The Council and the BOF system were designed so that fisheries management decisions were made at the regional level to allow input from affected stakeholders. Council meetings are open, and public testimony is taken on issues prior to deliberations and final decisions. In so doing, the management organizations within Alaska and their management processes consider the rights of coastal fishing communities and their customary practices to the extent compatible with sustainable development.

The Council and BOF websites actively encourage and demonstrate participation by stakeholders at their respective public meetings and cover a wide range of topics regarding the use, development and management of coastal resources. Potential conflict between fishermen and other coastal users at the federal level are usually discussed and resolved through the NEPA process and, at the state level, through the BOF public meeting process or regional committee established as part of the state's land use and access planning processes.

The technical capacities of the federal and state agencies involved in the management of Alaska flatfish complex fisheries are significant, and include internationally recognized scientists, experienced fishery managers and policy makers and highly professional and trained enforcement officers. Appropriate technical and financial resources are in place. A joint protocol is in place between the Council and ADFG which provides the intent to provide long term cooperative, compatible management systems that maintain the sustainability of the fisheries resources in federal and state waters.

Canada abuts the U.S. border to the south and shares certain fisheries resources, however the GOA flatfish stocks are not considered to be transboundary. The United States and Canada have a very strong working relationship at both the national and regional levels. In cases involving boundary disputes and treaties governing fishery access, the USCG, NOAA, and Canadian Department of Fisheries and Oceans along with Canadian Coast Guard counterparts have effectively coordinated living marine resource enforcement efforts despite occasional related political and economic tensions. There are established agreements and shared

management and working practice (e.g., International Pacific Halibut Commission, Pacific Salmon Treaty, an Agreement between the U.S. and Canada on enforcement).

The MSRA requires the Council and other groups (BOF, ADGF, etc.) to hold public meetings within their respective regions to discuss the development and amendment of FMPs. These meetings are publicized by the Council and stakeholders actively encouraged to participate changes and allow input from stakeholders. The BOF website publishes information on forth-coming BOF meetings including the "Proposal Book" which details proposed ADFG or stakeholder-requested changes that might lead to regulatory change. Stakeholders are actively encouraged to participate at the meetings and submit proposal prior to the meetings. The OLE and AWT put an emphasis on educating and informing stakeholders of new regulatory changes and other important fishery related matters.

Fisheries of the exclusive economic zone (EEZ) off Alaska; Bering Sea and Aleutian Islands; Final 2024 and 2025 Harvest Specifications for Groundfish can be found at the following link: https://www.federalregister.gov/documents/2024/03/11/2024-05093/fisheries-of-the-exclusive-economic-zone-off-alaska-bering-sea-and-aleutian-islands-final-2024. The Final 2024 and 2025 GOA Harvest Specifications can be found at the following: https://www.federalregister.gov/documents/2024/03/04/2024-04516/fisheries-of-the-exclusive-economic-zone-off-alaska-gulf-of-alaska-final-2024-and-2025-harvest.

The Community Development Quota (CDQ) program was created by the Council in 1992 to provide western Alaska communities an opportunity to participate in the BSAI fisheries that had been foreclosed to them because of the high capital investment needed to enter the fishery. The program involves eligible communities who have formed six regional organizations, referred to as CDQ groups. There are 65 communities within a 50-mile radius of the BS coastline who participate in the program. The CDQ program allocates a percentage of the BSAI quotas to CDQ groups. The program is reviewed every 10 years, with the last review occurring in 2012. Analysis by the State of Alaska in 2013 determined that each CDQ entity had maintained or improved performance against its objectives. The CDQ program provides an example of how the management system takes account of the allocation and use of coastal resources with respect to their economic, social and cultural value.

A considerable amount of monitoring of the coastal environment in Alaska is conducted and supported by multiple federal and state agencies (e.g., NMFS, AFSC, ADFG, universities such as the University of Alaska Fairbanks' Institute of Marine Science, and organizations that support and facilitate marine research such as the North Pacific Research Board [NPRB]). The NPRB have helped fund two major projects in the Alaska region: The Bering Sea Project and the Gulf of Alaska Ecosystem Study. AFSC has established the Ecosystem Monitoring and Assessment Program with an overall goal to improve and reduce uncertainty in stock assessment models of commercially important fish species through the collection of observations of fish and oceanography.

The State of Alaska is represented in the Oil Spill Task Force by the Department of Environmental Conservation. Its Division of Spill Prevention and Response prevents spills of oil and hazardous substances, prepares for when a spill occurs and responds rapidly to protect human health and the environment. The Oil Spill Recovery Institute located in PWS conducts research into oil spills and their effects on the Alaskan environment, particularly the natural resources in PWS.

There is no material change in compliance with any of the following supporting clauses. Clause 2.7 is not applicable.

2.1 An appropriate policy, legal and institutional framework shall be adopted in order to achieve sustainable and integrated use of living marine resources, taking into account 1) the fragility of coastal ecosystems and finite nature of their natural resources; 2) allowing for determination of the possible uses of coastal resources and govern access to them, 3) taking into account 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, 4) States shall take due account of the risks and uncertainties involved.

2.1.1 States shall establish mechanisms for cooperation and coordination among national authorities involved in planning, development, conservation and management of coastal areas.

2.1.2 States shall ensure that the authority or authorities representing the fisheries sector 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 involved in other activities related to coastal area management planning and development. The public shall also be kept aware on the need for the protection and management of coastal resources and the participation in the management process by those affected.

2.3 Fisheries practices that avoid conflict among fishers and other users of the coastal area (e.g. aquaculture, 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 which arise within the fisheries sector and between fisheries resource users and other coastal users.

2.4 States 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 in order to assist decision-making on their allocation and use.

2.6 States shall cooperate at the sub-regional level in order to improve coastal area management, and in accordance with capacities, measures shall be taken to establish or promote systems for research and monitoring of the coastal environment, in order to improve coastal area management, and promote multidisciplinary research in support and improvement of coastal area management using physical, chemical, biological, economic, social, legal and institutional aspects.

*2.7 States shall, within the framework of coastal area management plan, establish management systems for artificial reefs and fish aggregation devices. Such management systems shall require approval for the construction and deployment of such reefs and devices and shall take into account the interests of fishers, including artisanal and subsistence fishers.******Not applicable within this fishery.***

2.8 In the case of activities that may have an adverse transboundary environmental effect on coastal areas, States shall:

a) Provide timely information and if possible, prior notification to potentially affected States.

b) Consult with those States as early as possible.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 3.

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

No. supporting clauses	8
Applicable supporting clauses	8
Non-applicable supporting clauses	0
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

The Council manages the Alaska flatfish under the jurisdiction of the BSAI Groundfish Fishery Management Plan (FMP), and the GOA Groundfish FMP. Within these FMPs are nine management and policy objectives, that are reviewed annually. These include preventing overfishing, preserving the food web, and reducing bycatch and waste. The BOF, identified guiding principles when developing their initial groundfish management, which are similar to the Council objectives.

The Alaska License Limitation Program (LLP) has been in place since 2000. The intent of the program has been to use fishing track records to rationalize the Alaska groundfish and crab fleet by limiting the number, size and specific operation of vessels as well as eliminating latent licenses. The Restricted Access Management Program has prepared lists of LLP groundfish and crab licenses. LLP licenses are initially issued to persons, based on the activities of original qualifying vessels.

Amendment 80, implemented in 2008, allocates BSAI yellowfin sole, flathead sole, rock sole, Atka mackerel, and Aleutian Islands Pacific Ocean perch to the head and gut trawl catcher processor sector, and allows qualified vessels to form cooperatives (NPFMC, 2023). The program establishes GOA groundfish sideboard limits for pollock, Pacific cod, Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish, as well as

GOA halibut prohibited species catch (PSC). GOA sideboard restrictions are based on historic participation during 1998-2004 (NPFMC 2023).

Groundfish licenses are currently required to participate in the BSAI groundfish fisheries in Federal waters of Alaska. Licenses may contain endorsements for both areas (EBS and AI), or one of the two areas. Gear endorsements define what type of gear may be used: non-trawl, trawl, or both. The GOA groundfish fisheries are among the few remaining limited access (not rationalized) fisheries in Alaska.

General state-wide groundfish regulations include a vessel registration requirement, legal gear definitions, bycatch allowances, and requirements for seabird avoidance measures to be used when fishing with longline gear. The state fisheries for Alaska flatfish complex are not closed access fisheries.

The MSRA requires that conservation and fisheries management measures prevent overfishing while achieving OY on a continuing basis. NMFS and the Council follow a multi-faceted PA (OFL, ABC, TAC, OY) to manage the federal Alaska flatfish complex fisheries, based on targets, limits, and pre-defined harvest control rules (HCRs), as well as overall ecosystem considerations (e.g., the OY limits). The fisheries management system is supported by high level science, and management measures have been generally effective in avoiding overfishing and promoting responsible fishing. Objectives for the BSAI and GOA are set out in the FMPs and include the need to take into account socio-economic considerations. Estimates of ex-vessel value by area, gear, type of vessel, and species, are included in the annual Economic Status SAFE report (see: https://www.fisheries.noaa.gov/tags/north-pacific-groundfish-stock-assessments), and each stock assessment SAFE also contains extensive economic data.

FMPs, protected species management plans, and biological opinion reviews are all supported by well-designed data-gathering programs and analyses, widely available through NMFS and Council websites. These are, in relation to the complexity of factors which may affect species dynamics, comprehensive and rigorous in their analysis.

There are mechanisms developed to identify significant effects on essential fish habitat (EFH) and for identifying habitat areas of particular concern and are considered consistent with achieving management objectives for avoidance, minimization or mitigation of impacts 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. This is further supported by habitat ecosystem indicators considered as part of the SAFE process. There are processes in place – primarily through FMPs, endangered species management plans and Biological Opinions and EISs of the various plans - that allow for direct and indirect impacts that are likely to have significant (not only serious) consequences to be addressed.

There are several processes in place which address actual or potential impacts identified through the monitoring of the groundfish fishery and the ecosystem supporting the fishery. The primary mechanism is the annual SAFE report. There are specific processes through NMFS and U.S. Fish and Wildlife Service (USFWS) to review potential impacts (generally indirect effects through changes in prey availability) on endangered species (through the Endangered Species Act, ESA) and marine mammals (Marine Mammal Protection Act, MMPA).

Recent Updates:

Catches of BSAI and GOA flatfish continue to be constrained by halibut bycatch limits as fishermen make fishing decisions at all times throughout the year to avoid halibut. The 11 stocks considered in the present surveillance report are above MSY level both in BSAI and in GOA (See Figure 1 and Figure 2).

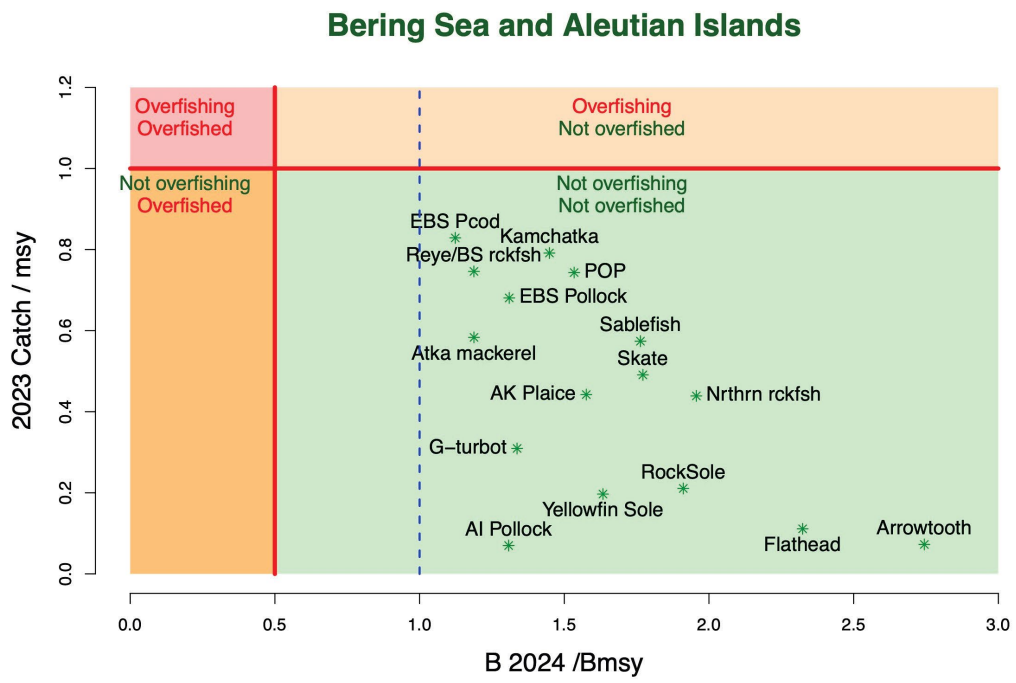


Figure 1 Summary of Bering Sea stock status next year) spawning biomass relative to Bmsy; horizontal axis) and current year catch relative to fishing at Fmsy (vertical axis) where FOFL is taken to equal Fmsy. Source: Aydin et al., 2023

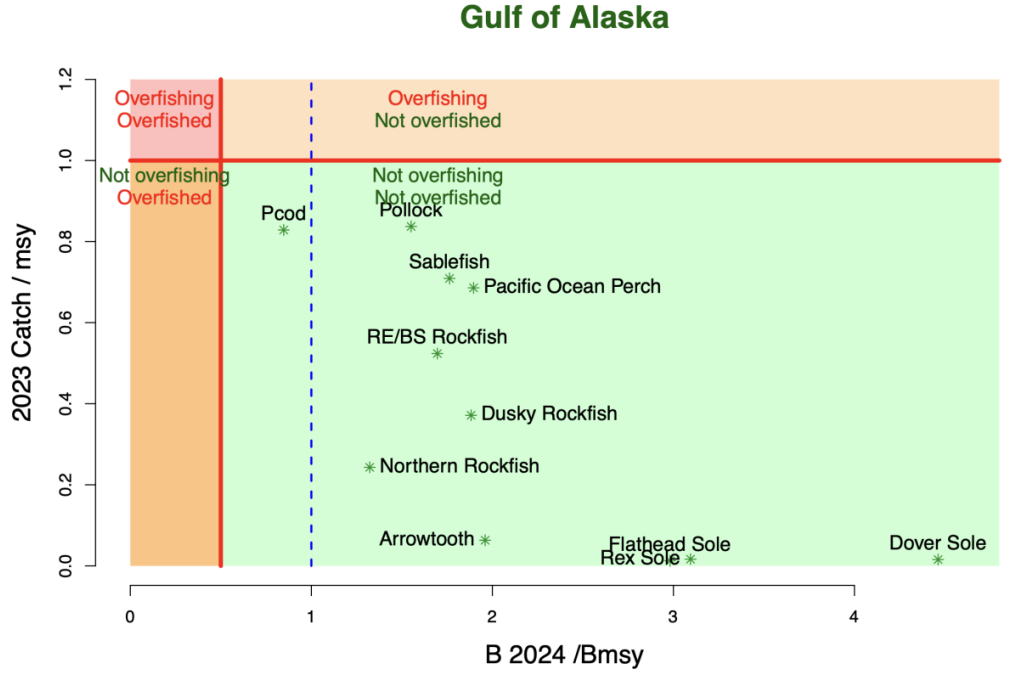


Figure 2 Summary of Gulf of Alaska stock status next year)spawning biomass relative to Bmsy; horizontal axis) and current year catch relative to fishing at Fmsy (vertical axis). Note that sablefish is for Alaska-wide values including BSAI catches. Source: Adams et al., 2023.

