

Alaska Responsible Fishery Management Certification

2nd Surveillance Report

For The
Alaska Pacific Halibut fishery

Client
'Eat on the Wild Side' (FVOA)

Facilitated By
Alaska Seafood Marketing Institute (ASMI)

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Report Code: AK/HAL/002.2/2018
Published Date: 16th July 2018

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Foreword

The Alaska Responsible Fisheries Management (RFM) Standard Version 1.3 is composed of Conformance Criteria based on the 1995 FAO Code of Conduct for Responsible Fisheries and the FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries adopted in 2005 and amended/extended in 2009.

The Standard also includes full reference to the 2011 FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Inland Fisheries which in turn are now supported by a suite of guidelines and support documents published by the UN FAO. Further information on the Alaska RFM program may be found here: <http://www.alaskaseafood.org/rfm-certification/certified-fisheries-companies/certified-fisheries/>.

This report is the 2nd Surveillance Report (2018) for the Alaska Pacific Halibut, federal and state commercial fisheries following initial certification award against this FAO-Based RFM Program, awarded on April 23rd 2011, and recertification on 9th January 2017.

The objective of the Surveillance Assessment and Report is to monitor for any changes/updates in the management regime, regulations and their implementation since the previous assessment; in this case, the Final Report of Full Assessment (re-certification) completed in January 2017. The report determines whether these changes and current practices remain consistent with the overall scorings of the fishery allocated during re-certification.

High conformance was demonstrated by the fishery with regards to the Fundamental Clause. Two minor non-conformances (NC) identified during the re-assessment persist, with an appropriate client action plan as well as fair levels of progress on the NC.

The certification covers the Pacific Halibut (*Hippoglossus stenolepis*) commercial fishery employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4B and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Services (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management, underwent their 4th surveillance assessment against the requirements of the FAO-Based RFM Conformance Criteria Version 1.3 Fundamental clauses.

The surveillance assessment was conducted according to the Global Trust Certification ISO 65 accredited procedures for FAO – Based Responsible Fisheries Management Certification using the Alaska FAO – Based RFM Conformance Criteria Version 1.3 fundamental clauses as the assessment framework

Table of contents

Foreword.....	2
Table of contents	3
Glossary	4
Summary and Recommendations	5
Assessment Team Details	6
1. Introduction	7
1.1. Recommendation of the Assessment Team.....	8
2. Fishery Applicant Details.....	9
3. Unit of Certification	10
4. Fishery Observations	11
4.1. Stock status, landings and TAC update	11
4.2. Enforcement update	12
4.3. Ecosystem Update.....	12
4.4. Relevant changes to Legislation and Regulations.....	13
4.5. Relevant changes to the Management Regime	13
5. Surveillance Meetings	14
6. Assessment Outcome Summary	15
6.1. Fundamental Clauses Summaries	15
7. Conformity Statement.....	20
8. Evaluation of Fundamental Clauses	21
8.1. Section A. The Fisheries Management System	21
8.1.1. Fundamental Clause 1.....	21
8.1.2. Fundamental Clause 2.....	26
8.1.3. Fundamental Clause 3.....	32
8.2. Section B. Science and Stock Assessment Activities	35
8.2.1. Fundamental Clause 4.....	35
8.2.2. Fundamental Clause 5.....	40
8.3. Section C. The Precautionary Approach.....	44
8.3.1. Fundamental Clause 6.....	44
8.3.2. Fundamental Clause 7.....	46
8.4. Section D. Management Measures.....	48
8.4.1. Fundamental Clause 8.....	48
8.4.2. Fundamental Clause 9.....	56
8.5. Section E. Implementation, Monitoring and Control.....	58
8.5.1. Fundamental Clause 10	58
8.5.2. Fundamental Clause 11	62
8.6. Section F. Serious Impacts of the Fishery on the Ecosystem.....	64
8.6.1. Fundamental Clause 12	64
9. Performance specific to agreed corrective action plans.....	77
10. Unclosed, new non-conformances and new corrective action plans	78
11. Future Surveillance Actions.....	79
12. Client signed acceptance of the action plan	80
13. Recommendation and Determination.....	81
14. References	82
15. Appendices	87
15.1. Appendix 1 – Assessment Team Details	87

Glossary

ABC	Allowable Biological Catch
ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
ASMI	Alaska Seafood Marketing Institute
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
CPUE	Catch per Unit Effort
EIS	Environmental Impact Statement
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAO	Food and Agriculture Organization of the United Nations
FMP	Fishery Management Plan
GOA	Gulf of Alaska
GHL	Guideline Harvest Level
IFQ	Individual Fishing Quota
IRFA	Initial Regulatory Flexibility Analysis
IRIU	Improved Retention/Improved Utilization
LLP	License Limitation Program
MSFCMA	Magnuson-Stevens Fisheries Management and Conservation Act
mt	Metric tons
MSY	Maximum Sustainable Yield
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
OFL	Overfishing Level
OLE	Office for Law Enforcement
OY	Optimum Yield
PSC	Prohibited Species Catch
RACE	Resource Assessment and Conservation Engineering
REFM	Resource Ecology and Fisheries Management
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (Report)
SSC	Scientific and Statistical Committee
SSL	Steller Sea Lion
TAC	Total Allowable Catch
USCG	U.S. Coast Guard

Summary and Recommendations

This report is the 2nd Surveillance Report (AK/HAL/002.2/2018) for the Alaska Pacific Halibut (*Hippoglossus stenolepis*) Commercial Fishery produced on behalf of the “Eat on the Wild Side (Fishing Vessel Owners' Association (FVOA))” according to the Alaska Based Responsible Fisheries Management (RFM) Certification Program. The fisheries were originally certified on 23rd April 2011, and recertified in 26th January 2017.

The objective of this Surveillance Report is to monitor for, and evaluate the impacts of, any changes to the management regime, regulations and their implementation since the previous assessment. Having assessed these changes to the fishery (if any) the Assessment Team determines if these changes materially affect the fisheries' conformance to the AKRFM Standard and whether current practices remain consistent with the overall confidence ratings assigned during either initial certification or subsequent surveillance audits where the original confidence rating(s) have been changed.

In addition to this, any areas reported as “items for surveillance” or corrective action plans in the previous assessment are reassessed and a new conclusion on consistency of these items with the Conformance Criteria is given accordingly.

High conformance was demonstrated by the fishery with regards to the Fundamental Clause. Two minor non-conformances (NC) identified during the re-assessment persist, with an appropriate client action plan as well as fair levels of progress on the NC.

The certification covers the Alaska Pacific Halibut (*Hippoglossus stenolepis*) Commercial Fishery legally employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4B and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Services (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management, underwent their 4th surveillance assessment against the requirements of the FAO-Based RFM Conformance Criteria Version 1.3 Fundamental clauses.