The scheduled frequency for some flatfish stock assessments was recently changed in response to a review of the National Stock Assessment Prioritization effort (Methot, 2015; Hollowed et al., 2016). In previous years, Bering Sea and Aleutian Island (BSAI) and Gulf of Alaska (GOA) flatfish stocks were assessed on a biennial stock assessment schedule to coincide with the availability of new survey data. Following the prioritization review, it was recommended that BSAI and GOA flatfish change to a quadrennial stock assessment schedule with a full stock assessment produced every four years and a harvest projection produced in alternate years.

NOAA Fisheries issued the final rule to implement Amendment 123 to the BSAI FMP. This final rule amends the regulations governing limits on Pacific halibut (*Hippolgossus stenolepis*) prohibited species catch (PSC) to link the halibut PSC limit for the Amendment 80 commercial groundfish trawl fleet in the BSAI groundfish

fisheries to halibut abundance. This is necessary to comply with the Magnuson Stevens Act (MSA) that FMPs minimize bycatch to the extent practicable. Effective date of the final rule was January 1, 2024.[1]
The North Pacific Fishery Management Council (NPFMC) reviewed the Fishery Management Plans (FMP) omnibus amendment analysis and proposed FMP amendment text based on the 2023 EFH 5 year Review. The Council took final action and selected Alternative 2, which is summarized as follows:
Alternative 2, the preferred alternative, will update the EFH information in the BSAI&GOA groundfish, BSAI crab and Arctic FMPs. These updates include updated EFH maps, text descriptions, results of the fishing effects (FE) on habitat, prey species tables, non-fishing effects report and research and information needs (NPFMC, 2023).

There is no material change in compliance with any of the following supporting clauses.

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.

3.2 Management measures shall provide inter alia that:

3.2.1 Excess fishing capacity shall be avoided and exploitation of the stocks remains 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 habitats and ecosystems shall be conserved and endangered species shall be protected. Where relevant, there shall be pertinent objectives, and as necessary, management measures.

3.2.5 There shall be management objectives seeking to avoid, minimize or mitigate 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.

3.2.6 There shall be management objectives that seek to minimize adverse impacts of the unit of certification, including any enhancement activities, on the structure, processes and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

[1] https://www.federalregister.gov/documents/2023/11/24/2023-25513/fisheries-of-the-exclusive-economic-zone-off-alaska-bering-sea-and-aleutian-islands-halibut

7.2 Science and Stock Assessment Activities (B)

Fundamental Clause 4.

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

No. supporting clauses	13
Applicable supporting clauses	8
Non-applicable supporting clauses	5
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

NMFS and ADFG collect fishery data and conduct fishery independent surveys to assess the Alaska flatfish complex fisheries and ecosystems in GOA and BSAI areas. SAFE reports (see: https://www.fisheries.noaa.gov/tags/north-pacific-groundfish-stock-assessments) provide complete descriptions of the data collected and used in the annual assessments, used to determine stock status and harvest recommendations for the Alaskan target stocks. For these fisheries, there is a well-established system that allows for the production, maintenance, regular update, and verification of statistical data. Reporting of commercial catch from both state and federally managed fisheries is done through the Catch Accounting System, a multi-agency (NMFS, International Pacific Halibut Commission, and ADFG) system that centrally collates landings data from shore-based processing and landings operations as well as retained catch observations from individual vessels. Catch reports for previous years can be found on the NMFS and ADFG websites. The Alaska Fisheries Information Network maintains an analytic database of both state and federal commercial fisheries data in Alaska and provides that data in usable formats.

All data from the state and federally are included in the stock assessments. Relative to commercial catch, there is minimal recreational, personal use, or subsistence fishing for Alaska flatfish complex in Alaskan waters, and all estimates of such catches compiled by ADFG are included in the assessment catch data. Smaller scale fisheries managed by ADFG and BOF are controlled with specified GHL and other regulations, such as closed areas around Steller sea lion rookeries.

Amendment 86 to the FMP of the BSAI and Amendment 76 to the FMP of the GOA established the new North Pacific Groundfish and Halibut Observer Program, and all vessels fishing for groundfish in federal Alaskan waters are required to carry observers, at their own expense, for at least a portion of their fishing time. Data gathered in the Observer Program cover all biological information from commercial fisheries, including catch weights (landings and discards), catch demographics (species composition, length, sex and age) and interactions with species such as sharks, rays, seabirds, marine mammals and other species with limited or no commercial value. NMFS and the Council have developed at-sea electronic monitoring to integrate video monitoring into the Observer Program to improve data collection. On August 8, 2017, NMFS published a final rule to integrate electronic monitoring into the Observer Program (Ganz et al. 2018). Observer coverage in the groundfish fisheries has been at or near 100% for the past several years, while in the GOA, lower coverage rates exist. Detailed annual reports (e.g., Alaska Fisheries Science Center and Alaska Regional Office 2020) from the Observer Program can be found on NMFS website, and provide extensive information on the Observer Program, including observer deployments, coverage rates, data collections, etc.

NMFS and ADFG have extensive scientific databases which include Alaska flatfish complex stocks, and the Council has substantial information on management of target stocks in Alaskan waters. These data are made widely available through the agency websites, publications and at various publicly attended meetings. Data on certain aspects of commercial fishing are considered to be confidential, such as individuals or individual vessels in the analysis of fishery catch-per-unit-effort data, depending on the number of individuals or entities involved. Annual economic SAFE reports (e.g., Adams et al. 2023; Aydin et al. 2023) on social/cultural/economic value of the Alaskan fisheries resources are produced, which include extensive information also about the Alaska flatfish complex fisheries. Individual assessment SAFE reports of flatfish stocks have extensive sections on the economic performance of the fisheries. Alaska supports both the Alaska Seafood Marketing Institute and the Kodiak Seafood and Marine Science Center to stimulate research and to support and distribute the benefits of seafood in human diets.

There is no material change in compliance with any of the following supporting clauses. Clauses 4.7, 4.8, 4.9, 4.10, and 4.11 are not applicable.

4.1. All fishery removals and mortality of the target stock(s) 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 objectively be 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 and sub-regional, regional and global 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 the setting of 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 for fisheries with low risk to that "stock under consideration". 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.

4.3. Sub-regional or 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 national policies related to fish as food.

4.5. States shall ensure that a sufficient knowledge of the economic, social, marketing and institutional aspects of fisheries is collected through data gathering, analysis and research and that comparable data are generated for ongoing monitoring, analysis and policy formulation.

4.6. States 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 States conducting scientific research activities in waters under the jurisdiction of another State shall ensure that their vessels comply with the laws and regulations of that State and international law. ***Not applicable to this fishery**

4.8 States shall promote the adoption of uniform guidelines governing fisheries research conducted on the high seas and shall, where appropriate, support the establishment of mechanisms, including, inter alia, the adoption of uniform guidelines, to facilitate research at the sub-regional or regional level and shall encourage the sharing of such research results with other regions. ***Not applicable to this fishery**

4.9 States 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. ***Not applicable to this fishery**

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. ***Not applicable to this fishery**

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 island developing countries. ***Not applicable to this fishery**

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

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.

No. supporting clauses	7
Applicable supporting clauses	6
Non-applicable supporting clauses	1 (5.4)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

NMFS has a well-established institutional framework for research developed within the AFSC, which operates several laboratories and Divisions, including the Auke Bay Laboratories in Alaska which conduct scientific research on fish stocks, fish habitats, and the chemistry of marine environments. Peer reviewed stock assessments are done annually and used as the scientific basis to set catch quotas, taking into account uncertainty and evaluating stock status relative to reference points in a probabilistic way. The SAFE reports are compiled annually by the Council and include a volume on Ecosystem Considerations. The SAFE report provides information on the historical catch trend, estimates of the maximum sustainable yield (MSY) or proxy of the groundfish complex as well as its component species groups, assessments on the stock condition of individual species groups; assessments of the impacts on the ecosystem of harvesting the groundfish complex at the current levels given the assessed condition of stocks. This includes consideration of rebuilding depressed stocks; and alternative harvest strategies and related effects on the component species groups.

The SAFE documents are reviewed first by the Council's Groundfish Plan Team, then by the SSC and Advisory Panel, and finally by the full Council. Upon review and acceptance by the SSC, the SAFE report and any associated SSC comments constitute the best scientific information available for purposes of the MSRA. The AFSC periodically requests a more comprehensive external review of groundfish stock assessments by the Center of Independent Experts (CIE).

The assessments receive peer review at three levels. The first is internal, in that the Plan Team meets with the assessment staff before, possibly during, and after the assessment is prepared. The first meeting is to scope the options and scenarios that should be explored in the annual assessment, based on the assessment of the previous year(s) and feedback about how the previous year's fishery has unfolded. Meetings between the assessment staff and the Plan Team occur in a somewhat ad hoc manner, depending on what issues may arise during preparation of the assessment. The number of such meetings can vary between years, depending on the number and type of issues that arise in developing the annual assessment, but in recent years have rarely been fewer than five and sometimes as many as nine. As the assessment nears completion, a meeting with the Plan Team is held to review results and presentation material, to be sure that the assessment is ready for presentation to the Council's SSC. In a narrow sense only the final meeting of the NOAA Plan Team and assessment staff might be considered "peer review" of the assessment; but in fact just as "assessment" is both a process and a product, in a slightly broader sense all the meetings between the Plan Team and the assessment staff can be considered part of an internal peer review process, since all of the meetings have the coverage and quality of the assessment as their primary concern. Once the assessment document is complete, each one receives a thorough and largely external review by the SSC. All technical aspects of the assessment and the coverage of issues by alternative model formulations and scenarios are reviewed by the SSC, which can request re-runs or deletion or addition of analyses, as they consider necessary, to have a sound assessment as a basis for subsequent consultation and decision-making. The make-up of the SSC includes both employees of NMFS and independent experts in ecological, economic, and social sciences. However, none has a direct involvement in preparation of the assessment, and all participants are expected to act in their expert capacities rather than as institutional representatives. Thus, the SSC review can be considered an external review of the assessment.

Finally, the CIE routinely conducts stock assessment reviews using leading international experts in stock assessments for Alaska fisheries.

Data collected by scientists from the many surveys and Alaska flatfish complex fisheries are analyzed and presented in peer reviewed meetings and/or in primary literature, following rigorous scientific protocols. Results of these analyses are disseminated in a timely fashion through numerous methods, including scientific publications, and as information on NMFS, ADFG, and Council websites, in order to contribute to fisheries conservation and management. Confidentiality of individuals or individual vessels (e.g., in the analysis of fishery catch-per-unit-effort data) is fully respected where necessary.

The Council receives comprehensive presentations on the status of the EBS, AI, and GOA marine ecosystems (see: https://access.afsc.noaa.gov/REFM/REEM/EcoWeb/) at its SSC and Advisory Panel meetings as part of its annual management process for Alaskan groundfish. These are prepared and presented by NMFS scientists and contain report cards which look at a wide range of environmental and ecosystem variables, such as physical and environmental trends, zooplankton biomass, predator and forage species biomass, and seabird and marine mammal data. EFH is identified for managed fish species, including flatfish stocks. NPRB and the National Science Foundation identifies research priorities and funds studies about the BS ecosystem from atmospheric forcing and physical oceanography to humans and communities, as well as socio-economic impacts of a changing marine ecosystem. Scientists and researchers from a number of agencies and universities are involved. Ecosystem modelling, sound data management, and education and outreach activities are included in the program. An integrated GOA Ecosystem project, also funded by the NPRB, is examining recruitment processes of major groundfish species.

The Oil Spill Recovery Institute was established by U.S. Congress in response to the 1989 Exxon Valdez oil spill and is administered through and housed at the Prince William Sound Science Center, a non-profit research and education organization located in Cordova, AK. The Center facilitates and encourages ecosystem studies in the greater PWS region.

U.S. cooperates through relevant international organizations, such as the North Pacific Marine Science Organization, to encourage research in order to ensure optimum utilization of all fishery resources. Although the fisheries for flatfish stocks are conducted entirely within the U.S. EEZ, there is also scientific cooperation with neighbouring countries such as Canada. The Technical Subcommittee (TSC) of the Canada-U.S. Groundfish Committee (http://www.psmfc.org/tsc2) was formed in 1960 to coordinate fishery and scientific information resulting from the implementation of commercial groundfish fisheries operating in U.S. and Canadian waters off the West Coast. Representatives from Canadian and American state/provincial and federal agencies continue to meet annually to exchange information and to identify data gaps and information needs for groundfish stocks of mutual concern from California to Alaska. Not all of these are transboundary stocks (e.g., Pacific halibut). Each agency prepares a comprehensive annual report highlighting survey and research activities, including stock assessments. These reports are compiled into an annual TSC report that is published online.

There is no material change in compliance with any of the following supporting clauses. Clause 5.4 is not applicable.

5.1. An appropriate institutional framework shall be established to determine the applied research which is required and its proper use (i.e. assess/evaluate stock assessment model/practices) for fishery management purposes.

5.1.1 With the use of less elaborate methods for stock assessment frequently used for small scale or low value capture fisheries resulting in greater uncertainty about the state of the stock under consideration, more precautionary approaches to managing fisheries on such resources shall be required, including where appropriate, lower level of utilization of resources. A record of good management performance may be considered as supporting evidence of the adequacy and the management system.

5.1.2 States shall ensure that appropriate research is conducted into all aspects of fisheries including biology, ecology, technology, environmental science, economics, social science, aquaculture and nutritional science. Results of analyses shall be distributed in a timely and readily understandable fashion in order that the best scientific evidence is made available as a contribution to fisheries conservation, management and development. States shall also ensure the availability of research facilities and provide appropriate training, staffing and institution building to conduct the research, taking into account the special needs of developing countries.

5.2. There shall be established research capacity necessary to assess and monitor 1) the effects of climate or environment change on fish stocks and aquatic ecosystems, 2) the state of the stock under State jurisdiction, and for 3) the impacts of ecosystem changes resulting from fishing pressure, 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 aquatic stocks. ***Not applicable to this fishery**

5.5. Data generated by research shall be analysed and the results of such analyses published in a way that ensures confidentiality is respected, where appropriate.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

7.3 The Precautionary Approach (C)

Fundamental Clause 6.

The current state of the stock shall be defined in relation to reference points or relevant proxies or verifiable substitutes allowing for effective management objectives and targets. Remedial actions shall be available and taken where reference point or other suitable proxies are approached or exceeded.

No. supporting clauses	4
Applicable supporting clauses	4
Non-applicable supporting clauses	0
Overall level of conformity	Medium
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

Information for assessing the status of flatfish come from the Stock Assessment and Fishery Evaluation (SAFE) reports (see: https://www.fisheries.noaa.gov/tags/north-pacific-groundfish-stock-assessments).

Catches of BSAI and GOA flatfish continue to be constrained by halibut bycatch limits as fishermen make fishing decisions at all times throughout the year to avoid halibut. The 11 stocks considered in the present surveillance report are above MSY level both in BSAI and in GOA (Figure 3 and Figure 4 and the following paragraph by stock).

In term of management of the stocks, i.e., harvest strategy, harvest control rules (HCRs), data collection, and assessment approaches, evidence was provided by stakeholders during the site visit that there wasn't any notable change, and the observer programme was in place as usual.

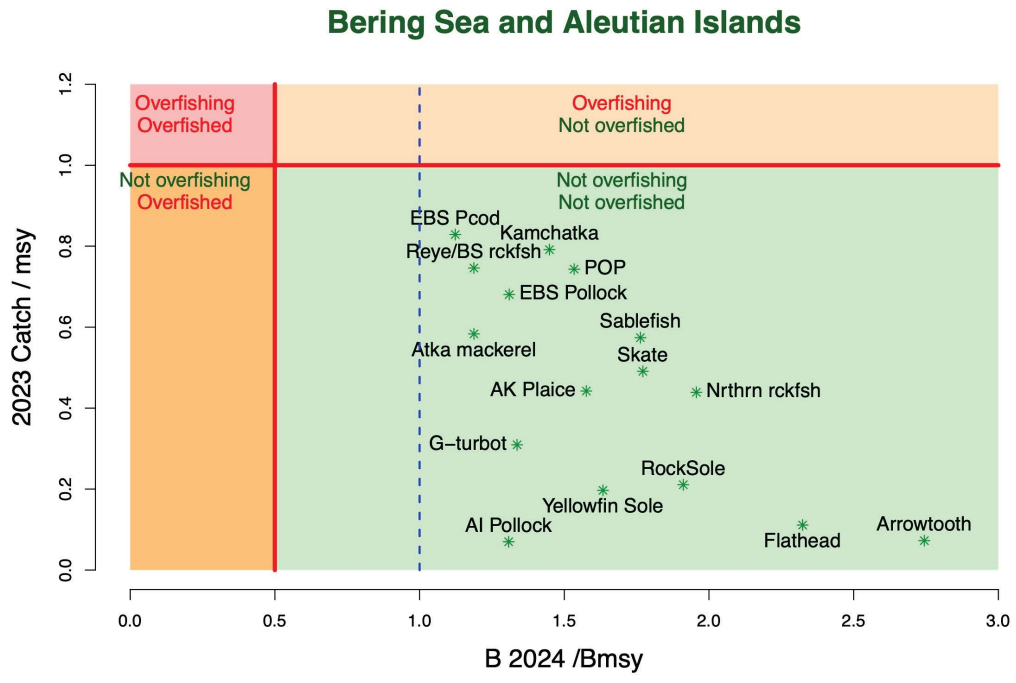


Figure 3. Summary of Bering Sea stock status next year (spawning biomass relative to B_{MSY}; horizontal axis) and current year catch relative to fishing at F_{MSY} (vertical axis) where FOFL is taken to equal F_{MSY}. Source: Aydin et al., 2023.

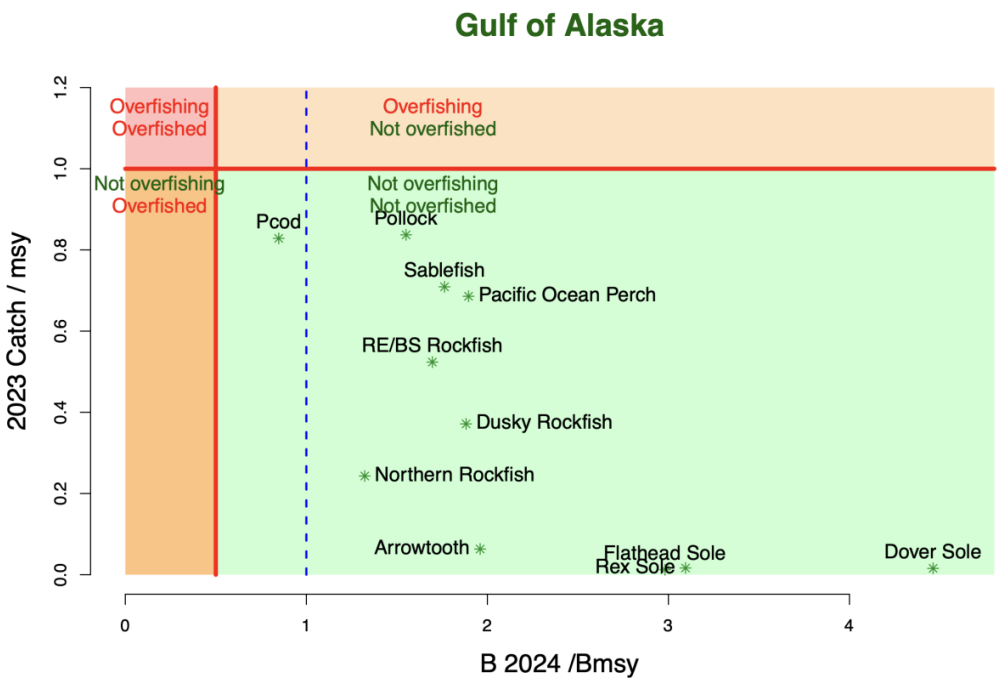


Figure 4. Summary of Gulf of Alaska stock status next year (spawning biomass relative to B_{MSY}; horizontal axis) and current year catch relative to fishing at F_{MSY} (vertical axis). Note that sablefish is for Alaska-wide values including the BSAI catches. Source: Adams et al., 2023.

The scheduled frequency for some flatfish stock assessments was recently changed in response to a review of the National Stock Assessment Prioritization effort (Methot, 2015; Hollowed et al., 2016). In previous years, Bering Sea and Aleutian Island (BSAI) and Gulf of Alaska (GOA) flatfish stocks were assessed on a biennial stock assessment schedule to coincide with the availability of new survey data. Following the prioritization review, it was recommended that BSAI and GOA flatfish change to a quadrennial stock assessment schedule with a full stock assessment produced every four years and a harvest projection produced in alternate years.

BSAI arrowtooth flounder

For 2023 off-cycle year, the harvest projection assessment is presented in Shotwell et al. (2023a). Shotwell et al. (2022) present the last full stock assessment and fishery evaluation (SAFE).

Statistical age-structured model as the primary assessment tool for the BSAI arrowtooth flounder stock is routinely used, which qualifies as a Tier 3 stock. This 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. The data sets used in this assessment include total catch biomass, fishery size compositions, bottom trawl survey biomass estimates, bottom trawl survey age compositions, and bottom trawl survey size compositions when age compositions are not available. For an off-cycle year, the projection model with new catch information is updated. This incorporates the most current catch information without re-estimating model parameters and biological reference points. There were no changes from the 2022 assessment model (Shotwell et al., 2022) as 2023 is an off-cycle year. New data added to the projection model included updated catch data from 2021-2022 and new estimated catches for 2023-2025.

The projected total biomass for 2024 is 921,062 t. The recommend ABC for 2024 is 87,690 t, the maximum allowable ABC under Tier 3a. This ABC is a 4.6% increase compared to the 2023 ABC of 83,852 and a 0.2% increase from the projected 2024 ABC from the last year's assessment. The 2024 BSAI OFL for arrowtooth flounder is 103,280 t.

Reference values for arrowtooth flounder are summarized in Table 3. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished. The tests for evaluating these three statements on status determination require examining the official total catch from the most recent complete year and the current model projections of spawning biomass relative to B35% for 2023 and 2025. The official total catch for 2022 is 7,857 t, which is less than the 2022 OFL of 94,445 t; therefore, the stock is not being subjected to overfishing. The estimates of spawning biomass for 2023 and 2025 from the current year (2023) projection model are 514,817 t and 559,145 t, respectively. Both estimates are well above the estimate of B35% at 196,427 t and, therefore, the stock is not currently overfished nor approaching an overfished condition.

Table 3. BSAI arrowtooth flounder assessment outputs. Source: Shotwell et al., 2023a

Quantity/Status	As estimated or *specified last* year for: 2023	2024	As estimated or *recommended this* year for: 2024*	2025*
M (natural mortality)**	0.2, 0.35	0.2, 0.35	0.2, 0.35	0.2, 0.35
Tier	3a	3a	3a	3a
Projected total (age 1+) biomass (t)	929,274	919,797	921,062	907,809
Projected female spawning biomass (t)	514,577	537,999	539,030	559,145
$B_{100\%}$	561,219	561,219	561,219	561,219
$B_{40\%}$	224,487	224,487	224,487	224,487
$B_{35\%}$	196,427	196,427	196,427	196,427
F_{OFL}	0.174	0.174	0.174	0.174
maxF_{ABC}	0.146	0.146	0.146	0.146
F_{ABC}	0.146	0.146	0.146	0.146
OFL (t)	98,787	103,070	**103,280**	104,270
*max*ABC (t)	83,852	87,511	87,690	88,548
ABC (t)	83,852	87,511	**87,690**	88,548
Status	As determined *last* year for: 2022	2023	As determined *this* year for: 2023	2024
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 an estimated catch of 7,175 t for 2023 and estimates of 10,701 t and 9,689 t used in place of maximum permissible ABC for 2024 and 2025.
**Natural mortality rate is 0.2 for females, 0.35 for males.

Catch of arrowtooth flounder decreased in the Bering Sea but increased in the Aleutian Islands in 2023 compared to 2022. The Bering Sea catch is the lowest in the time series while the Aleutian Islands is slightly below the long-term mean. About 48% of the catch was in the Arrowtooth and Kamchatka flounder fishery, 26% in the yellowfin sole, flathead sole, and other flatfish fisheries, 9% in the rockfish fisheries, 8% in the Pacific cod fishery, 3% in the sablefish fishery, and 3% in the pollock fishery.
The Alaska Fisheries Science Center (AFSC) eastern Bering Sea (EBS) bottom trawl shelf survey was conducted in 2023. The EBS arrowtooth flounder biomass estimate was 462,575 (t) for 2023, which was 11% lower than the 2022 survey, but slightly above the long-term average for the time series.

GOA arrowtooth flounder

For 2023 off-cycle year, the harvest projection assessment is presented in Shotwell et al. (2023b). Shotwell et al. (2021) present the last full stock assessment and fishery evaluation (SAFE).
A statistical age-structured model as the primary assessment tool for the GOA arrowtooth flounder stock is used, which qualifies as a Tier 3 stock. This 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. The data sets used in this assessment include total catch biomass, fishery size compositions, bottom trawl survey biomass estimates, bottom trawl survey age compositions, and bottom trawl survey size compositions when age compositions are not available. For an off-cycle year, the projection model with new catch information is updated. This incorporates the most current catch information without re-estimating model parameters and biological reference points.
There were no changes from the 2021 assessment model (Shotwell et al., 2021) as this is an off-cycle year. New data added to the projection model included updated catch data from 2021-2022 and new estimated catches for 2023-2025.
The projected total biomass for 2024 is 1,295,410 t. The recommend ABC for 2024 is 119,249 t, the maximum allowable ABC under Tier 3a. This ABC is a 0.2% decrease compared to the 2023 ABC of 119,485 and a 1% increase from the projected 2024 ABC from the last year's assessment. The 2024 GOA-wide OFL for arrowtooth flounder is 142,485 t.
Reference values for arrowtooth flounder are summarized in Table 4. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished. The tests for evaluating these three statements on status determination require examining the official total catch from the most recent complete year and the current model projections of spawning biomass relative to B35% for 2023 and 2025. The official total catch for 2022 is 11,631 t, which is less than the 2022 OFL of 143,100 t; therefore, the stock is not being subjected to overfishing. The estimates of spawning biomass for 2023 and 2025 from the current year (2023) projection model are 696,871 t and 695,299 t, respectively. Both estimates are well above the estimate of B35% at 356,544 t and, therefore, the stock is not currently overfished nor approaching an overfished condition.

Table 4. GOA Arrowtooth flounder assessment outputs. Source: Shotwell et al., 2023b

	As estimated or *specified*		As estimated or	
Quantity/Status	2023	2024	2024*	2025*
M (natural mortality)	0.2	0.2	0.2	0.2
Tier	3a	3a	3a	3a
Projected total (age 1+) biomass (t)	1,265,950	1,269,510	1,295,410	1,311,810
Projected female spawning biomass (t)	702,074	690,799	698,842	695,299
$B_{100\%}$	1,018,700	1,018,700	1,018,700	1,018,700
$B_{40\%}$	407,478	407,478	407,478	407,478
$B_{35\%}$	356,544	356,544	356,544	356,544
F_{OFL}	0.225	0.225	0.225	0.225
$maxF_{ABC}$	0.185	0.185	0.185	0.185
F_{ABC}	0.185	0.185	0.185	0.185
OFL (t)	142,749	141,008	**142,485**	142,074
*max*ABC (t)	119,485	118,014	119,249	118,912
ABC (t)	119,485	118,014	**119,249**	118,912
	As determined *last* year for:		As determined *this* year for:	
Status	2022	2023	2023	2024
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 an estimated catch of 9,029 t for 2023 and estimates of 17,576 t and 15,516 t used in place of maximum permissible ABC for 2024 and 2025.

Catch of arrowtooth flounder decreased in all areas except west Yakutat where it stayed the same in 2023 compared to 2022. The central GOA catch is the lowest in the time series while catch in the other areas were all well below the long-term mean. About 76% of the catch was in the arrowtooth flounder fishery, 9% in the rockfish fisheries, 8% in the pollock fishery, 2% in the sablefish fishery, 1% in the Pacific cod fishery, and the remainder in other flatfish fisheries. Currently, “off-year” assessments are required to present a catch to biomass ratio, which is calculated as the catch divided by the total age 1+ biomass from the assessment model and for 2022 and 2023 total biomass is used from the projection model (Shotwell et al. 2021).
The Alaska Fisheries Science Center (AFSC) GOA bottom trawl survey was conducted in 2023. The GOA arrowtooth flounder biomass estimate was 1,192,608 (t) for 2023, which was 5% higher than the 2021 survey, but still below the long-term average for the time series. Geostatistical model (vector autoregressive spatio-temporal or VAST with lognormal observation error) estimates were also provided for arrowtooth flounder from the GOA bottom trawl survey. These estimates were very similar in trend to the design-based estimates but had reduced error over most years.

<u>BSAI Kamchatka Flounder</u>
Bering Sea and Aleutian Islands (BSAI) Kamchatka flounder are assessed biennially according to the stock assessment prioritization schedule. A forward projecting age structured model is the primary assessment tool for BSAI Kamchatka flounder, which qualifies as a Tier 3 stock. The assessment model is not run during an off-cycle year as 2023 (Bryan, 2023a). During odd years, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2022, information regarding the stock assessment model and results is available online (Bryan et. al, 2022). A full stock assessment document with updated assessment and projection model results is scheduled for November, 2024
New data added to the projection model included an updated 2022 catch of 8,369 t and new catch estimates for 2023-2025. Based on the projection model results, recommended ABCs for 2024 and 2025 are 7,498 t and 7,360 t. The recommended OFLs are 8,850 t and 8,687 t for 2024 and 2025, respectively. The new ABC and OFL recommendations for 2024 are similar to the 2023 ABCs and OFL developed using the 2022 full assessment model. The stock is not overfished, and is not approaching a condition of being overfished. The results are presented in Table 5.

Table 5. BSAI Kamchatka flounder assessment outputs. Source: Bryan, 2023a

	Tier 3 assessment model			
	As estimated last year for		As estimated this year for	
Quantity	2023	2024	2024	2025
M (natural mortality rate)	0.11	0.11	0.11	0.11
Tier	3a	3a	3a	3a
Projected total (age 2+) biomass (t)	121,977	118,713	119,565	116,651
Projected female spawning biomass	47,877	47,387	47,849	47,330
Projected				
$B_{100\%}$	94,370	94,370	94,370	94,370
$B_{40\%}$	37,748	37,748	37,748	37,748
$B_{35\%}$	33,029	33,029	33,029	33,029
F_{OFL}	0.103	0.103	0.103	0.103
$maxF_{ABC}$	0.086	0.086	0.086	0.086
F_{ABC}	0.086	0.086	0.086	0.086
OFL (t)	8,946	8,776	8,850	8,687
maxABC (t)	7,579	7,435	7,498	7,360
ABC (t)	7,579	7,435	7,498	7,360
	As determined *last* year for:		As determined *this* year for:	
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

**Projections are based on model 16.0b. Catch in 2022 was updated to 8,369 t and preliminary catches for 2023 - 2025 were set to 7,080 t. The preliminary catch was estimated as the product of an expansion factor and the reported catch as of September 27, 2023.*

Survey biomass on the Eastern Bering Sea shelf continues to decline and in 2023 decreased of 16% in relation to 2022. Exploitation slightly declined in 2023, but has been generally increasing since 2018.