The surveillance assessment was conducted according to the Global Trust Certification procedures for Alaska Responsible Fisheries Management Certification using the FAO – Based RFM Conformance Criteria (v1.3) fundamental clauses as the assessment framework.

The assessment was conducted by a team of Global Trust appointed assessors. Details of the assessment team are provided in [Appendix 1](#).

The main Key outcomes have been summarized in Section 5 “[Assessment Outcome Summary](#)”.

Assessment Team Details

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1. Introduction

This Report documents the 2nd Surveillance Assessment of the Alaska Pacific Halibut (*Hippoglossus stenolepis*) Commercial Fishery originally certified on April 23rd 2011, and re-certified on 26th January 2017, and presents the recommendation of the Assessment Team for continued FAO-Based RFM Certification.

Unit of Certification

The US Alaska Pacific Halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management and fished with benthic longline (within Alaska's 200 nm EEZ).

This Surveillance Report documents the assessment results for the continued certification of commercially exploited halibut fisheries to the Alaska RFM Certification Program. This is a voluntary program that has been supported by ASMI who wish to provide an independent, third-party certification that can be used to verify that these fisheries are responsibly managed.

The assessment was conducted according to the Global Trust procedures for Alaska RFM Certification using the fundamental clauses of the Alaska RFM Conformance Criteria Version (V1.3) in accordance with ISO 17065 accredited certification procedures.

The assessment is based on 6 major components of responsible management derived from the FAO Code of Conduct for Responsible Fisheries (1995) and Guidelines for the Eco-labelling of products from marine capture fisheries (2009); including:

- 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](#)

These six major components are supported by 12 fundamental clauses (+ 1 in case of enhanced fisheries) that guide the AK RFM Certification Program surveillance assessment.

A summary of the site meetings is presented in Section 5. Assessors included both externally contracted fishery experts and Global Trust internal staff ([Appendix 1](#)).

1.1. Recommendation of the Assessment Team

Following this 2nd Surveillance Assessment, the assessment team recommends that continued Certification under the Alaska Responsible Fisheries Management Certification Program is maintained for the management system of the applicant fisheries, the US Alaska Pacific Halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, and fished with benthic longline (within Alaska's 200 nm EEZ).

2. Fishery Applicant Details

The Fishery Applicant Details are as described in Table 1 below.

Table 1. Fishery Applicant Details.

Organization/Company Name:	Eat on the Wild Side (Fishing Vessel Owners' Association (FVOA))
Name	Robert Alverson
Position	Manager
Contact Details:	
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3. Unit of Certification

The Unit of Certification (UoC) are is described in Table 2 below.

Table 2. Unit of Certification (UoC).

Species	Location of Fishery	Principal Management Authorities	Fishing gear
Common name(s) <ul style="list-style-type: none"> ▪ Pacific halibut Latin name <ul style="list-style-type: none"> ▪ <i>Hippoglossus stenolepis</i> 	U.S. 200nm EEZ off Alaska within FAO Major Fishing Area 67	International <ul style="list-style-type: none"> ▪ International Pacific Halibut Commission (IPHC) Federal <ul style="list-style-type: none"> ▪ National Marine Fisheries Service (NMFS) ▪ North Pacific Fishery Management Council (NPFMC) State <ul style="list-style-type: none"> ▪ Alaska Department of Fish and Game (ADFG) ▪ Board of Fisheries (BOF) 	Benthic longline

4. Fishery Observations

4.1. Stock status, landings and TAC update

No significant changes have occurred since the re-assessment in January 2017. Full stock assessment consistent with contemporary methods, was completed at the end of 2017 (Stewart and Hicks 2018). All fishery removals and mortality of P. Halibut are considered in the assessment and management of the stock. These data include information on retained catch in the commercial, recreational and sport fisheries, the personal use and subsistence fisheries, as well as estimates of bycatch and discards.

P. halibut stock assessment is based on the approximate probability distributions derived from the ensemble of models. For 2017, the four models were equally weighted, as work-to-date on retrospective and predictive performance continues to suggest that each can be considered approximately equally plausible. Within-model uncertainty from each model was propagated through to the ensemble results via an asymptotic approximation. Point estimates reported in this stock assessment correspond to median values from the ensemble, and can therefore be described probabilistically by incorporating the uncertainty within each model as well as the uncertainty among models.

2017 Results

SCIENTIFIC ADVICE¹

Sources of mortality: In 2017, total removals were below the 100-year average, and have been stable near 42 million pounds (19,050 t) from 2014-17. In 2017, 83% of the total removals from the stock were retained compared to 80% in 2016.

Fishing intensity: The 2017 mortality from all sources corresponds to a point estimate of SPR = 40% (there is a 75% chance that fishing intensity exceeded the IPHC's reference level of 46%; **Table 3**). In order to reach the interim reference level, catch limits would need to be reduced for 2018. The Commission does not currently have a coastwide limit fishing intensity reference point.

Stock status (spawning biomass): Current female spawning biomass is estimated to be just above 200 million pounds (90,700 t), which corresponds to only a 6% chance of being below the IPHC threshold (trigger) reference point of SB30%, and less than a 1% chance of being below the IPHC limit reference point of SB20%. Therefore, no adjustment to the target fishing intensity is required, and the stock is not considered to be 'overfished'. Projections indicate that the target fishing intensity is likely to result in similar, but declining biomass levels in the near future

¹ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-08.pdf>

Table 3. Status summary of Pacific Halibut in the IPHC Convention Area at the end of 2017.

Indicators	Values	Trends	Status
Total mortality 2017: Retained mortality 2017: Average mortality 2013-17:	42.44 Milbs, 19,250 t ¹ 35.29 Milbs, 11,864 t 43.34 Milbs, 19,659 t	Mortality stable 2014-17	2017 MORTALITY BELOW 100-YEAR AVERAGE
SPR ₂₀₁₇ : P(SPR<46%): P(SPR<limit):	40% (29-58%) ² 75% Limit not specified	Fishing intensity increased from 2016 to 2017	FISHING INTENSITY HIGHER THAN REFERENCE LEVEL³
SB ₂₀₁₈ (Milb): SB ₂₀₁₈ /SB ₀ : P(SB ₂₀₁₈ <SB ₃₀): P(SB ₂₀₁₈ <SB ₂₀):	202 Milbs (148–256) 40% (26-60%) 6% <1%	SB decreased from 2017 to 2018	NOT OVERFISHED⁴
O32 stock distribution: All stock distribution:	See Table 1 and Figure 6	Distribution stable 2013-17	REGION 2 ABOVE, REGION 3 BELOW HISTORICAL VALUES

Weights in this document are reported as 'net' weights, head and guts removed; this is approximately 75% of the round weight.
Ranges denote approximate 95% confidence intervals from the stock assessment ensemble.
Status determined relative to the IPHC's interim reference Spawning Potential Ratio level of 46%.
Status determined relative to the IPHC's interim management procedure biomass limit of SB_{20%}.