BSAI Yellowfin sole

Spies et al. (2023) have carried out the last assessment of BSAI yellowfin sole. Several models were tested, that incorporate the following new data and changes since the last full assessment in 2022:

- The 2022 fishery age compositions were added.
- The 2022 VAST survey age compositions were added.
- The estimate of the total catch made through the end of 2022 was updated as reported by the NMFS Alaska Regional office. The catch through the end of 2023 was estimated based on available data to be 79,688 t. Catch for the 2024 and 2025 projections were assumed to be the mean of the past 5 years, 2019 - 2023, 121,103 t.
- The 2023 NMFS survey biomass estimate and standard error were included. Model-based (VAST) estimate of the EBS and NBS biomass and standard error were used in all models presented.

Two models were presented by Spies et al. (2023). Model 22.1 was the accepted model in 2022 and is presented with updated data. Model 23.0 is based on Model 22.1, except that a single sex time-varying fishery selectivity was used rather than separate time-varying fishery selectivities for males and females. The models presented in this assessment include interpolated survey bottom temperature within the summer bottom trawl area < 100m as a covariate on survey catchability, as well as National Marine Fisheries Service eastern Bering Sea survey start date and the interaction of start date and temperature (Nichol et al. 2019). These models also specify female natural mortality to be fixed at 0.12 while allowing the model to estimate male natural mortality. All models use model-based (VAST) survey indices and age compositions from the combined EBS and NBS survey areas.
In the eastern Bering Sea (EBS) bottom trawl survey performed in 2023, the EBS yellowfin sole model-based biomass estimate was 32% lower than estimated by the 2022 EBS bottom trawl survey, at 2,007,140 t. Spawning biomass estimated by Model 23.0 was 1.63 * BMSY. Therefore, yellowfin sole continues to qualify for management under Tier 1a. The 1978-2017 age-1 recruitments and the corresponding spawning biomass estimates were used to fit the stock recruitment curve and determine the Tier 1 harvest recommendations. Tier 3 estimates were also calculated, which is typical for this assessment. This assessment updates last year's model with total and spawning biomass estimates for 2023 that are lower

than the 2022 estimates for 2023. 2023 year's recommended ABC and OFL are lower than the 2022 assessment, coincident with a decrease in the 2023 survey biomass estimate.
Yellowfin sole female spawning biomass continues to be above BMSY and the annual harvest remains below the ABC level. Management quantities are given in Table 6 for the 2022 accepted model and the 2023 preferred model. The projected estimate of total biomass for 2024 was lower by 38% from the 2022 assessment of 4,062,230 t, to 2,512,810 t. The model projection of spawning biomass for 2024, assuming catch for 2023 as described above, was 881,640 t, 2% lower than the projected 2024 spawning biomass from the 2022 assessment of 897,062 t. The 2024 and 2025 ABCs using F_{ABC} from this assessment model were lower than last year's 2024 ABC of 462,890 t; 265,913 t and 276,917 t. The 2024 and 2025 OFLs estimated were 305,298 t and 317,932 t.

Table 6. BSAI Yellowfin sole assessment outputs. Source: Spies et al., 2023

	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
Quantity	2023	2024	2024	2025
M (natural mortality rate)	0.12, 0.125	0.12, 0.125	0.12, 0.137	0.12, 0.137
Tier	1a	1a	1a	1a
Projected total (age 6+) biomass (t)	3,321,640 t	4,062,230 t	2,512,810 t	2,616,800 t
Projected female spawning biomass (t)	885,444 t	897,062 t	881,640 t	857,354 t
B_0	1,407,000 t	1,407,000 t	1,516,980 t	1,516,980 t
B_{MSY}	475,199 t	475,199 t	539,657 t	539,657 t
F_{OFL}	0.122	0.122	0.121	0.121
$maxF_{ABC}$	0.114	0.114	0.106	0.106
F_{ABC}	0.114	0.114	0.106	0.106
OFL (t)	404,882 t	495,155 t	305,298 t	317,932 t
$maxABC$	378,499 t	462,890 t	265,913 t	276,917 t
ABC (t)	378,499 t	462,890 t	265,913 t	276,917 t
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

Two elements of the Risk Table, Population dynamics and Environmental/ecosystem components were rated as level 2, "Major concern". The other Risk Table elements were rated as level 1, "No concern". There were no recommended reductions in ABC.

BSAI Northern rock sole

Northern rock sole (*Lepidopsetta polyxystra*) are assessed on a biennial stock assessment schedule as part of the National Marine Fisheries Service assessment prioritization plan implemented in 2017. For Bering Sea/Aleutian Islands partial assessments was carried out in 2023 (McGilliard, 2023a). The last year's full stock assessment report is presented in McGilliard et al. (2022).
A statistical age-structured model is used as the primary assessment tool for the Bering Sea/Aleutian Islands northern rock sole assessment, a Tier 1 stock. This 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. The data sets used in this assessment include total catch biomass, fishery age compositions, trawl survey abundance estimates and trawl survey age compositions. In a partial assessment year as the 2023, the full assessment model is not rerun but instead a Tier 1 projection model with an assumed future catch is used to estimate the stock level in the next two years. This incorporates the most current catch information for ABC and OFL recommendations without re-estimating model parameters and biological reference points.
The Tier 1 projection operates within the full assessment model by projecting estimates of the female spawning biomass, age 6+ total biomass, ABC and OFL ahead two years. Since the full assessment model is not rerun in this assessment, the projected values from the 2022 assessment are used to provide ABC and OFL.
The 2022 catch was updated to realized year-end catch (18,399 t), which was larger than the projected 2022 catch used in the 2022 assessment (16,014 t). The 2023 realized catch as of September 27, 2023 was used in projections. The projected catch in 2024-2025 was estimated as the average over the past decade of final catches and was updated to 34,985 t from 40,739 t (used in the 2022 projections).
For the 2024 fishery, the maximum ABC (maxABC) is 189,360 t from the updated projection model based on Model 18.3 (McGilliard et al. 2022). This maxABC is higher than last year's maxABC of 158,935 t and

slightly more than last year's projected 2024 maxABC of 187,631 t. The 2022 BSAI Northern rock sole assessment (McGilliard et al. 2022) reduced the ABC from maxABC due to concerns about diagnostics and retrospective patterns in the assessment. The reduced ABC was set equal to the OFL from an alternative model (Model 22.1; McGilliard et al. 2022) that shows improved diagnostics and retrospective patterns. This year, the 2024 and 2025 projected ABC is reduced in the same manner, by setting it equal to the OFL from the updated alternative projections based on the best model.
The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished (Table 7).
Updated catch data (NMFS Alaska Regional Office Catch Accounting System via the Alaska Fisheries Information Network (AKFIN) database, http://www.akfin.org) indicated higher catches in 2023 than in 2021 and 2022, but lower catches in general than in the early to mid 2000s.
Survey biomass for 2023 is higher than in 2022. The ratio of total catch to age 6+ modelled total biomass has decreased in recent years.

Table 7. BSAI Northern rock sole assessment outputs. Source: McGilliard et al., 2023a

Quantity	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2023	2024	2024	2025
M (natural mortality rate)	0.15 (f),0.17 (m)	0.15 (f),0.17 (m)	0.15 (f),0.17 (m)	0.15 (f),0.17 (m)
Tier	1a	1a	1a	1a
Projected total (age 6+) biomass (t)	941,359	1,111,320	1,121,670	1,501,330
Projected Female spawning biomass (t)	260,887	291,774	296,808	347,811
B_0	447,795	447,795	447,795	447,795
B_{MSY}	155,293	155,293	155,293	155,293
F_{OFL}	0.176	0.176	0.176	0.176
$maxF_{ABC}$	0.169	0.169	0.169	0.169
F_{ABC}	0.129	0.108	0.129	0.108
OFL (t)	166,034	196,011	197,828	264,789
maxABC (t)	158,935	187,631	189,360	253,455
ABC (t)**	121,719	119,969	122,091	122,535
Status	As determined *last* year for:		As determined *this* year for:	
	2020	2021	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 realized catches of 18,399 t for 2022, realized catches of 23,093 t as of September 27, 2023, and 34,985 t used in place of maximum permissible ABC for 2024-2025. The 2024-2025 catch was estimated as the average over the past decade of final catches.
** The reduced ABC values were set equal to the OFL from the projected alternative model run (Model 22.1), following the methodology used to establish the ABC in the 2022 assessment (McGilliard et al. 2022).

GOA Northern and Southern rock sole
Gulf of Alaska northern and southern rock sole (*Lepidopsetta ploxystra* and *Lepidopsetta bilineatta*) are assessed every 4-years following the stock prioritization schedule. GOA northern rock and southern rock sole are classified as Tier 3 stocks and are assessed using a statistical catch-at-age models that account for regional differences in growth configured in Stock Synthesis 3 (Methot and Wetzel 2013). The western GOA and central-eastern GOA are modeled separately with estimated area-specific growth patterns. The assessment model is not run during an off-cycle year as in 2023. During off-cycle years, harvest projections are presented with recommendations of harvest levels for the next two years, using updated catch information in the projection model (Bryan, 2023b). The last full assessment was carried out by Bryan and Palsson (2021) in 2021.

An assumption of the northern and southern rock sole assessment models is that total rock sole catch is split evenly between the species. New catch data were added to the projection model and the values reported here are representative of the 50% split between species.
New data added to the projection model included an updated 2022 catch of 509 t and 12 t for the central and western GOA, respectively. The 2023 preliminary catch estimates were also used for the 2024 and 2025 catch values in the projection model.
The recommended ABCs for northern rock sole in the central-eastern GOA for 2024 and 2025 are 4,466 t and 4,631 t. The recommended OFLs are 5,227 t and 5,419 t for 2024 and 2025 in the central-eastern GOA. The recommended ABCs for northern rock sole in the western GOA for 2024 and 2025 are 8,916 t and 9,168 t. The recommended OFLs are 10,749 t and 11,047 t. The 2024 advice from the updated projection models is similar to what was recommended in the 2022 assessment for 2024.
The recommended ABCs for southern rock sole in the central-eastern GOA for 2024 and 2025 are 15,024 t and 15,482 t. The recommended OFLs are 17,786 t and 18,321 t. The recommended ABCs for southern rock sole in the western GOA for 2024 and 2025 are 12,430 t and 12,162 t. The recommended OFLs are 14,718 t and 14,926 t. The 2024 advice from the updated projection models is similar to what was recommended in the 2022 assessment for 2024. The stocks are not being subject to overfishing, are not currently overfished, nor are approaching a condition of being overfished (Table 8).
Northern rock sole biomass declined in both the central-eastern and western GOA in 2023 as compared to Southern rock sole biomass was stable in the central-eastern GOA and declined in the western GOA in 2023 as compared to 2021. Exploitation has been generally declining in the central-eastern GOA and consistent levels in the western GOA for both species.

Table 8. GOA Northern and Southern rock sole assessment outputs. Source: Bryan, 2023b

Northern rock sole, Central-Eastern GOA Quantity	As estimated or *recommended last* year for: 2023	2024	As estimated or *recommended this* year for: 2024	2025
M (natural mortality rate; female, male)	0.2, 0.232*	0.2, 0.232*	0.2, 0.232*	0.2, 0.232*
Tier	3a	3a	3a	3a
Projected total (age 0+) biomass (t)	37,080	38,502	38,855	40,172
Projected Female spawning biomass (t)	13,431	15,845	16,054	17,427
$B_{100\%}$	20,913	20,913	20,913	20,913
$B_{40\%}$	8,365	8,365	8,365	8,365
$B_{35\%}$	7, 320	7, 320	7, 320	7, 320
F_{OFL}	0.181	0.181	0.181	0.181
$maxF_{ABC}$	0.153	0.153	0.153	0.153
F_{ABC}	0.153	0.153	0.153	0.153
OFL (t)	4,934	5,175	5,227	5,419
maxABC (t)	4,214	4,421	4,466	4,631
ABC (t)	4,214	4,421	4,466	4,631
Status	As determined *last* year for: 2021	2022	As determined *this* year for: 2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Female natural mortality is fixed and male natural mortality is estimated in the assessment model.
Northern rock sole, central-eastern GOA: Projections are based on the final catch of 509 t for 2022 and preliminary catch of 223 t used in place of maximum permissible ABC for 2023, 2024, and 2025.

Northern rock sole, Western GOA Quantity	As estimated or *recommended last* year for: 2023	2024	As estimated or *recommended this* year for: 2024	2025
M (natural mortality rate; female, male)	0.2, 0.254*	0.2, 0.254*	0.2, 0.254*	0.2, 0.254*
Tier	3a	3a	3a	3a
Projected total (age 0+) biomass (t)	66,512	67,083	67,086	67,327
Projected Female spawning biomass (t)	26,525	29,301	29,303	30,348
$B_{100\%}$	28,702	28,702	28,702	28,702
$B_{40\%}$	11,481	11,481	11,481	11,481
$B_{35\%}$	10,045	10,045	10,045	10,045
F_{OFL}	0.385	0.385	0.385	0.385
$maxF_{ABC}$	0.313	0.313	0.313	0.313
F_{ABC}	0.313	0.313	0.313	0.313
OFL (t)	10,259	10,749	10,749	11,047
maxABC (t)	8,508	8,916	8,916	9,168
ABC (t)	8,508	8,916	8,916	9,168
Status	As determined *last* year for: 2021	2022	As determined *this* year for: 2022	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Female natural mortality is fixed and male natural mortality is estimated in the assessment model.
Northern rock sole, western GOA: Projections are based on a final catch of 12 t for 2022 and preliminary catch of 10 t used in place of maximum permissible ABC for 2023, 2024, and 2025.

Southern rock sole, Central-Eastern GOA Quantity	As estimated or *recommended last* year for: 2023	 2024	As estimated or *recommended this* year for: 2024	 2025
M (natural mortality rate; female, male)	0.2, 0.253*	0.2, 0.253*	0.2, 0.253*	0.2, 0.253*
Tier	3a	3a	3a	3a
Projected total (age 0+) biomass (t)	133,391	134,647	134,978	135,672
Projected Female spawning biomass (t)	43,539	49,696	49,889	54,623
$B_{100\%}$	53,439	53,439	53,439	53,439
$B_{40\%}$	21,376	21,376	21,376	21,376
$B_{35\%}$	18,703	18,703	18,703	18,703
F_{OFL}	0.268	0.268	0.268	0.268
$maxF_{ABC}$	0.224	0.224	0.224	0.224
F_{ABC}	0.224	0.224	0.224	0.224
OFL (t)	16,874	17,733	17,787	18,322
maxABC (t)	14,246	14,978	15,024	15,483
ABC (t)	14,246	14,978	15,024	15,482
Status	As determined *last* year for: 2021	 2022	As determined *this* year for: 2022	 2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

* Female natural mortality is fixed and male natural mortality is estimated in the assessment model.
Southern rock sole, central-eastern GOA: Projections are based on the final catch of 509 t for 2022 and preliminary catch of 223 t used in place of maximum permissible ABC for 2023, 2024, and 2025.

Southern rock sole, Western GOA Quantity	As estimated or *recommended last* year for: 2022	 2023	As estimated or *recommended this* year for: 2023	 2024
M (natural mortality rate; female, male)	0.2, 0.271*	0.2, 0.271*	0.2, 0.271*	0.2, 0.271*
Tier	3a	3a	3a	3a
Projected total (age 0+) biomass (t)	114,420	114,480	114,483	113,960
Projected Female spawning biomass (t)	40,457	45,479	45,481	49,057
$B_{100\%}$	43,788	43,788	43,788	43,788
$B_{40\%}$	17,515	17,515	17,515	17,515
$B_{35\%}$	15,326	15,326	15,326	15,326
F_{OFL}	0.222	0.222	0.222	0.222
$maxF_{ABC}$	0.185	0.185	0.185	0.185
F_{ABC}	0.185	0.185	0.185	0.185
OFL (t)	14,029	14,718	14,718	14,926
maxABC (t)	11,840	12,430	12,430	12,612
ABC (t)	11,840	12,430	12,430	12,612
Status	As determined *last* year for: 2021	 2022	As determined *this* year for: 2022	 2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

* Female natural mortality is fixed and male natural mortality is estimated in the assessment model.
Southern rock sole, western GOA: Projections are based on a final catch of 12 t for 2022 and preliminary catch of 10 t used in place of maximum permissible ABC for 2023, 2024, and 2025.