4.2. Enforcement update

There were no significant changes to enforcement activities on the Alaska Pacific Halibut fishery in the last year.

During 2017, NOAA's Alaska Enforcement Division opened 986 halibut related incidents including outreach, vessel boardings, dockside monitoring, and compliance assistance. Of the 986 incidents, officers identified 523 halibut related violations which were handled by Compliance Assistance, Summary Settlement or a Written Warning.

In 2017, 121 Commercial IFQ or CDQ halibut violations were reported; most common violations included:

- IFQ halibut overages
- Record keeping or reporting violations (PNOL, Landing Report, Logbook)
- Gear marking violations
- Retain undersized halibut, or discarding legal sized halibut
- Hired Skipper and Permit Holder violations
- Misreporting IFQ area fished or fishing in an area with no IFQ available
- Crab pots onboard
- Fishing without an FFP

4.3. Ecosystem Update

There were no significant changes to the ecosystem impacts of the Alaska Pacific Halibut fishery in the last year.

Bering Sea Fishery Ecosystem Plan

The NPFMC Ecosystem Committee met on February 6, 2018 and reviewed a pre-draft of the Bering Sea Fishery Ecosystem Plan, and the Council plans to review the preliminary draft FEP in October, 2018.

At its June 2018 meeting, NPFMC received a summary report on the one-day ecosystem research workshop held on February 7, 2018.

Halibut bycatch in other fisheries

For 2017, estimates of bycatch mortality (pounds net weight) of Pacific Halibut by year, regulatory area, and fishery were provided for 2007 through 2017. The total estimated by-catch of halibut in other fisheries in 2017 was estimated to be 6 million pounds, down from over 7 million per year in 2015-16, and around 9 million per year 2012-14. Groundfish trawls took about 82% of the total in 2017.

2017 Electronic Monitoring Project

In 2017, EM pre-implementation was included in the NMFS Annual Deployment Plan, and EM systems were deployed on small boat longline and pot vessels targeting sablefish, Pacific Cod and Pacific Halibut

4.4. Relevant changes to Legislation and Regulations

There were no significant changes to the legislation and Regulations regime that governs the Alaska Pacific Halibut fishery in the last year

4.5. Relevant changes to the Management Regime

There were no significant changes to the management regime that governs the Alaska Pacific Halibut fishery in the last year.

5. Surveillance Meetings

Table 4. Summary of Meetings with Stakeholders

Date	Organization and Location	Representative	Main Topics of Discussion
Monday, May 14 th 2018, 9:30 AM	Alaska Division Fish and Game (ADFG) 802 3 rd Street (1 st Floor) Douglas, AK 99824-5412	Karla Bush Janet Rumble Mark Stichert	Sablefish state fisheries management updates.
Monday, May 14 th 2018, 3:00 PM	NOAA NMFS Alaska Fisheries Science Center, Ted Stevens Research Institute (NOAA AKFSC) 17109 Pt. Lena Loop Rd. Juneau, AK 99801	Dr. Dana Hanselman Chris Lunsford	Sablefish stock assessment updates.
Tuesday May 15 th , 2018, 10:00 AM	USGS Headquarters, Juneau, AK 709 W. 9th St., Rm 420 - Juneau, Alaska 99802-1668	Ivonne Yang Courtney Sergeant Jeffrey J. Schoknecht	Enforcement and compliance activities.
Tuesday May 15 th , 2018, 2:00 PM	NOAA Alaska NMFS Regional Office Juneau, AK 709 W. 9th St., Rm 420 - Juneau, Alaska 99802-1668	Mary Furuness Kurt Iverson Ann Marie Reich	Federal sablefish management regulations.
Wednesday May 16 th , 2018, 9:30 AM	NPFMC (North Pacific Fisheries Management Council) 605 W 4th Ave, Anchorage, AK 99501	Dave Witherell Diana Stram Sam Cunningham Sara Marrinan	Federal sablefish management regulations.
Thursday May 17 th , 2018, 2:00 PM	IPHC (International Pacific Halibut Council) 2320 West Commodore Way, Ste 300, Seattle, WA 98199	Dr. Ian Stewart	Pacific Halibut management and stock assessment updates.
Friday May 18 th , 2018, 12:00 PM	Fishermen terminal Seattle, Washington, USA. 3919 18th Ave W, Seattle, WA 98119	Client Mr. Robert Alverson FVOA	Updates on client action plan, and status of the fisheries.
Monday May 22 th , 2018, 1:00 PM	Alaska Wild Trooper 2760 Sherwood Ln, Juneau, AK 99801 CONFERENCE CALL	Alaska State Troopers Lt. Jonathan Streifel	Enforcement activities.

6. Assessment Outcome Summary

6.1. Fundamental Clauses Summaries

Fundamental Clause 1: Structured and legally mandated management system

Evidence adequacy rating: High

No significant change has occurred in the management of the Alaska Pacific Halibut fishery since the full assessment final report in January 2017. Fisheries resources conservation and economic viability, through research and management are important principles of the bilateral administrative framework used by Canada and USA to manage the fishery. The International Pacific Halibut Commission (IPHC) and National Marine Fisheries Service (NMFS) manage fishing for Pacific Halibut through regulations established under authority of the Northern Pacific Halibut Act of 1982 (Halibut Act). The IPHC promulgates regulations governing the Pacific Halibut fishery under the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea (Convention). The Halibut Act provides the North Pacific Fishery Management Council (Council) with authority to develop regulations, including limited access regulations. Council-developed regulations are implemented by NMFS after approval by the Secretary. The Council has exercised this authority during development of its IFQ Program. Congressional action is not required to modify the IFQ Program. However, CDQ allocations are specified in the MSA and changes to the CDQ allocations would require Congressional action. Following IPHC catch share allocations; halibut fisheries in the American EEZ off Alaska are managed by the North Pacific Fishery Management Council (NPFMC), the National Marine Fisheries Service (NMFS) and the Alaska Department for Fish and Game (ADFG). The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Pacific Halibut fisheries laws, regulations, violations and sanctions in federal waters. The Alaska Wildlife Troopers (AWT) take part in enforcement activities in state waters.

Fundamental Clause 2: Coastal area management frameworks

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. An appropriate policy, legal and institutional framework is adopted in order to achieve sustainable and integrated use of living marine resources, taking into account the fragility of coastal ecosystems, the finite nature of their natural resources and the needs of coastal communities. The state of Alaska is a cooperating agency in the NEPA process for federal actions, giving it a seat at the table for federal actions. Collectivity cooperation among NEPA and existing agencies (such as, ADFG, DEC, DNR, USFWS, ANILCA, OPMP and BOEM), facilitates appropriate processes for managing Alaska's coastal resources in a transparent, organized and sustainable way. In addition, these planning and management framework include decision-making processes and activities relevant to the fishery resource and its users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users. Both the NPFMC and the IPHC decision making processes are open to public input and consultation and the information produced through these fora, for the management of the halibut resources in Alaska, are publically available. As for 2017, the IPHC is also going through a second performance review to improve its internal processes and expand the transparency of its decision making process.