BSAI Alaska plaice

Alaska plaice (*Pleuronectes quadrituberculatus*) are assessed on a four year cycle in which a full assessment is conducted every four years and a harvest projection is done on the off years. A harvest projection involves projecting the model, established in the last full assessment, forward to predict future population estimates and recommended harvest levels for the next two years. The primary assessment tool for the Bering Sea/Aleutian Islands (BSAI) Alaska plaice assessment, a Tier 3 stock, is a statistical age-structured model that uses survey and fishery data to generate a historical time series of population estimates. The data sets used in 2023 assessment include total catch biomass, fishery age compositions, eastern Bering Sea (EBS) shelf bottom trawl survey abundance estimates, and EBS shelf bottom trawl survey age compositions. For the 2023 Alaska plaice stock assessment, a harvest projection was conducted by Cronin-Fine (2023).

In a harvest projection year, the full assessment model is not rerun but instead a Tier 3 projection model with updated catch estimates is run to estimate the stock level in future years. This incorporates the most current harvest information without re-estimating model parameters and biological reference points. The Tier 3 projection operates outside the full assessment model by projecting estimates of future female spawning biomass, age 3+ total biomass, ABC and OFL from the full model estimates of 2021 numbers-at-

age, weight-at-age, maturity, and selectivity. Please refer to the last full stock assessment report for further information regarding the stock assessment model (Ormseth, 2021).
New data added to the Tier 3 projection model included an updated 2022 catch estimate (11,253 t) and a new catch estimate for 2023 through September 16, 2023 (sourced October 16, 2023 from the NMFS Alaska Regional Office using the Alaska Fisheries Information Network [AKFIN] database). Following the method used in the 2021 full assessment, the full-year 2023 catch (18,054 t) was estimated by averaging the three weeks of catch prior to September 16 and using this value as the assumed weekly catch for the remaining 15 weeks in 2023.

There were no changes in assessment methodology since this was a harvest projection.
For 2024, the recommended maximum allowable ABC from the Tier 3 projection model is 35,494 t. Reference values for BSAI Alaska plaice are summarized in Table 9, with the recommended ABC and OFL values for 2024 in bold. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished. The tests for evaluating these three statements on status determination require examining the official total catch from the most recent complete year (2022) and the current model projections of spawning biomass relative to BMSY for 2024 and 2025. The estimated total catch for 2022 is 11,253 t, far below the 2022 OFL of 39,305 t; therefore, the stock is not being subjected to overfishing. The estimates of female spawning biomass for 2024 and 2025 from the 2023 stock assessment projections are 158,087 t and 166,827 t, respectively. Both estimates are well above the estimate of B35% of 100,306 t and therefore the stock is not currently overfished nor approaching an overfished condition.

Table 9. BSAI Alaska plaice assessment outputs. Source: Cronin-Fine, 2023

	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
Quantity	2023	2024	**2024**	2025
M (natural mortality rate)	0.13	0.13	0.13	0.13
Tier	3a	3a	3a	3a
Projected total (3+) biomass (t)	461,992	477,701	473,125	481,959
Female spawning biomass (t)	149,987	158,149	158,087	166,827
$B_{100\%}$	286,587	286,587	286,587	286,587
$B_{40\%}$	114,635	114,635	114,635	114,635
$B_{35\%}$	100,306	100,306	100,306	100,306
F_{OFL}	0.17	0.17	0.17	0.17
$maxF_{ABC}$	0.14	0.14	0.17	0.17
F_{ABC}	0.14	0.14	0.14	0.14
OFL (t)	40,823	43,328	**42,695**	45,182
maxABC (t)	33,946	36,021	35,494	37,560
ABC (t)	33,946	36,021	**35,494**	37,560
	As determined *last* year for:		As determined *this* year for:	
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

Alaska plaice are caught throughout the year primarily as bycatch in the yellowfin sole (*Limanda aspera*) fishery. Across all fisheries, retention rates of Alaska plaice are high. It is estimated to be greater than 90% since 2018. The 2023 projected catch for Alaska plaice is 18,054 t, well below the 2023 ABC of 35,494 t. The 2023 exploitation ratio (catch/total biomass) is also projected to decrease and is estimated to be slightly below the 1975-2023 long-term average of ~ 0.03. If the 2023 projected catch is realized, it will be the lowest catch to biomass ratio for Alaska plaice since 2009.

The 2023 EBS shelf trawl survey biomass estimate for Alaska plaice decreased by 5% from the 2022 estimate however the 95% confidence intervals for the two biomass estimates closely overlap. This year's survey biomass estimate is also 30% lower than the long-term mean. Because this is a harvest projection, the 2023 survey biomass estimate was not included when determining the recommended harvest levels for 2023 but will be added in the next full assessment model. Interested readers may note the increasing trend in the projected population biomass, despite decreasing survey biomass estimates between 2017 and 2023. This result is attributed to strong recruitment events since 2017, which began to emerge in the 2019 assessment (Ormseth 2021).

GOA Flathead sole

The Gulf of Alaska flathead sole stock is typically assessed every four years and was last assessed in 2022 (Kapur and Monnohan, 2022). In years without a full assessment harvest projections to recommend harvest levels for the next two years are presented (Kapur, 2023a).

Flathead sole is assessed using an age-structured model and Tier 3 determination. Thus, the single species projection model was run using parameter values from the accepted 2022 flathead sole assessment model, together with updated catch information for 2022, and estimated catches for 2022-2025 to predict stock status for flathead sole and to make ABC recommendations for those years. Projections are conducted using numbers-at-age for flathead sole from age 3-21+ and historical recruitment of age 3 individuals is used to calculate OFLs and ABCs.

The updated information for this harvest projection includes replacing the estimated 2022 catch with the final catch value from the Alaska Regional Office (https://www.fisheries.noaa.gov/sites/default/files/akro/car110_goa2020.html) (564 t) and estimating the 2023-2025 catches. The 2023 projected catch was calculated as the current catch as of 2023-09-28 added to the average 28 September – December 31 catches over the previous 5 years. The 2024 and 2025 projected catches were calculated as the average catch over the previous 5 years (1,611 t). These estimated catches for the present and two future years are input in place of maxABC for projections, which is appropriate given that recent catches are much less than the maximum ABC for this stock.

The ABC for flathead sole is 40,503 t in 2024 and 41,258 t in 2025 and the OFL is 49,414 t in 2024 and 50,322 t in 2025. The new ABC recommendation and OFL values are similar to those developed in 2022 for 2024 (40,222 t and 49,073 t, respectively). The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished (Table 10).

Table 10. GOA flathead sole assessment outputs. Source: Kapur, 2023a

Quantity/Status	As estimated or *specified last* year for: 2023	2024	As estimated or *recommended this* year for: 2024*	2025*
M	0.2	0.2	0.2	0.2
Tier	3a	3a	3a	3a
Projected total (3+) biomass (t)	294,188	293,277	294,616	292,639
Projected Female spawning biomass (t)	94,059	95,932	96,604	98,468
$B_{100\%}$	92,582	92,582	92,582	92,582
$B_{40\%}$	37,033	37,033	37,033	37,033
$B_{35\%}$	32,404	32,404	32,404	32,404
F_{OFL}	0.36	0.36	0.36	0.36
maxF_{ABC}	0.29	0.29	0.29	0.29
F_{ABC}	0.29	0.29	0.29	0.29
OFL (t)	48,161	49,073	**49,414**	50,322
*max*ABC (t)	39,480	40,222	40,503	41,258
ABC (t)	39,480	40,222	**40,503**	41,258
Status	As determined *last* year for: 2022	2023	As determined *this* year for: 2023	2024
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 an estimated catch of 598 t for 2023 and estimates of 1,611 t and 1,611 t used in place of maximum permissible ABC for 2024 and 2025.

BSAI Flathead sole

Flathead sole as currently managed by the North Pacific Fishery Management Council (NPFMC) in the Bering Sea and Aleutian Islands (BSAI) and represents a two-species complex consisting of true Flathead sole (*Hippoglossoides elassodon*) and its morphologically-similar congener Bering flounder (*Hippoglossoides* spp.). This species is currently assessed on a four-year cycle; the most recent full assessment was conducted in 2020 (Monnahan and Haehn, 2020) and will be updated in 2024. In years without a full assessment, harvest levels for the next two years is presented (Kapur, 2023b)

Flathead sole is assessed using an age-structured model and Tier 3 determination. The projection model is run using parameter values from the accepted 2020 assessment model, together with updated catch information for 2020-2022, estimated catches for 2023 and projected catches 2024-2025, to predict stock status for Flathead sole in 2024-2025, and to make ABC recommendations and set OFL for those years. To run the projection model to predict ABCs for 2024 and 2025, observed catches for 2020-2022 and estimates for the total catches in 2023-2025 were used. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished (Table 11).

The most recent fishery data of Flathead sole and Bering flounder combined (*Hippoglossoides elassodon*) and Flathead sole only, and Bering flounder only are available in Kapur (2023b). Observer data of species-specific extrapolated weight in each haul was summed over hauls within each year and used to calculate the proportion of the total *Hippoglossoides* spp. catch that was Flathead sole or Bering flounder. Proportions were multiplied by the total *Hippoglossoides* spp. (Flathead sole and Bering flounder combined) catches reported by AKFIN to obtain total catch of Flathead sole separately from that of Bering flounder. The catch to total (3+) biomass ratio has declined since 2007.

An Aleutian Islands survey was conducted in 2022, and the 2022 total BSAI estimate was 710,804 t, a roughly 6% increase over the 2021 regression estimate of 670,091 t. None of the interpolated or observed values from 2020 onwards are included in the base assessment model, nor the projection.

Table 11. BSAI flathead sole assessment outputs. Source: Kapur, 2023b

Quantity/Status	As estimated or specified *last* year for: 2023	2024	As estimated or recommended *this* year for: 2024*	2025*
M	0.2	0.2	0.2	0.2
Tier	3a	3a	3a	3a
Projected total (3+) biomass (t)	606,522	606,080	609,488	608,230
Projected Female spawning biomass (t)	158,962	164,594	165,629	169,452
maxF_{ABC}	0.37	0.37	0.37	0.37
F_{ABC}	0.37	0.37	0.37	0.37
OFL (t)	79,256	81,167	**81,605**	82,699
*max*ABC (t)	65,344	66,927	67,289	68,203
ABC (t)	65,344	66,927	**67,289**	68,203
Status	As determined *last* year for: 2022	2023	As determined *this* year for: 2023	2024
Overfishing	No	n/a	No	n/a

*Projections are based on an estimated catch of 8,811 t for 2023 and estimates of 12,246 t and 12,246 t used in place of maximum permissible ABC for 2024 and 2025.

GOA Rex sole

The Gulf of Alaska rex sole stock is assessed every four years and was last assessed in 2021. In between the full assessment years, harvest levels for the next two years are presented in McGilliard (2023b). The 2021 full stock assessment report was carried by McGilliard and Palsson (2021).
Rex sole is assessed using an age-structured model and Tier 3 determination within the context of a two-area model. The Western-Central GOA and Eastern GOA are modeled as separate areas with distinct growth patterns estimated by area. Thus, the single species projection model was run separately for the two areas using parameter values from the accepted 2021 rex sole assessment model (McGilliard and Palsson 2021), together with updated catch information for 2021-2023, to predict stock status for rex sole in 2024 and 2025 and to make ABC recommendations for those years. Projections are conducted using numbers-at-age for rex sole from age 3-20+ by area and historical recruitment of age 3 individuals by area to calculate OFL's and ABC's.

New data added to the projection model included updated final catch data from 2021-2022 from the Western and Central GOA of 299 t and 695 t, and realized catch as of September 27, 2023 of 375 t. Catches from the Eastern GOA area often confidential with a long-term average of less than 2 t. New estimated catches for 2024-2025 was calculated as the average catch over the previous five years. The average catch was 1,118 t for Western and Central GOA and 2 t for Eastern GOA.

Based on the updated projection model results, the recommended ABC's for 2024 and 2025 in the Western-Central GOA are 17,006 t and 16,987 t, and the OFL's are 20,660 t and 20,635 t. The new ABC recommendation and OFL for the Western-Central GOA in 2024 are similar to those projected for 2024 developed in 2022 (16,739 t and 20,335 t). The recommended ABC's for 2024 and 2025 in the Eastern GOA are 4,358 t and 4,316 t, and the OFL's are 5,318 t and 5,265 t. The new ABC recommendation and OFL for the Eastern GOA in 2023 are almost exactly the same as those developed in 2022 because realized and projected catches as estimated last year and this year were approximately within 1 t of each other. The principal reference values are shown in Table 12. The stock is not being subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished.

Updated catch data (NMFS Alaska Regional Office Catch Accounting System via the Alaska Fisheries Information Network (AKFIN) database, http://www.akfin.org) indicate lower catches in 2023 than in 2022, with lower than average catches for 2021-2023. The survey biomass is lower than in 2021. The ratio of total catch to age 3+ modelled total biomass has been stable over the past three years, around a value of 0.01.

Table 12. GOA rex sole assessment outputs. Source: McGilliard, 2023b

Quantity	As estimated or *specified this* year for:		As estimated or *recommended this* year for:	
	2023	2024	2024	2025
M (natural mortality rate)	0.17	0.17	0.17	0.17
Tier	3a	3a	3a	3a
Projected total (3+) biomass (t)	127,297	128,207	129,611	129,296
Female spawning biomass (t)	56,965	59,734	60,486	61,413
$B_{100\%}$	See area-specific tables below		See area-specific tables below	
$B_{40\%}$				
$B_{35\%}$				
F_{OFL}				
$maxF_{ABC}$				
F_{ABC}				
OFL (t)	25,135	25,652	25,978	25,900
maxABC (t)	20,664	21,097	21,364	21,303
ABC (t)	20,664	21,097	21,364	21,303
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

There is no material change in compliance with any of the following supporting clauses.

6.1. States shall establish safe target reference point(s) for management.

6.2 States shall establish safe 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). 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 shall be installed measuring the position of the fishery in relation to the reference points. 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, taking into account that long term changes in productivity can occur due to natural variability and/or impacts other than fishing.

6.4 Management actions shall be agreed to in the eventuality that data sources and analyses indicate that these reference points have been exceeded.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 7.

Management actions and measures for the conservation of stock and the aquatic environment shall be based on the precautionary approach. Where information is deficient a suitable method using risk assessment shall be adopted to take into account uncertainty.

No. supporting clauses	5
Applicable supporting clauses	4
Non-applicable supporting clauses	1 (7.2)

Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

The status of U.S. fish stocks is determined by two metrics. The first is the relationship between the actual exploitation level and the OFL. If the exploitation level (or fishing mortality) exceeds the FOFL, the stock is considered to be subject to overfishing. The second is the relationship between the stock size and the MSST. If the stock size is below the MSST it is considered to be overfished. A stock is considered to be approaching an overfished condition when it is projected that there is more than a 50% chance that the biomass of the stock or stock complex will decline below the MSST within two years. Harvest specifications for each of the target stocks are made annually by the Council and include the OFL, ABC, and TAC. The Inseason Management Branch monitors the catch rates of groundfish and prohibited species according to the catch limits and allocations by gear, sector, and seasonal apportionments in the 2024-2025 harvest specifications. The 2024-2025 BSAI harvest specifications can be found at the following link: https://www.federalregister.gov/documents/2024/03/11/2024-05093/fisheries-of-the-exclusive-economic-zone-off-alaska-bering-sea-and-aleutian-islands-final-2024 and the GO harvest specifications can be found at the following: https://www.fisheries.noaa.gov/alaska/commercial-fishing/2024-2025-alaska-groundfish-harvest-specifications?check_logged_in=1#gulf-of-alaska-goa.