Fundamental Clause 3: Management objectives and plan

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. USA and Canada agreement and long term objectives for management, conservation, and sustainable utilization of Pacific Halibut in the North Pacific has been in use since 1923. Relevant fisheries management plans are developed from these management objectives and included: seasonal fishery closures, halibut bycatch restrictions in other fisheries, IFQ and CDQ, as well as systems for mandatory reporting catch (removals), fishery monitoring, and persecutions where violations are identified. The IPHC promulgates regulations governing the Pacific Halibut fishery under the Convention

between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea (Convention) (signed on March 2, 1953) as amended by a Protocol Amending the Convention (signed on March 29, 1979). Regulations developed by the IPHC are subject to approval by the Secretary of State with concurrence from the Secretary of Commerce (Secretary). After approval by the Secretary of State and the Secretary, the IPHC regulations are published in the Federal Register as annual management measures. Overall management objectives of NMFS includes promoting the conservation and management of halibut and sablefish resources, and to further the objectives of the Northern Pacific Halibut Act of 1982 (Halibut Act) and the Magnuson Fishery Conservation and Management Act (Magnuson Stevens Act or MSA) that provided authority for regulating these fisheries.

Fundamental Clause 4: Fishery data

Evidence adequacy rating: Medium

No significant changes have occurred since the re-assessment in January 2017. A minor non-conformance was identified during the re-assessment in January 2017, related to limited observer coverage on vessel <40 ft. Evidence of progress included the recommendation and implementation of Electronic Monitoring (EM) starting in 2017 among smaller vessels (<40 ft) that currently do not participate in the observer program. EM has been included in the Observer Program beginning in 2018. Data from EM in 2017 was used in determining bycatch species and amounts on some halibut vessels. A Client corrective action plan was provided and accepted for the non-conformance on sub-clause 4.2.

Full stock assessment consistent with contemporary methods was completed at the end of 2017. In addition data sources are updated with new available information, and refined to provide accurate representation of the fishery. All fishery removals, wastage, and mortality of Pacific Halibut are considered in the assessment and management of the stock. Reliable and accurate data are provided annually to IPHC scientist to assess the status of Pacific Halibut fisheries and ecosystems. These data include information on retained catch in the commercial and sport fisheries, the subsistence fisheries, as well as estimates of bycatch, and discards in other fisheries. Several data reporting systems are in place for the various fishery components to ensure timely and accurate collection and reporting of catch data. Fishery-independent surveys produce important, high-quality abundance and trend information for assessment and management of the Pacific Halibut stock. The IPHC has conducted fishery-independent setline surveys in selected areas during most years since 1963, and has carried out a coast-wide survey with a consistent sampling design since 1998. Data were analyzed from this extensive survey carried out in 2017. The IPHC has also taken part in the NMFS Bering Sea groundfish trawl survey since 1998 and the NMFS Aleutian Islands trawl survey since 2012. These two NMFS surveys contribute Pacific Halibut data from areas either poorly covered or not covered by the Commission's own fishery-independent survey.

Fundamental Clause 5: Stock assessment

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. Full stock assessment consistent with contemporary methods was completed at the end of 2017 (Stewart and Hicks 2018). The assessment noted that since the estimated female spawning biomass (SB) stabilized near 200 million pounds (~90,100 t) in 2010, the stock is estimated to have been increasing gradually to 2017. The SB at the beginning of 2018 is estimated to be 202 million pounds (~91,600 t), with an approximate 95% confidence interval ranging from 148 to 256 million pounds. Fishing mortality is estimated in the stock assessment from data collected during fishing surveys, catch sampling in main ports, and tagging studies. The IPHC conducts numerous projects annually to support its major mandates. The main objectives of the Biological and Ecosystem Science Research Program at IPHC are to: 1) identify and assess critical knowledge gaps in the biology of the Pacific Halibut; 2) understand the influence of environmental conditions; and 3) apply the resulting knowledge to reduce uncertainty in current stock assessment

models. The Five-Year Research Plan are proposed for the period 2017-21 includes extensive studies covering five major research areas: 1) Reproduction (i.e., sex identification, maturity estimates), 2) Growth (i.e., decrease in size-at-age, temperature effects), 3) Discard mortality rates (i.e., physiological condition and survival post-release of bycatch), 4) Migration (i.e., larval dispersal, adult and reproductive migrations) and 5) Genetics and Genomics (i.e., genetic population structure, genome characterization).

Fundamental Clause 6: Biological reference points and harvest control rule

Evidence adequacy rating: High

Full stock assessments are conducted annually, and fisheries management and conservation are based on precautionary and ecosystem based approaches. Conservation and management of the fishery is based on an average coastwide fishing intensity SPR of F46, used to determine the Total Constant Exploitation Yield (TCEY). The justification for using an average SPR from recent years is that this corresponds to fishing intensities that have resulted in a stable or slightly increasing stock, indicating that, in the short-term, this may provide an appropriate fishing intensity that will result in a stable or increasing spawning biomass. The previous harvest strategy was revoked, in recognition of the development process (management strategy evaluation) currently underway. In previous years, the harvest policy was 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (SB30 threshold level) of the level defined as unfished. Based on the current assessment, the stock is currently at 40% (approximate 95% credible range = 26-60%) of specified unfished levels (relative to the SB specified by the current management procedure), with a 6% probability the stock is below the SB30% level, and less than 1% probability that the stock size is below SB20%.

Fundamental Clause 7: Precautionary approach

Evidence adequacy rating: High.

Full stock assessments are conducted annually, and fisheries management and conservation are based on precautionary and ecosystem based approaches. Target reference points for biomass and fishing mortality (harvest rate) have been developed based on sound scientific analyses. The combination of the stock distribution from the 2017 O32 fishery-independent setline survey catch and relative target harvest rates among IPHC Regulatory Areas results in the target distribution for the annual TCEY.

Based on the current assessment, the stock is currently at 40% of specified unfished levels, with low probability the stock is below the SB30% and SB20% reference points. Stock projections for a range of alternative management actions were conducted using the integrated results from the 2017 stock assessment ensemble. The stock is projected to decrease gradually over the period from 2018-20 for removals around the reference SPR (46%) level (31 million pounds, ~14,060 t). There is a relatively small chance (< 21%) that the stock will decline below the threshold reference point (SB30%) in projections for all the levels of TCEY up to 40 million pounds (~18,100 t) evaluated over three years.

Fundamental Clause 8: Management measures

Evidence adequacy rating: High

Typically, the Pacific Halibut fishery is highly regulated and subjected to defined fishery data collection systems, operating under an IFQ system, with conservatively defined catch quotas, gear specifications and restrictions, size limits, and closed seasons and areas. In addition, if halibut bycatch limits (Prohibited Species Catch) are reached in the groundfish fisheries, or if areas with high concentrations of juvenile halibut are recorded, fishery and area closure measures are adopted respectively.