The Council's management plans classify each stock based on a tier system (Tiers 1-6) with Tier 1 having the greatest level of information on stock status and fishing mortality relative to MSY considerations. The Tier system specifies the maximum permissible ABC and the OFL for each stock in the complex (usually individual species but sometimes species groups). Alaska flatfish complex stocks are mostly classified in Tier 3. The BSAI and GOA groundfish FMPs have pre-defined HCRs that define a series reference points for groundfish covered by these plans. The overall objectives of the management plans are to prevent overfishing and to optimize the yield from the fishery through the promotion of conservative harvest levels while considering differing levels of uncertainty.

The precautionary approach (PA) reference points are established by the Council's PA documented in their FMPs, and stock status is evaluated against these calculated reference points in the annual stock assessment SAFE reports. Where possible, projections are carried out as part of the stock assessments to determine future trajectories of biomass, and related risks of overfishing. There are numerous references and examples of how uncertainty is dealt with in the stock assessment in the annual SAFE reports. Also, the FMPs for groundfish in GOA and BSAI regions are explicit in how different levels of uncertainty are accounted for in the management process. Environmental data and socioeconomic data are also well documented through annual SAFE reports. The SAFE reports and FMPs have been referenced in previous sections.

The FMPs also have another reference point, B20%, defined as follows: "For groundfish species identified as key prey of Steller sea lions (i.e., walleye pollock, Pacific cod, and Atka mackerel), directed fishing is prohibited in the event that the spawning biomass of such a species is projected in the stock assessment to fall below B20% in the coming year. However, this does not change the specification of ABC or OFL."

Stock assessments are comprehensive and reviewed on a number of levels, including externally by CIE. Where data gaps have been identified, and these are outlined in the SAFE reports, the NMFS/AFSC has ongoing research programs capable of addressing these needs. Organizations such as NPRB enable scientists from a number of disciplines and agencies to work collaboratively on a variety of fishery related studies in Alaskan waters. There are pre-agreed Council HCRs in place to ensure overfishing does not occur on the AK flatfish complex and to reduce fishing mortality if reference points are approached or exceeded, as outlined in the Tiered PA system described previously. Extensive provisions exist in the NMFS fishery regulations for in-season adjustments (e.g., gear modifications, fishery closures) where necessary to protect the resource from biological harm. FMPs contain the following specific clause: "In the event that a stock or stock complex is determined to be approaching a condition of being overfished, an in-season action, an FMP amendment, a regulatory amendment or a combination of these actions will be implemented to prevent overfishing from occurring."

Clause 7.2 is not applicable, as fisheries for Alaska flatfish complex fisheries are well established and are not exploratory fisheries. There are no concerns with the use of introduced or translocated species.

There is no material change in compliance with any of the following supporting clauses. Clause 7.2 is not applicable.

7.1. The precautionary approach shall be applied widely to conservation, management and exploitation of

living aquatic resources in order to protect them and preserve the aquatic environment. This should take due account of stock 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 assessment, including those associated with the use of introduced or translocated species.

7.1.1 In implementing the precautionary approach, States shall take into account, inter alia, of 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 and the impact of fishing activities, including discards, on non-target and associated or dependent species as well as environmental and socio-economic conditions.

7.1.2 In the absence of adequate scientific information, appropriate research shall be initiated in a timely fashion.

7.2 In the case of new or exploratory fisheries, States shall adopt as soon as possible cautious conservation and management measures, including, inter alia, 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. The latter measures should, if appropriate, allow for the gradual development of the fisheries. ****Not applicable to this fishery***

7.3 Contingency plans shall be agreed in advance for the appropriate management response to serious threats to the resource as a result of overfishing or adverse environmental changes or other phenomena adversely affecting the fishery resource. Such measures may be temporary and shall be based on best scientific evidence available.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

7.4 Management Measures (D)

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 be based upon verifiable evidence and advice from available scientific and objective, traditional sources.

No. supporting clauses	17
Applicable supporting clauses	15
Non-applicable supporting clauses	2 (8.11, 8.14)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

The MSRA requires that conservation and fisheries management measures prevent overfishing while achieving optimum yield on a continuing basis and sets out the standards (e.g., optimal use and avoiding overfishing) which are followed in managing the Alaska flatfish complex fisheries. The Council uses a multi-tier PA, which includes OY and MSY reference points. NMFS and the Council follow a multi-faceted PA (OFL, ABC, TAC, OY) to manage the federal target stocks fisheries, based on targets, limits, and pre-defined HCRs, as well as overall ecosystem considerations. These systems are described extensively in Fundamental Clauses 6 and 7 above. The objectives are spelled out clearly in FMPs for BSAI and GOA regions, and both FMPs contain long-term management objectives for the Alaska flatfish complex fisheries. The state of Alaska flatfish complex fisheries are managed by ADFG and BOF. Extensive cooperation exists between federal and state authorities in assessing and managing the Alaska flatfish complex stocks.

AFSC runs the Economic and Social Sciences Research Program in Alaska. The aim of the Program is to provide economic and sociocultural information to assist NMFS in meeting its stewardship responsibilities with activities being conducted in support of this mission. The Council has established the Social Science Planning Team to improve the quality and application of social science data that informs management decision-making and program evaluation. The FMPs include a substantial section on the economic and socioeconomic characteristics of the fisheries and communities in Alaska. There is a detailed annual SAFE report on economic status of Alaskan fisheries (Aydin et al., 2023; Adams et al., 2023) and a section on economics in the SAFE reports. Harvest levels for each groundfish species or species group that are set by the Council for a new fishing year are based on the best biological, ecological, and socioeconomic information available, and follow a rigorous and public peer-reviewed process. The 2024-2025 harvest levels are specified by the Council (see link given in Fundamental Clause 7 above).

As listed in the FMPs and in NMFS regulations, the only legal gears for taking Alaska flatfish complex fisheries are pelagic trawl, bottom trawl, jig, longline, and pot. Regulations pertaining to vessel and gear markings in the fishery are established in NMFS and ADFG regulations as prescribed in the annual management measures published in the Federal Register. There was no evidence that indicated the marking of gear is not being followed or is not effective. No destructive gears such as dynamite or poison are permitted, nor is there any evidence that such methods are being used illegally. There is no evidence that regulations involving gear selectivity in Alaska flatfish complex fisheries are being circumvented either by omission, or through the illegal use of gear technology. Evidence provided by fishing fleets indicates that lost fishing gear is minimal. A NOAA (2015) study shows ghost fishing mortality and gear loss for derelict trawl (and other gears such as longline) are likely to be lower in comparison to gillnets and trap gears, although less is known of the effects of derelict trawls and longlines.

According with the information provided by the client, gear loss is rare and lost gear is usually recovered, but this information is not generally collected by the client.

The Council and BOF have extensive processes in place to allow for identifying and consulting with domestic parties having interest in the Alaska flatfish complex fisheries. The Council is responsible for allocation of the target stocks resource among user groups in Alaskan waters, and the BOF public meeting process provides a regularly scheduled public forum for all interested individuals, fishermen, fishing organizations, environmental organizations, Alaskan Native organizations and other governmental and non-governmental entities that catch target stocks off Alaska to participate in the development of legal

regulations for fisheries. Organizations and individuals involved in the fishery and management process have been identified. The Alaska management process has many stakeholders, including license holders, processors, fishermen's organizations, cooperatives, coalitions, the states of Alaska, Washington, and Oregon, CDQ groups, and environmental groups. The Council's process is the primary means for soliciting stakeholder information important to the fisheries, and this is fully transparent and open to the public. Proposals for management measures may come from the public, state and federal agencies, advisory groups, or Council members. Fishing industry stakeholders work extensively with fishery scientists, managers, and other industry members on various initiatives to ensure sustainability of Alaska flatfish complex fisheries. The Council established a Rural Outreach Committee in 2009 to improve outreach and communications with rural communities and Alaska Native entities and develop a method for systematic documentation of Alaska Native and community participation in the development of fishery management actions. The Western Alaska CDQ Program, established by the Council in 1992, allocates a percentage of all BSAI quotas for groundfish, prohibited species, halibut, and crab to eligible communities. There are approximately 65 communities within a 50-mile radius of the BS coastline who participate in the program.

Mechanisms have been established to reduce capacity to levels commensurate with sustainable use of the fishery resources in Alaska. These include harvest control rules regarding catch and effort management, an overall OY cap in GOA and BSAI regions, a license limitation and restricted access program, and reduction of the number of vessels through industry-based initiatives. The industry-based measures have been taken to rationalize effort, eliminate derby-style fisheries, improve retention and utilization and reduce bycatch, and include the formation of groundfish cooperatives under Amendment 80, aimed at reduction of bycatch and further rationalization of the fishery. Fleet capacity and regularly updated data on all fishing operations are presented in the annual SAFE documents, as well as in various cooperative reports. Each cooperative is responsible for its own target catch and bycatch, and when any allocation is reached, the cooperative must stop fishing. This provides a strong incentive for cooperatives to keep bycatch rates low and to fish efficiently.

The gear regulations also contain details on mesh sizes permitted, biodegradable panels in pot gears, types of hook and line gear allowed, etc. The use of bottom contact gear is prohibited in the Gulf of Alaska Coral and Alaska Seamount Habitat Protection Areas year-round. Fishing with trawl vessels is not permitted year-round in the Crab and Halibut Protection Zone and the Pribilof Island Habitat Conservation Area. As well, a number of closure zones for trawl gears are described in the FMPs for GOA and BSAI. A suite of measures specific to seabird avoidance in hook and line fisheries in Alaskan waters also exists, and data on seabirds are collected by observers, and included in the SAFE documents. Various measures to reduce bycatches of PSC species (e.g., crabs, halibut, Chinook) in BSAI and GOA, including gear modifications and closed areas and seasons, have been adopted in recent years. Other industry-driven measures taken to reduce halibut catch include use of excluder devices, improved communication and data sharing among vessels to avoid halibut, and enhanced deck sorting to reduce mortality of halibut returned to the sea (Gauvin 2013). In 2016, NMFS reduced the MRA of skates using groundfish and halibut as basis species in the GOA from 20% to 5%, as a necessary measure to limit the incidental catch and discards of skates in GOA groundfish and halibut fisheries.

The FMPs for BSAI and GOA groundfish state that "For groundfish species identified as key prey of Steller sea lions (i.e., walleye pollock, Pacific cod, and Atka mackerel), directed fishing is prohibited in the event that the spawning biomass of such a species is projected in the stock assessment to fall below B20% in the coming year" (NPFMC 2018a, 2019). The Council has acted in a precautionary manner to place protections around Steller sea lion rookeries and haulouts and close areas where fishing may impact Steller sea lion prey. ADFG has also implemented areas closed to fishing in PWS around SSL rookeries. ADFG notes that co-management agreements have been established between the NMFS and the Aleut Marine Mammal Commission, the Traditional Council of St. George Island, and the Traditional Council of St. Paul Island.

None of the Alaska flatfish complex fisheries stocks are classified as overfished or undergoing overfishing and no destructive fishing practices are allowed in GOA or BSAI which would adversely impact habitat. With regard to other resources taken in the fishery, considerable work has been done to reduce catches of species such as halibut and Chinook salmon in trawl catches, as there are concerns with the status of Chinook in many rivers. Extensive work on deck sorting (Gauvin 2013) has occurred in recent years in certain trawl fisheries to improve the survival rates of halibut discarded at sea (required under regulation). Exempted fishing permits have been issued for deck sorting on Amendment 80 C/Ps to reduce halibut mortality. Numerous measures to protect Steller sea lion populations and habitat affect are implemented in the FMPs for GOA and BSAI groundfish. NMFS and the Council must describe and identify EFH in FMPs, minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH. Further details on this are described under Fundamental Clause 12 below.

Amendment 97 established annual Chinook salmon PSC limits for the groundfish trawl fisheries, except for pollock trawl fisheries, in the Western and Central GOA. This action established annual Chinook salmon

PSC limits for various fleet sectors and also established incentives for reducing Chinook salmon PSC for the trawl C/P and Non-Rockfish Program CV sectors and established seasonal Chinook salmon PSC limits for the trawl C/P sector. The majority of chinook by-catch in GOA is from the pollock fishery, and a recent supplementary Biological Opinion concluded that groundfish fisheries in the GOA were not likely to jeopardize the continued existence of threatened Chinook stocks. Amendment 103 to the GOA FMP, passed in September 2016, allows NMFS to reapportion unused Chinook salmon PSC within and among specific trawl sectors in the Central and Western GOA, based on specific criteria and within specified limits. This rule does not increase the current combined annual PSC limit of Chinook salmon that applies to Central and Western GOA trawl sectors and promotes more flexible management of GOA trawl Chinook salmon PSC.

In Alaska flatfish complex fisheries, gear loss is rare and lost gear is usually recovered, but this information is not generally collected by the client.

The fishery for Alaska flatfish complex is carried out by U.S. vessels only. In adjacent waters of the GOA cooperation on research and management between Canada and the United States occurs as part of the science and management process.

There are numerous measures implemented in Alaskan fisheries to minimize non-utilized catches, such use prohibition of discarding (Improved Retention/Improved Utilization Program), use of salmon and halibut excluder devices in trawl nets, and use of streamers on longline gear to reduce seabird bycatch. Many of the studies and subsequent implementation have involved cooperative efforts between researchers at institutions in NMFS, ADFG, universities, and industry, and are introduced into regulations only after extensive testing has occurred. Key studies include research on excluder devices, deck sorting of halibut, and research on pots to reduce Tanner crab bycatch. Additional information on bycatch is presented in Fundamental Clause 12 below.

There is no material change in compliance with any of the following supporting clauses. Clauses 8.11 and 8.14 are not applicable.

8.1. Conservation and management measures shall be designed to ensure the long-term sustainability of fishery resources at levels which promote the objective of optimum utilization, and be based on verifiable and objective scientific and/or traditional, fisher or community sources.

8.1.1 Management targets are consistent with achieving maximum sustainable yield (MSY) (or a suitable proxy) on average, or a lesser fishing mortality if that is optimal in the circumstances of the fishery (e.g. multispecies fisheries) or to avoid severe adverse impacts on dependent predators.

8.1.2 In the evaluation of alternative conservation and management measures, their cost-effectiveness and social impact shall be considered.

8.1.3 Studies shall be promoted which provide an understanding of the costs, benefits and effects of alternative management options designed to rationalize fishing, in particular, options relating to excess fishing capacity and excessive levels of fishing effort.

8.2 States shall prohibit dynamiting, poisoning and other comparable destructive fishing practices.

8.3 States 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.

8.4 Mechanisms shall be established where excess capacity exists, to reduce capacity to levels commensurate with sustainable use of the resource. Fleet capacity operating in the fishery shall be measured and monitored. States 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.

8.5 Technical measures shall be taken into account, where appropriate, in relation to:

- *fish size*
- *mesh size or gear*
- *closed seasons*
- *closed areas*
- *areas reserved for particular (e.g. artisanal) fisheries*

- *protection of juveniles or spawners*

8.6 Fishing gear shall be marked in accordance with national legislation in order that the owner of the gear can be identified. Gear marking requirements shall take into account uniform and internationally recognizable gear marking systems.