Typically, the NPFMC determines the regulations for halibut taken as (prohibited species) by-catch in the Alaskan fisheries under its management, and requires that all halibut caught incidentally in these groundfish fisheries must be discarded, regardless of whether the fish is living or dead. Recent measures have been introduced to reduce

the halibut bycatch in the Gulf of Alaska groundfish fisheries, and to allow retention of halibut in some sablefish pots in the GOA. There are numerous technical management measures aimed at conservation and sustainable utilization of the halibut resources. Under the individual fishing quota share system, the fishing capacity (vessels and gear) has been reduced, seasons were extended and wastage was reduced. Longline is the principal gear utilized for this fishery. Regulations are in place to address discards. The IPHC and NPFMC have established closure areas that benefit juvenile fish and adult spawners. Many trawl closures have been implemented to protect benthic habitat or reduce bycatch of prohibited species. Bycatch of seabirds has been addressed by specific regulations now including the use of streamer (tory) lines, night setting, line shooters and lining tubes.

Fundamental Clause 9: Appropriate standards of fisher's competence

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. Aspirant halibut fisherman must have 150 days of halibut fishing experience before being able to purchase halibut IFQs. Obtaining halibut IFQ share most often will require the purchaser to enter into loan capital arrangements with banks that will require comprehensive fishing business plans supported by competent, professional fishermen with demonstrable fishing experience. Several training and educational opportunities are available for crewmembers in Alaska.

Fundamental Clause 10: Effective legal and administrative framework

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. The administrative framework includes the Northern Pacific Halibut Act, which governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The Alaska Wildlife Troopers enforce halibut regulations in state waters. All landings of halibut must be reported to NMFS via its mandatory "e-landings" reporting system. IFQ systems are established with regular and annual reconciliations of catch to address any incidents of overage. The violations in this fishery are reported to and investigated by NOAA's Office of Law Enforcement's Alaska Division and prosecuted by NOAA's Office of General Counsel's Enforcement Section. OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation (GCEL).

Fundamental Clause 11: Framework for sanctions

Evidence adequacy rating: High

No significant changes have occurred since the re-assessment in January 2017. The sanction and violation framework are based on the Magnuson-Stevens Act (50CFR600.740 Enforcement policy) provides four basic enforcement remedies for violations: 1) Issuance of a citation (a type of warning), usually at the scene of the offense, 2) Assessment by the Administrator of a civil money penalty, 3) for certain violations, judicial forfeiture action against the vessel and its catch, 4) Criminal prosecution of the owner or operator for some offenses. In some cases, the Magnuson-Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine.

The 2011 Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions issued by NOAA Office of the General Counsel – Enforcement and Litigation, provides guidance for the assessment of civil administrative penalties and permit sanctions under the statutes and regulations enforced by NOAA. The Northern Pacific Halibut Act governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially

50CFR679. The Alaska Wildlife Troopers enforce halibut regulations in state waters. The violations in this fishery are reported to and investigated by NOAA's Office of Law Enforcement's Alaska Division and prosecuted by NOAA's Office of General Counsel's Enforcement Section.

Fundamental Clause 12: Impacts of the fishery on the ecosystem

Evidence adequacy rating: Medium

A minor non-conformance was identified during the re-assessment in January 2017, related to limited observer coverage on vessels <40 ft. The NC with regards to sub-clause 12.6 remains unclosed, however the Client Action Plan was accepted. Evidence of progress included the recommendation and implementation of Electronic Monitoring (starting 2017 fishing season) among smaller vessels (<40' LOA) that currently do not participate in the observer program. EM has been included in the Observer Program beginning in 2018. Data on the EM program has been provided, and is also relevant to the NC in clause 4.2. Information from EM has been collected from 55 halibut trips in 2017, and has been used to assist in determining catch and bycatch in the halibut fishery.

The IPHC, NPFMC and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE documents, annual Ecosystem Considerations documents, and various other research reports. A 5-year review of essential fish habitat (EFH) through 2015 (summary report published in 2017) noted that for the IPHC-managed halibut, overall effects of halibut catch in all fisheries are not likely to be different than was analyzed in the 2005 EFH environmental impact statement (EIS). Various studies have applied ecosystem models to the evaluation of food webs and impacts from climate change.

Halibut have low discard rates, and discussions are underway between management agencies to put in place additional regulatory measures to avoid halibut by-catch and further minimize halibut bycatch mortality. These include measures such as deck sorting to allow halibut to be returned to the water in better condition, and the use of halibut excluder devices in some trawl fisheries. Use of longline gear in the halibut fisheries substantially reduces the impact on bottom habitats and bycatch of many bottom dwelling species. Longline is typically not associated with as much ghost fishing as some other fishing gears, such as gillnets and some types of traps. The directed halibut fishery takes significant amounts of Pacific cod, sharks, skates and rockfish; but based on by-catch levels and the recent NPFMC-assessed status of the by-catch species stocks, the halibut fishery does not pose a threat to by-catch species. Management measures limit interactions with seabirds and the fishery has minimal impact on the short-tailed albatross, the only seabird listed as endangered under the ESA. No short tailed albatross have been reported in the halibut fishery in Alaska since 1987. Interaction with whales remains a problem as they take fish off longline gear, but the fishery does not adversely affect whale populations.

Fundamental Clause 13: Fisheries enhancement activities (where applicable) N/A

Evidence adequacy rating: N/A

7. Conformity Statement

The assessment team recommends that continued Certification under the Alaska Responsible Fisheries Management Certification Program is granted to the US Alaska Pacific Halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management and fished with benthic longline (within Alaska's 200 nm EEZ).

8. Evaluation of Fundamental Clauses

8.1. Section A. The Fisheries Management System

8.1.1. 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.

Number of Supporting clauses	13
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

1.1. There shall be an effective legal and administrative framework established at local and national level appropriate for the fishery resource and conservation and management.

Evidence

No significant change has occurred in the management of the Alaska Pacific Halibut fishery since the full assessment final report in January 2017. Fisheries resources conservation and economic viability, through research and management are important principles of the bilateral administrative framework used by Canada and USA to manage the fishery.

The International Pacific Halibut Commission (IPHC) and National Marine Fisheries Service (NMFS) manage fishing for Pacific Halibut through regulations established under authority of the Northern Pacific Halibut Act of 1982 (Halibut Act)². The IPHC promulgates regulations governing the Pacific Halibut fishery under the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea (Convention) (signed on March 2, 1953) as amended by a Protocol Amending the Convention (signed on 29th March 1979). Regulations developed by the IPHC are subject to approval by the Secretary of State with concurrence from the Secretary of Commerce (Secretary).

After approval by the Secretary of State and the Secretary, the IPHC regulations are published in the *Federal Register* as annual management measures. The Halibut Act also provides the North Pacific Fishery Management Council (Council) with authority to develop regulations, including limited access regulations that are in addition to, and not in conflict with, approved IPHC regulations. Such Council–developed regulations may be implemented by NMFS only after approval by the Secretary. The Council has exercised this authority most notably in the development of its IFQ Program. Congressional action is not required to modify the IFQ Program. However, CDQ allocations are specified in the MSA and changes to the CDQ allocations would require Congressional action.

Updates for 2017 relevant to halibut fishery management consisted of catch share utilization and improve monitoring, through protocols such as:

- CDQ groups leasing of IFQ quotas (<https://www.npfmc.org/ifqcdq/>)
- Halibut abundance-based PSC management (<https://www.npfmc.org/halibutpsc/>)
- Electronic monitoring (<https://www.npfmc.org/electronic-monitoring-2/>)

² https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf.

CDQ groups leasing of IFQ quotas

In June 2017 the Council took final action to approve a regulatory amendment that would allow CDQ groups the opportunity to lease Area 4B, 4C, and 4D halibut IFQ in years where the catch limits are below certain thresholds³. In Area 4B, this option would become available to the groups if the catch limit was 1 million pounds or lower. This option would be available for Area 4C and 4D when the catch limit in Area 4CDE was at or below 1.5 million pounds. Leased IFQ would be available to vessels less than or equal to 51 feet length overall (LOA), subject to the groups' internal management. This action would not convert IFQ to CDQ.

Vessels harvesting leased halibut IFQ would follow all halibut IFQ regulations (e.g. vessel use caps) with one exception. Area 4D IFQ that is leased by a CDQ group (catcher vessel IFQ as well as class A IFQ), would be permitted to be fished in Area 4E. The Council intends that IFQ would be leased by non-residents of CDQ communities for use by residents. Thus, in any year that CDQ groups use this additional opportunity, the groups would be required to submit a report specifying the criteria used to select IFQ holders leasing to a CDQ group, the criteria used to determine who can receive leased IFQ, and the amount and type of IFQ leased. In this way, the groups will be able to demonstrate how the benefits from this flexibility are reaching the residents of CDQ communities as intended.

Halibut Abundance-Based PSC Management

In June 2017 the Council reviewed a discussion paper on development of abundance-based approaches for BSAI halibut PSC limits⁴. This builds upon previous work to provide the information necessary for the Council to develop abundance-based PSC limit alternatives for analysis. Following review of some specific aspects of the indices and plans for the next discussion paper, the Council moved to provide additional direction for the expanded discussion paper for October. Specific direction on limiting the set of abundance indices, providing an illustrative starting point and shape of control rule and other directions for inclusion in the paper were provided by the Council motion. The full Council motion is posted on the website. An expanded discussion paper will be provided for the October 2017 Council meeting to facilitate selection of alternatives for this abundance-based approach for BSAI PSC limits. The paper will be available by the end of August for review.

Electronic Monitoring

The Council reviewed the Electronic Monitoring (EM) Workgroup report from their March 2017 meeting. In addition to discussing how the 2017 program is working, a workplan for giving public input on the statement of work for an EM contract, and planning for the transition of the current EM pre-implementation program to an integrated Observer Program, the Workgroup also reviewed the EM Integration action proposed rule and the scope of the 2018 EM deployment pool. The Council motion addressed two areas⁵:

- The Council requested that the agency develop an EM program for 2018 that is generally similar to EM deployment in 2017, except that the Council supports expanding the size of the EM pool in 2018 to accommodate up to 120 longline vessels and up to 45 pot vessels, provided there is funding to support this pool size.
- The Council directed staff to submit comments to the agency on behalf of the Council on the EM Integration Proposed Rule, in line with the six areas highlighted by the consensus of the EM Workgroup

1.2. Management measures shall take into account the whole stock unit over its entire area of stock distribution.

³ <https://www.npfmc.org/ifqcdg/>

⁴ <https://www.npfmc.org/halibutpsc/>

⁵ <https://www.npfmc.org/electronic-monitoring-2/>

The IPHC is a bilateral, international treaty, established with the primary purpose of managing the whole Pacific halibut stock over its entire area of distribution which extends from California to the Bering Sea⁶. As the biological stock unit encompasses multiple jurisdictions (U.S. and Canada) the IPHC considers exploitation by all parties when defining exploitation levels and determining stock health to avoid overfishing/depletion of the resource. IPHC conducts extensive research on Pacific Halibut throughout the entire area through which the species migrates during its life cycle. Additionally, the IPHC explicitly considers halibut life cycle and migration when recommending apportionment of catch limits between regulatory areas. Within the Alaskan EEZ, NPFMC and NMFS also consider the entire range through which halibut migrate during its life cycle⁷.

1.3./1.4/1.5./1.6. Transboundary stocks

As explained above, the IPHC considers management of the stock throughout its full range, and leads a cooperative forum which is structure between the U.S. and Canada that provides for a joint management and conservation system aimed at ensuring effective conservation and management of the Eastern North Pacific Halibut stock and its environment. Stock assessment and harvest rates are prepared for joint management areas. Furthermore, Federal regulations was established in 2015, with regards to areas 2C and 3A focused on controlling harvest from Chartered fishing sector, in order to enhance information of the sector interaction as well as conservation of Pacific Halibut. Since 2014, the IPHC implemented Management Strategy Evaluation with frameworks for performance review with regards to specific conservation objectives; in addition the setline survey areas was expanded including areas 2A and 4A; also the established halibut fishery bycatch working group is focused on reduction of discard mortality levels across the full range of the fishery.

The IPHC conducts numerous projects annually to support both of its major mandates namely stock assessment and basic halibut biology. Current projects include standardized stock assessment fishing surveys covering an area that stretches from northern California to the end of the Aleutian Island chain and port sampling aimed at collecting scientific information from the halibut fleet. In conjunction with these ongoing programs, the IPHC conducts numerous biological and scientific experiments to further the understanding and information about Pacific Halibut.

The IPHC explicitly considers halibut life cycle and migration when recommending apportionment of catch limits between regulatory areas. Within the Alaskan EEZ, NPFMC and NMFS also consider the entire range through which halibut migrate during its life cycle.

The Pacific Halibut within the IPHC convention area is considered to comprise a single stock. This assertion is based on studies indicating northwest larval drift being balanced by southeast compensatory migration of juveniles and adults and tagging studies showing movement of fish over broad spatial scales⁸.

1.7. Review and Revision of conservation and management measures

The Alaskan Halibut and sablefish IFQ program has gone through numerous innovations over the years and has been officially modified many times since initial implementation including modifications to trading restrictions, eligibility rules, administrative catch accounting systems and more. In December 2016 the IPHC released the Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program. The intent of the review was to evaluate the IFQ Program as required by the MSA and within the framework of the scope requested by the Council and its advisory bodies. Primarily, the IFQ Program was examined with respect to how well it has met its 10 original policy objectives and how it is providing entry opportunities for new

⁶ <http://www.iphc.washington.edu/documents/basictext/IPHC-2017-Rules-of-Procedure.pdf>

⁷ <https://www.npfmc.org/>

⁸ <http://www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R->

participants, an objective that the Council has sought to provide through numerous revisions since the IFQ Program was implemented. The Council, its Advisory Panel (AP), Scientific and Statistical Committee (SSC), and IFQ Implementation Committee all provided feedback on the proposed structure and policy scope of this review document at the December 2015 and February 2016 Council meetings⁹.