8.7 Measures shall be introduced to identify and protect depleted resources and those resources 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 resources which have been adversely affected by fishing or other human activities are restored.

8.8 States 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 sufficiently selective as to minimize catch, waste and discards of non-target species - both fish and non-fish species and impacts on associated or dependent species. The use of fishing gear and practices that lead to the discarding of 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.

8.9 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.

8.10 The intent of fishing selectivity and fishing impacts related regulations shall not be circumvented by technical devices and information on new developments and requirements shall be made available to all fishers.

8.11 Assessment and scientific evaluation shall be carried out on the implications of habitat disturbance impact on the fisheries and ecosystems prior to the introduction on a commercial scale of new fishing gear, methods and operations. Accordingly, the effects of such introductions shall be monitored. ***Not applicable to this fishery**

8.12 International cooperation shall be encouraged with respect to research programs for fishing gear selectivity and fishing methods and strategies, dissemination of the results of such research programs and the transfer of technology.

8.13 States 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 target and non-target species in relation to such fishing gear as an aid for management decisions and with a view to minimizing non utilized catches.

8.14 Policies shall be developed for increasing stock populations and enhancing fishing opportunities through the use of artificial structures. States 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. ***Not applicable to this fishery**

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 9.

Fishing operations shall be carried out by fishers with appropriate standards of competence in accordance with international standards and guidelines and regulations.

No. supporting clauses	3
Applicable supporting clauses	3
Non-applicable supporting clauses	0
Overall level of conformity	High

Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

NMFS, the Council and ADFG have rules and regulations governing AK fisheries available on their websites. The BSAI and GOA FMPs also contain a summary of management measures that apply to these fisheries. These also cover legal definitions such as quota shares, individual fishing quotas, etc.

Data on the number and location of Alaskan fishers, permits issued, etc. can be found in the annual SAFE documentation. Information on Alaska sport fish and crew license holders has been compiled through the Alaska Fisheries Information Network. Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska's Commercial Fisheries Entry Commission (CFEC) website. Fishermen in the state-managed fisheries must register prior to fishing and are required to keep a logbook during the fishery. Completed logbook pages must be attached to the ADFG copy of the fish ticket at the time of delivery. USCG also maintains records and issues credentials on licenses for crewmembers, including engineers, captains, mates, deckhands, etc. The State of Alaska issues commercial fishing licenses for all crew.

There is no material change in compliance with any of the following supporting clauses.

9.1. States shall enhance 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 States 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 national laws.

Changes to Fundamental Clause Confidence Ratings:

There is no material change in compliance with any of the following supporting clauses.

7.5 Implementation, Monitoring and Control (E)

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.

No. supporting clauses	6
Applicable supporting clauses	2
Non-applicable supporting clauses	4 (10.3, 10.3.1, 10.4, 10.4.1)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

Under the Federal North Pacific Groundfish Observer Program a comprehensive monitoring, control and surveillance system has been implemented. All the UoAs' vessels are required to carry observers as requested, and most carry two observers at all times to collect data on fishing effort, total catch by species, and biological data; characterize marine mammal and sea bird interactions. Vessels carry VMS to monitor location. At-sea and shore-side enforcement is carried out by the Alaska State Troopers, NMFS OLE, and the USCG (NOAA 2019b; USCG 2019).
Monitoring, control and surveillance actions include:

- Fishing permit requirements
- Fishing permit and fishing vessel registers
- Vessel and gear marking requirements
- Fishing gear and method restrictions
- Reporting requirements for catch, effort, and catch disposition
- Vessel inspections
- Record keeping requirements
- Auditing of licensed fish buyers
- Control of transshipment
- Monitored unloads of fish
- Information management and intelligence analysis
- Analysis of catch and effort reporting and comparison with landing and trade data to confirm accuracy
- Boarding and inspection by fishery officers at sea
- Aerial and surface surveillance

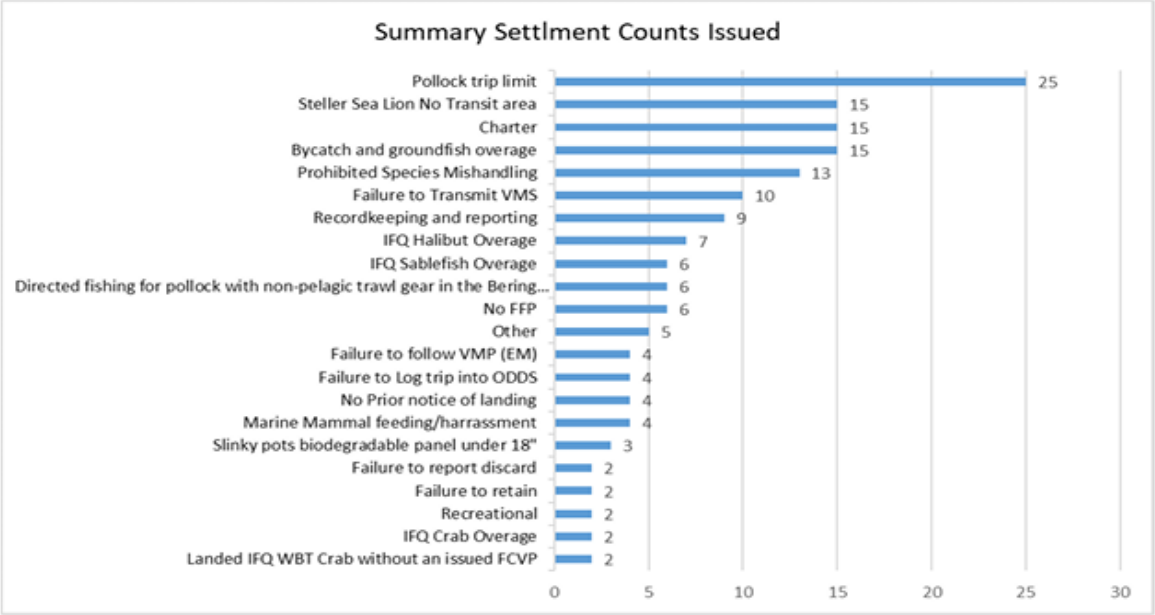
All vessels participating in a parallel groundfish fishery, except those using jig or hand troll gear, must have a NMFS-approved VMS (NOAA 2019c).

The USCG, NMFS OLE, and AWT conduct at-sea and shore-based inspections. At-sea, dockside monitoring, aerial surveillance, and satellite VMS are in operation within the fisheries and developmental of electronic monitoring is ongoing. There are three entities that provide enforcement for Alaska fisheries: NOAA Office of Law Enforcement (OLE), US Coast Guard (USCG) and Alaska Wildlife Troopers (AWT). There is a Joint Enforcement Agreement (JEA) between NOAA-OLE and the AWT to enable AWT to support and enforce federal laws and regulations under the Magnuson Stevens Act (MSA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Lacey Act and Northern Pacific Halibut Act (NPHA). Monitoring, control, and surveillance (MCS) is carried out at-sea and shore-side for the federal fisheries by the OLE and the USCG. The AWT fulfils the MCS function for the state water fisheries.

There have been no reported changes to the monitoring of the fleet. The BSAI &GOA flatfish fleet are still mandated to have 2 federal fisheries observers on all catcher processor vessels. There is currently no electronic monitoring on the UoA's fleet, however there are additional cameras to allow for deck sorting of halibut.

In the OLE Alaska Enforcement Division Report to NPFMC (December 2023), efforts were highlighted on the nonpelagic trawl operation. 43 trawl vessels were boarded, 29 trawl gear inspections were completed, 44 incidents/investigations were opened, and enforcement actions were taken in five investigations. Subsequent to the reported time in the June report, in the BSAI Red King Crab Savings Area, 34 more trips were monitored (total 738), and in the Gulf of Alaska 23 more (total 123) (NOAA, 2023c).

From October 1, 2022, to September 30, 2023, NOAA officers opened 1544 incidents including 931 MSA, 454 Northern Pacific Halibut Act, 84 Marine Mammal Protection Act, 65 Endangered Species Act, and 10 involving other statutes and regulations (Lacey Act, Pacific Salmon Fishing Act, Port State Measure Act, and Whaling Convention Act, etc. Note, these incidents apply to all vessels and gear types that operate within the BSAI/GOA fishing area, not just the UoA. The following figure shows the summary settlement issued.



**Other includes counts of two or fewer related to chunked halibut, IFQ permit holder not present, selling sport caught halibut, and discarding unsorted pollock catch.*

Figure 5 Summary Settlement Counts Issued. Source: OLE Report to NPFMC, December 2023

Also in the 2023 OLE report to the Council, there are several Notices of Violation and Assessment (NOVA). Out of 15 NOVAs listed, at least 3 of those incidents could be directly related to the vessels/companies in the UoAs for this fishery. The relevant incidents are as follows:
AK2000930; F/V America's Finest and F/V U.S. Intrepid – Owner Fishermen's Finest, Inc. was charged under the Frank Lobiondo Coast Guard Authorization Act of 2018 with exceeding mothership processing caps of Flathead sole, Yellowfin sole, and Alaska plaice. A $48,183 NOVA was issued, and the case settled for $47,183.
AK2205725; C/P Cape Horn - Owner Cape Horn Vessel, LLC and operator Peter Pack were charged jointly and severally under the Magnuson-Stevens Act with fishing in a closed area. A $26,801 NOVA was issued.
AK2106551; C/P Cape Horn – Crewman Ata Loapo was charged under the Magnuson-Stevens Act with sexually harassing a female fisheries observer. A $24,000 NOVA was issued.
Overall, the OLE report notes trends (i.e., number of settlements, incidents and/or infractions) across all fleets, including those in the UoA and those trends are declining (2023 OLE).
The client representative stated that the Alaska Seafood Cooperative (AKSC) staff meets with OLE quarterly to discuss trends in observer statements. These trends are communicated to the fleet and vessel ownership. Additionally, OLE attends the annual AKSC captains' meeting and describes any enforcement-related issues from the previous year so that vessel leadership can address them in the subsequent season. While OLE communicates issues they see to AKSC staff and members, specific enforcement actions are dealt with at the company level. Any OLE investigations are held confidential until they are completed and/or settled under the NOVA process, at which time they are included in the annual enforcement report.

There is no material change in compliance with any of the following supporting clauses. Clauses 10.3, 10.3.1, 10.4, and 10.4.1 are not applicable.

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.

10.2 Fishing vessels shall not be allowed to operate on the resource in question without specific authorization.

10.3 States involved in the fishery shall, in accordance with international law, within the framework of sub-regional or regional 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 their national jurisdiction. ***Not applicable to this fishery**

10.3.1 States which are members of or participants in sub-regional or regional 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 which engage in activities which 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. ***Not applicable to this fishery**

10.4 Flag States shall ensure that no fishing vessels entitled to fly their flag fish on the high seas or in waters under the 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. ***Not applicable to this fishery**

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. ***Not applicable to this fishery**

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 11.

There shall be a framework for sanctions for violations and illegal activities of adequate severity to support compliance and discourage violations.

No. supporting clauses	3
Applicable supporting clauses	2
Non-applicable supporting clauses	1 (11.3)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

Penalties for fisheries related fisheries related violations include fines; forfeiture of fish, vessels, other property and quota; and imprisonment. With respect to permit sanctions, where applicable, the statutes that NOAA enforces generally provide broad authority to suspend or revoke permits. OLE agents and officers can assess civil penalties directly to the violator in the form of a summary settlement or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation who can impose a sanction on the vessels permit or further refer the case to the U.S. Attorney's Office for criminal proceedings. The low proportion of violations encountered during at-sea patrols of the Alaska fisheries demonstrates effective deterrence.

Alaska state law describes the penalties for violating a BOF regulation. Fines, up to a maximum of $15,000 or imprisonment for not more than 1 year are stipulated, along with forfeiture of any fish, its market value, forfeiture of vessel and any fishing gear. The option of pursuing criminal action is also available to the state.

There is no material change in compliance with any of the following supporting clauses. Clause 11.3 is not applicable.

11.1 National laws of adequate severity shall be in place that provide for effective sanctions.

11.2 Sanctions applicable in respect of 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 that affects authorization to fish and/or to serve as masters or officers of a fishing vessel, in the event of non-compliance with conservation and management measures.

11.3 Flag States shall take enforcement measures in respect of fishing vessels entitled to fly their flag which have been found by them to have contravened applicable conservation and management measures, including, where appropriate, making the contravention of such measures an offence under national legislation. ***Not applicable to this fishery**

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

7.6 Serious Impacts of the Fishery on the Ecosystem (F)

Fundamental Clause 12.

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

No. supporting clauses	16
Applicable supporting clauses	16
Non-applicable supporting clauses	0
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

The catch composition for landed and discarded primary and secondary species (and in a few cases, habitat components) for the past five years was reviewed for both the BSAI and GOA (tables below), with target species in this or one of the other certified fisheries in Alaska given in green, minor associated species given in white, and habitat-forming species given in orange. Catch composition has been relatively stable, with no notable trends to report. Reporting for sculpins has changed such that sculpins are now reported in masse as "ecosystem component" species, therefore, through 2020 they are listed separately by species and starting in 2021 they are counted simply as sculpins. Yellowfin sole continue to dominate the catches in the BSAI, whereas Arrowtooth flounder comprises the largest proportion of the catch in the GOA.

Table 13. Catch composition of target and associated species (and some habitat-forming species) in the BSAI flatfish fishery. Weights are given in tons.

Species	2018	2019	2020	2021	2022	5-year total	% of total
Yellowfin sole	127,119	126,729	131,666	106,284	152,543	644,341	49.79%
Pollock	36,612	34,119	40,904	31,840	36,127	179,602	13.88%
Rock sole	24,503	23,537	24,412	12,923	16,889	102,264	7.90%
P. cod	19,464	19,186	17,726	11,518	14,217	82,111	6.34%
AK plaice	20,233	15,693	19,471	13,864	11,106	80,366	6.21%
Flathead sole	9,330	13,901	6,710	8,262	12,984	51,186	3.96%
Arrow fldr	5,474	8,445	8,896	7,367	6,109	36,291	2.80%
Kamchatka fldr	2,168	3,444	6,301	5,735	7,520	25,167	1.94%
Alaska skate	3,288	4,632	3,169	4,313	4,080	19,482	1.51%
Starry fldr	5,261	2,365	2,438	1,220	921	12,205	0.94%
Turbot	1,595	2,574	1,920	1,367	1,219	8,674	0.67%
Bivalves	1,792	2,261	2,147	2,030	1	8,232	0.64%
Sablefish	196	1,148	1,297	1,340	1,902	5,884	0.45%
POP	325	613	1,575	1,550	1,347	5,410	0.42%
Brittle star unidentified		1,189	1,672	1,922	6	4,788	0.37%
Plain sculpin	963	1,033	808			2,804	0.22%
Benthic urochordata				2,378	253	2,631	0.20%
Great sculpin	731	1,068	679			2,478	0.19%
Rex sole	123	538	543	600	489	2,293	0.18%
Capelin	274	871	398	696		2,238	0.17%
Sculpin	0	1	1	1	1,987	1,989	0.15%

Sea star			0		1,635	1,635	0.13%
Giant Grenadier	6	10	18	9	1,375	1,417	0.11%
Thornyhead rf	65	438	158	203	312	1,176	0.09%
yellow Irish lord	262	275	319			857	0.07%
Corals Bryozoans - Corals Bryozoans Unidentified	231	232	129	191	4	787	0.06%
Aleutian skate	38	211	149	166	108	672	0.05%
Atka mackerel	196	89	84	107	172	647	0.05%
Butter sole	27	44	213	48	238	570	0.04%
Eelpouts		137	171	210	40	558	0.04%
Wht bltchd skate	47	59	148	126	167	548	0.04%
Shortraker rf	60	95	66	194	77	492	0.04%
Grenadier - Rattail Grenadier Unidentified	31	48	53	85	275	491	0.04%
Skate	77	165	86	70	73	471	0.04%
Bigmouth Sculpin	122	180	120			421	0.03%

Table 14. Target and associated species catches in the Gulf of Alaska flatfish trawl fishery from 2019-2022. Weights are given in tons.