In the 20 years since implementation of the IFQ Program, this was the first formal and comprehensive review of the program. However, in this time there have been numerous regulatory impact reviews and reports produced by Council and NMFS staff that provide relevant information about QS ownership and transfers, IFQ use and landings, and with respect to specific provisions in the program. This IFQ Program Review synthesized much of the information provided in these previous reports and analyses. In addition to this, both the IPHC and the NPFMC annually review their previous, current, and possible future conservation and management measures. The Ninety-third Annual Meeting of the International Pacific Halibut Commission was held from Monday, January 23 through Friday, January 27, 2017 in Victoria, British Columbia at the Delta Hotels Victoria Ocean Pointe Resort.

During this meeting the Commission adopted a proposal aimed at eliminating a recently identified bias in Pacific Halibut removal estimates (net weight), by requiring all commercial Pacific Halibut to be landed and weighed with their heads attached for data reporting purposes and to be subject to the 32-inch minimum size limit which supersedes Section 13 of the IPHC Pacific Halibut fishery regulations. The Commission also adopted a proposal aimed at harmonizing IPHC and NMFS regulations regarding fishing in multiple regulatory areas in Alaska superseding Section 18 of the IPHC Pacific Halibut fishery regulations, as well as adopting new catch limits and fishing periods¹⁰.

The NPFMC sets its agenda for each meeting in response to both current priority issues and possible future changes/events with the potential to impact the halibut fishery with all meetings being open to the public comment¹¹. The continual public input into the NPFMC process effectively provides public scrutiny of the NPFMC's activities with issues being discussed continuously as long as they remain of importance to the stakeholder. Some of the most recent (2016-17) NPFMC review concerning the halibut fishery include the development of abundance-based approaches for BSAI halibut PSC limits and regulatory amendment that would allow CDQ groups the opportunity to lease Area 4B, 4C, and 4D halibut IFQ in years where the catch limits are below certain¹².

1.8. Transparent management arrangements and decision making

In 2012, an outside performance review of the Commission structure, commissioned by the IPHC itself, found the Commission's protocols and decision-making processes at the time to be somewhat lacking in definition and transparency¹³. In response to this the IPHC undertook a number of changes aimed at better defining the Commission's rules of procedure and increasing the transparency of decision-making processes. As a result of these changes:

- The IPHC's advisory bodies were directed to develop or amend their rules of procedure in order to make their operations more transparent and predictable.
- All Commission meetings are now treated as open unless specifically closed (Examples of specifically closed meetings might include those pertaining to personnel, financial or commercially sensitive matters)
- Agendas for IPHC meetings allow more time for public comment and discussion.
- The web broadcast now allows submission of comments and questions from the on-line audience.

⁹ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

¹⁰ http://www.iphc.washington.edu/meetings/2017am/IPHC-2017-AM093-R-Report_of_the_AM093.pdf

¹¹ <http://www.npfmc.org/council-meeting-archive/>

¹² <https://www.npfmc.org/npfmc-newsletters/>

¹³ http://www.iphc.int/documents/review/FINAL_IPHC_Performance_Review-April30.pdf

- Both attendees and web audience participants are now afforded the opportunity to engage the Commission in two-way dialogue during meetings.
- The range of meeting materials and updates posted on the IPHC website has been expanded, and the period of posting prior to meetings increased. This has greatly increased the information available to the public before, during, and after meetings allowing for more focused public comment.

The IPHC also directed the Conference Board (CB) and the Processor Advisory Group (PAG) to open their meetings to the public.

In 2014, the IPHC self-reported its progress against the recommendations of, and commitments resulting from the 2012 performance review¹⁴. Following the changes to Commission procedures since the performance review responses to all management issues are provided in the form of supporting documents, minutes of meetings, and public testimony published on the IPHC website. Annual reports posted on the website include the Annual IPHC meeting¹⁵, and the “RARA”, a detailed IPHC Report of Assessment and Research Activities¹⁶.

Noting that the 1st Performance Review of the IPHC occurred in 2011 – 12 (see paper IPHC – 2017 – AM 093 - 17, and that the generally agreed best practice among RFMOs requires a Performance Review to be undertaken every - 5 years, the IPHC has agreed to undertake a 2nd Performance Review of the IPHC during 2017. In this regard, the Commission requested that the IPHC Secretariat finalize the draft performance review terms of reference and criteria , as well as provide a proposed process and budget to conduct the review, to be considered at the 2017 Annual Meeting (AM093) for implementation during 2017. The plan should include anticipated Commissioner and IPHC Secretariat support, as well as recommendations regarding the use of outside contractors to conduct the review.

The NPFMC consultative and decision making process relative to halibut and all the other fishery resources managed are considered transparent and as a model from other Fishery Management Organizations to be modeled upon.

1.9. Compliance with international conservation and management measures

The fishery does not occur in the high seas and as such this Clause is **NOT APPLICABLE**.

¹⁴ <http://www.iphc.int/documents/review/PerformancereviewprogressreportJan2014.pdf>

¹⁵ http://www.iphc.washington.edu/meetings/2017am/IPHC-2017-AM093-R-Report_of_the_AM093.pdf

¹⁶ <http://www.iphc.washington.edu/library/raras/485-rara2016.html>

8.1.2. 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.

Number of Supporting clauses	10
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

2.1./2.2./2.3./2.4. Policy, legal and institutional frameworks adopted to achieve sustainable and integrated use of marine resources along with mechanisms to avoid conflict shall be in place. Representatives of the fisheries sector and fishing communities shall be consulted in decision making processes and information related to management measures shall be disseminated.

No significant changes have occurred since the re-assessment in January 2017. An appropriate policy, legal and institutional framework is adopted in order to achieve sustainable and integrated use of living marine resources, taking into account the fragility of coastal ecosystems, the finite nature of their natural resources and the needs of coastal communities. The state of Alaska is a cooperating agency in the NEPA process for federal actions, giving it a seat at the table for federal actions. Collectivity cooperation among NEPA and existing agencies (such as, ADFG, DEC, DNR, USFWS, ANILCA, OPMP and BOEM), facilitates appropriate processes for managing Alaska's coastal resources in a transparent, organized and sustainable way. In addition, these planning and management framework include decision-making processes and activities relevant to the fishery resource and its users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users. Both the NPFMC and the IPHC decision making processes are open to public input and consultation and the information produced through these fora, for the management of the halibut resources in Alaska, are publically available. As for 2017, the IPHC is also going through a second performance review to improve its internal processes and expand the transparency of its decision making process¹⁷.