Species	2018	2019	2020	2021	2022	Total last 5	Percent of total
Arrow fldr	15,209	20,632	16,615	5,953	7,416	65,824	60.9%
Flathead sole	1,834	2,058	1,318	440	408	6,058	5.6%
POP	907	1,696	956	697	843	5,099	4.7%
Pollock	2,146	1,519	579	385	251	4,879	4.5%
unidentified rockfish	1,303	1,457	1,237	376		4,373	4.0%
Rock sole	1,816	447	268	1,062	725	4,318	4.0%
Rex sole	1,459	935	710	147	536	3,787	3.5%
Sablefish	1,365	959	494	327	478	3,623	3.4%
Big skate	534	593	498	31	39	1,695	1.6%
Butter sole	365	80	96	288	127	956	0.9%
Longnose skate	297	292	176	38	15	817	0.8%
Dusky rf	153	291	105	215	45	809	0.7%
English sole	107	197	304	124	70	802	0.7%
Northern rf	136	420	66	67	82	771	0.7%
Atka mackerel	182	266		258	12	718	0.7%
Spiny dogfish	83	308	35	16	7	449	0.4%
Misc fish	120.60		151.78	40.71	41.34	354	0.3%
Rougheye rf	132	106	87	22	3	350	0.3%
Sculpin				146.94	142.80	290	0.3%
Sleeper shark	193	16	18	30	18	274	0.3%
Dover sole	61	23	48	31	65	228	0.2%
Aleutian skate	88	77	29	14	15	223	0.2%
Thornyhead rf	55	77	37	24		194	0.2%
yellow Irish lord	87	92	3		3	185	0.2%
Starry fldr	86	26	10		40	163	0.2%
Skate	44	52	16	7	9	128	0.1%
Sea star	45.05	26.93	10.05	12.25	12.23	107	0.1%
Octopus	21	32	32			85	0.1%

Giant Grenadier			80.07	1.34	1.34	83	0.1%
Squid		4.66	44.97	4.96	4.97	60	0.1%
Shortraker rf	13	21	13		10	57	0.1%

Catches of Prohibited Species (PSC; species that must be discarded if caught) were also reviewed for both the BSAI and GOA fisheries. Decreased bycatch of PSC crabs and salmon in the Bering Sea and Aleutian Islands reflects the decreasing stock abundances of these species' groups. These declines prompted a complete closure of the Red King Crab and snow crab fisheries in the Bering Sea, as well as disaster relief responses in coastal western Alaska, where chinook and other salmon runs have been experiencing unprecedented declines (NOAA Fisheries 2022). Decreased bycatch of PSC species is also a result of continued avoidance efforts by the fleet to reduce their incidental take of these species.

Table 15. Catches of crab and salmon species in the BSAI flatfish trawl fishery from 2018-2022. Units are numbers of individuals.

Crab or Salmon spp (Numbers)	2018	2019	2020	2021	2022
Opilio Tanner Crab	1,557,384	886,539	733,328	226,687	201,881
Bairdi Tanner Crab	176,368	334,336	581,269	563,319	429,762
Red King Crab	28,579	68,263	63,476	40,000	8,290
Golden King Crab	2,271	12,210	7,395	9,167	7,049
non-Chinook	10,756	4,762	845	1,851	581
Chinook	1,205	3,401	1,546	1,851	258
Blue King Crab	389	629	115	361	453

Table 16. Catches of crab and salmon species in the GOA flatfish trawl fishery from 2018-2022. Units are numbers of individuals.

Crab or Salmon spp (Numbers)	2017	2018	2019	2020	2021	2022
Bairdi Tanner Crab	119,874	233,699	203,204	601,043	9,439	5,226
Chinook	736	1,528	2,313	231	1,005	206
non-Chinook	466	627	968	438	779	205
Golden King Crab	1	4	132	0	1	
Opilio Tanner Crab					131	

Marine Mammal Interactions

Annually, NMFS classifies commercial fisheries on the List of Fisheries based on the level of marine mammal mortality (deaths) and serious injury that they cause incidentally (i.e., accidentally or unintentionally). In classifying fisheries, NMFS compares the numbers of marine mammals that are incidentally killed or seriously injured by commercial fishing operations to a stock's potential biological removal (PBR) level. To prepare the MMPA List of Fisheries, NMFS primarily uses marine mammal stock assessment reports, which generally summarize data from a rolling five-year period, and supplements these data with other sources, as needed. Commercial fisheries with frequent incidental deaths and serious injuries (that are by themselves responsible for the NMFS Marine Mammal Authorization Program, annual removal of 50 percent or more of any marine mammal stock's PBR) are classified as Category I. Fisheries with occasional deaths and serious injuries (greater than 1 percent and less than 50 percent annual removal of a stock's PBR) are classified as Category II. Fisheries with a remote likelihood or no known deaths or serious injuries (less than or equal to one percent of a stock's PBR) are classified as Category III. Category I and II fisheries may be required by NMFS to implement actions to reduce incidental mortality and serious injury. The Alaska BSAI flatfish trawl fishery is a category II fishery on the MMPA list of fisheries (see below table). The basis for this classification is the total annual mortality and serious injury of Steller sea lions (Western US stock) and killer whales (AK resident stock) is more than 1% and less than 50% of each stock's PBR level. According to Freed et. Al. (2023), Table 17 shows the total number of serious injuries and mortalities to marine mammals between 2017 and 2021 in both the GOA and BSAI fisheries.

Table 17. Total SI/M of marine mammals in the BSAI and GOA flatfish trawl fisheries from 2017-2021

	Year					
Species	**2017**	**2018**	**2019**	**2020**	**2021**	**Grand Total**
Bearded Seal	1	1				2
Harbor Seal	7	1	2	2	1	13
Killer Whale		1		2	3	6
Northern Fur Seal	1	2	12			15
Ringed Seal	8	14	2	1	4	29
Spotted Seal	2		1	2	2	7
Steller Sea Lion	13	9	15	14	18	69
Unidentified Otariid			1			1
Unidentified Pinniped				1		1
Unidentified Whale	1					1
Grand Total	**33**	**28**	**33**	**22**	**28**	**144**

Current Classification on the List of Fisheries

Category	**II**
Estimated Number of Participants	29
Target Species	flatfish
Applicable Take Reduction Plans	N/A
Observer Coverage	From 1998-2005, pooled observer coverage for all areas was: 59.4%, 66.3%, 64.5%, 57.6%, 58.4%, 63.9%, 68.2%, and 68.3%, respectively.
Marine Mammal Species/ Stocks Killed or Injured	Bearded seal, Beringia; Gray whale, Eastern North Pacific; Harbor porpoise, Bering Sea; Harbor seal, Bristol Bay; Humpback whale, Western North Pacific; Killer whale, Eastern North Pacific Alaska resident[1]; Killer whale, Eastern North Pacific GOA, AI, BS transient[1]; Northern fur seals, Eastern Pacific; Ribbon seal; Ringed seal, Arctic; Spotted seal, Bering; Steller sea lion, Western U.S.[1]; Walrus, AK.

In addition, there have been up to 10 killer whale takes in the BSAI flatfish trawl fishery in recent years. Though this is not a conservation concern for the whale stock, the fishery is actively working on gear modifications to avoid killer whale takes, which are thought to be due to new behaviors by the killer whales in and around the trawl nets.

Habitats and Ecosystems

During the NPFMC February 2023 meeting, The Council reviewed the summary report of a 5-year review of essential fish habitat (EFH) components of the Council's FMPs, and initiated an analysis at this meeting to update the Council's BSAI Groundfish, GOA Groundfish, BSAI King and Tanner Crab, Salmon, and Arctic FMPs' descriptions and maps of Essential Fish Habitat (EFH). The Council elected not to initiate additional habitat-specific processes at this time (NPFMC 2023).

The Council is considering a Programmatic EIS (PEIS) with the purpose of providing a comprehensive analysis of the cumulative impacts of Alaska's Federal groundfish fisheries on the human environment given both management

and ecosystem changes that have occurred since the last review. The Council indicated that adoption of a final alternative would include updating the Council's current management policy objectives, noting that it may not be necessary to update every objective. The process of considering a PEIS is intended to incorporate ongoing Council efforts specifically tasked to create more climate-resilient federal fisheries, as applicable (NPFMC 2023).

There is no material change in compliance with any of the following supporting clauses.

12.1 States shall assess the impacts of environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks and assess the relationship among the populations in the ecosystem.

12.2 Adverse environmental impacts on the resources from human activities shall be assessed and, where appropriate, corrected.

12.3 The most probable adverse impacts of the fishery on the ecosystem/environment shall be considered, taking into account available scientific information, and local knowledge. In the absence of specific information on the ecosystem impacts of fishing for 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.

12.4 Impacts that are likely to have serious consequences shall be addressed. This may take the form of an immediate management response or a further analysis of the identified risk. In this context, full recognition should be given to the special circumstances and requirements in developing countries and countries in transition, including financial and technical assistance, technology transfer, training and scientific cooperation.

12.5 Appropriate measures shall be applied to minimize:

- *catch, waste and discards of non-target species (both fish and non-fish species).*
- *impacts on associated, dependent or endangered species*

12.5.1 There shall be management objectives that seek to ensure that endangered species are protected from adverse impacts resulting from interactions with the unit of certification and any associated culture or enhancement activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.

12.6 Non target catches, including discards, of stocks other than the "stock under consideration" shall be monitored and shall not threaten these non-target stocks 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.

12.7 The role of the "stock under consideration" in the food web shall be considered, and if it is a key prey species in the ecosystem, management objectives and measures shall be in place to avoid severe adverse impacts on dependent predators.

12.8 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).

12.9 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 that part of the spatial range that is potentially affected by fishing.

12.10 Research shall be promoted on the environmental and social impacts of fishing gear and, in particular, on the impact of such gear on biodiversity and coastal fishing communities.

12.11 There shall be outcome indicator(s) consistent with achieving management objectives for non-target stocks (i.e. avoiding overfishing and other impacts that are likely to be irreversible or very slowly reversible).

12.12 There shall be outcome indicator(s) consistent with achieving management objectives that seek to ensure that endangered species are protected from adverse impacts resulting from interactions with the unit of certification and any associated culture or enhancement activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.

12.13 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.

12.14 There shall be outcome indicator(s) consistent with achieving management objectives that seek 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.

12.15 There shall be outcome indicator(s) consistent with achieving management objectives that seek to minimize adverse impacts of the unit of certification, including any enhancement activities, on the structure, processes 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.

Changes to Fundamental Clause Confidence Ratings:

There are no changes in the management of fisheries that would detrimentally affect performance against the confidence ratings for the fundamental clauses and any supporting clauses.

Fundamental Clause 13.

Where fisheries enhancement is utilized, environmental assessment and monitoring shall consider genetic diversity and ecosystem integrity.

No. supporting clauses	19
Applicable supporting clauses	0
Non-applicable supporting clauses	19
Overall level of conformity	N/A
Non-conformance	N/A

Evidence of continuous compliance with the fundamental clause:

Not applicable

Evidence of continuous compliance with the applicable supporting clauses:

Not applicable.

13.1 State shall promote responsible development and management of aquaculture, including an advanced evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity, based on the best available scientific information (and/or traditional, fisher or community objective and verifiable knowledge). Significant uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries, including culture and enhancement activities. This issue can be addressed by taking a risk assessment/risk management approach.

13.1.1 In the case of enhanced fisheries, the fishery management system should take due regard of the natural production processes and be appropriate for the conservation of genetic diversity, biodiversity, protection of endangered species, maintenance of integrity of aquatic communities and ecosystems, minimizing adverse impacts on ecosystem structure and function.

13.2 State shall produce and regularly update aquaculture development strategies and plans, as required, to ensure that aquaculture development is ecologically sustainable and to allow the rational use of resources shared by aquaculture and other activities.

13.2.1 State shall ensure that the livelihoods of local communities, and their access to fishing grounds, are not negatively affected by aquaculture developments.

13.3 Effective procedures specific to aquaculture of fisheries enhancement shall be established to undertake appropriate environmental assessment and monitoring with the aim of minimizing adverse ecological changes such as those caused by inputs from enhancement activities and related economic and social consequences.

13.4 With due regard to the assessment approach employed, stock assessment of fisheries that are enhanced through aquaculture inputs shall consider the separate contributions from aquaculture and natural production.

13.5 Any modification to the habitat for enhancing the stock under consideration is reversible and do not cause serious or irreversible harm to the natural ecosystem's structure and function.

13.5.1 Efforts shall be undertaken to minimize the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters.

13.5.2 Steps shall be taken to minimize adverse genetic disease and other effects of escaped farmed fish on wild stocks.

13.5.3 Research shall be promoted to develop culture techniques for endangered species to protect, rehabilitate and enhance their stocks, taking into account the critical need to conserve genetic diversity of endangered species.

13.6 State shall protect transboundary aquatic ecosystems by supporting responsible aquaculture practices within their national jurisdiction and by cooperation in the promotion of sustainable aquaculture practices.

13.7 State shall, with due respect to their neighboring States and in accordance with international law, ensure responsible choice of species, siting and management of aquaculture activities which could affect trans boundary aquatic ecosystems.

13.8 State shall consult with their neighboring States, as appropriate, before introducing non-indigenous species into trans-boundary aquatic ecosystems.

13.9 State shall establish appropriate mechanisms, such as databases and information networks to collect, share and disseminate data related to their aquaculture activities to facilitate cooperation on planning for aquaculture development at the national, subregional, regional and global level.

13.10 State shall cooperate in the elaboration, adoption and implementation of international codes of practice and procedures for introductions and transfers of aquatic organisms.

13.11 States shall, in order to minimize risks of disease transfer and other adverse effects on wild and cultured stocks, encourage adoption and promote the use of appropriate practices/procedures in the selection and genetic improvement of broodstocks, the introduction of non-native species, and in the production, sale and transport of eggs, larvae, fry, broodstock or other live materials. States shall facilitate the preparation and implementation of appropriate national codes of practice and procedures to this effect.

13.12 Enhanced fisheries may be supported in part by stocking of organisms produced in aquaculture facilities or removed from wild stocks other than the "stock under consideration". Aquaculture production for stocking purposes should be managed and developed according to the above provisions, especially in relation to maintaining the integrity of the environment, the conservation of genetic diversity, disease control, and quality of stocking material.

13.13 Regarding the enhanced components of the "stock under consideration", provided that a natural reproductive stock component is maintained and fishery production is based primarily on natural biological production within the ecosystem of which the "stock under consideration" forms a part, enhanced fisheries shall meet the following criteria:

- *the species shall be native to the fishery's geographic area or introduced historically and have subsequently become established as part of the "natural" ecosystem;*
- *there shall be natural reproductive components of the "stock under consideration;*
- *the growth during the post-release phase shall be based upon food supply from the natural environment and the production system shall operate without supplemental feeding.*

13.14 In the case of enhanced fisheries, "stock under consideration" may comprise naturally

reproductive components and components maintained by stocking. In the context of avoiding significant negative impacts of enhancement activities on the natural reproductive components of "stock under consideration":

- *naturally reproductive components of enhanced stocks shall not be overfished;*
- *naturally reproductive components of enhanced stocks shall not be substantially displaced by stocked components.*

In particular, displacement shall not result in a reduction of the natural reproductive stock component below abundance-based target reference points (or their proxies) defined for the regulation of harvest.

Changes to Fundamental Clause Confidence Ratings:

Not applicable.

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