The IPHC, NMFS, NPFMC¹⁸ cooperatively manage halibut stocks within the Alaskan EEZ. The NMFS and NPFMC as federal agencies participate in coastal area management-related institutional frameworks through federal National Environmental Policy Act (NEPA) process¹⁹. NEPA documents are require to be produced each time regulations are renewed or amended meaning all proposed regulations include NEPA considerations. The NEPA process requires information to be made publically available and provides a robust opportunity for public involvement and ensures decisions are made in collaboration with fishery managers, fishermen, fishing organizations and fishing communities.

Other State and federal entities that participate in ensuring the sustainable and integrated use of living marine resources within the Alaskan EEZ include, but are not limited to:

Alaskan Department of Environmental Conservation (DEC)²⁰

¹⁷ <http://www.iphc.int/meetings/2017am/IPHC-2017-AM093-18-P.pdf>

¹⁸ <http://www.npfmc.org/>

¹⁹ https://ceq.doe.gov/docs/get-involved/Citizens_Guide_Dec07.pdf

²⁰ <http://dec.alaska.gov/>

The DEC implements statutes and regulations affecting air, land and water quality and is the lead state agency charged with implementing the federal Clean Water Act.

Alaska Department of Fish and Game (ADFG)²¹

ADFG has jurisdiction over the mouths of designated anadromous fish streams and legislatively designated state special areas (critical habitat areas, sanctuaries, and refuges). Some marine species also receive special consideration through the State's Endangered Species program.

Alaskan Department of Natural Resources (DNR)²²

DNR manages all state-owned land, water, and natural resources except for fish and game and use the state Endangered Species Program to preserve the habitats of species threatened with extinction.

DNR Office of Project Management and Permitting (OPMP)²³

The OPMP coordinates the review of larger scale projects in the state such as transportation, oil and gas, mining, federal grants, ANILCA coordination, and land use planning.

U.S. Fish and Wildlife Service (USFWS)²⁴

The USFWS fulfills functions including enforcement of federal wildlife laws, protection of endangered species, restoration of nationally significant fisheries and conservation and restoration of wildlife habitat. Additionally, the USFWS distributes monies collected through the Sport Fish and Restoration Program to State fish and wildlife agencies for fishery projects, boating access and aquatic education.

Bureau of Ocean Energy Management (BOEM)²⁵

The BOEM is responsible for managing environmentally and economically responsible development and provide safety and oversight of the offshore oil and gas leases. The activities of BOEM overlap extensively with those of ADNOR, ADFG and ADEC given the potential impacts of such activities on marine resources.

Alaska has institutional and legal frameworks that determine the possible uses of coastal resources, govern access to them and take into account the rights of coastal fishing communities and their customary practices when doing so. The management framework explicitly recognizes and accounts for the rights of people dependent on marine fishing through NPFMC process, the Western Alaska Community Development Quota (CDQ) Program, allowances for subsistence halibut fishery in Alaskan waters and consultation with tribes and Native corporations.

NPFMC processes

The Council system mandated under the MSA of which the NPFMC is part was designed so that fisheries management decisions were made at the regional level allowing input from affected stakeholders. NPFMC meetings are open and public testimony is taken ensuring that the rights of coastal communities and their historic access to the fishery are considered in the decision making process.

Dissatisfied parties affected by Council and NMFS decisions can appeal the decision to the Appeals Office in the NMFS Alaska Regional Office, which adjudicates appeals of initial administrative determinations and whose

²¹ <http://www.adfg.alaska.gov/>

²² <http://dnr.alaska.gov/>

²³ <http://dnr.alaska.gov/commis/opmp/>

²⁴ http://www.fws.gov/help/about_us.html

²⁵ http://www.boem.gov/uploadedFiles/Proposed_OCS_Oil_Gas_Lease_Program_2012-2017.pdf

jurisdiction includes the halibut IFQ and CDQ Programs as well as other management programs. These dispute resolution mechanisms have proven to be effective at dealing with most issues avoiding the necessity for disputes to escalate to the stage of legal action. However, in cases where processes have not resulted in the resolution of disputes, parties can and do resolve the disputes in the federal court system.

The IPHC and NPFMC meetings provide for a resolution of potential conflicts with users being afforded the opportunity to testify in person or in writing. In addition, stakeholders may review and submit written comments to the NMFS on proposed rules published in the Federal Register.

The Western Alaska Community Development Quota (CDQ) Program²⁶

The Western Alaskan Community Development Quota (CDQ) Program is a federal fisheries program, authorized and governed by the MSA as amended in 2006 (MSA Section 305(i)(1)), which aims to promote fisheries related economic development in western Alaska. The Program involves 65 eligible communities within a fifty-mile radius of the Bering Sea coastline split into six regional organizations, referred to as CDQ groups. The Program allocates a portion of the BSAI harvest of halibut to CDQ groups.

Subsistence halibut fishing²⁷

Implemented in 2003, the subsistence halibut fishery allows rural and Alaska native persons to ‘practice the long-term customary and traditional harvest of Pacific Halibut for food in a non-commercial manner’. Before fishing under the subsistence halibut regulations, fishermen must obtain a Subsistence Halibut Registration Certificate (SHARC) and comply with SHARC registration and reporting processes. Special permits for community harvest, ceremonial, and educational purposes also are available to qualified Alaska communities and Alaska Native Tribes.

Consultation with tribes and Native corporations²⁸

In Alaska, NOAA's National Marine Fisheries Service (NMFS) consults with tribes and Native corporations about Federal actions that may affect tribal governments and their members. In fact the Alaska National Interest Lands Conservation Act (ANILCA²⁹) which conveyed large sections of federal land to settle Alaska native lands claims specifically directs federal agencies to consult and coordinate with the State of Alaska. Executive Order 13175 sets the framework for regular and meaningful consultation and collaboration with Alaska Native representatives in the development of policies, legislation, regulations, and programs.

Risks and uncertainties related to the policies set up for the management of coastal areas are taken into account within and throughout the various NEPA processes, NPFMC proceedings as well as through ANILCA and the Department of Natural Resources (DNR) Office of Project Management and Permitting (OPMP).

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.

NOAA's Alaska Fisheries Science Center (AFSC) runs the Economic and Social Sciences Research Program in Alaska³⁰. 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 including:

- collecting economic and sociocultural data relevant for the conservation and management of living marine resources

²⁶ <https://alaskafisheries.noaa.gov/fisheries/cdq>

²⁷ <https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut>

²⁸ <https://alaskafisheries.noaa.gov/tribal-consultations>

²⁹ <http://dnr.alaska.gov/commis/opmp/anilca/>

³⁰ <http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php>

- developing models to use that data both to monitor changes in economic and sociocultural indicators and to estimate the economic and sociocultural impacts of alternative management measures
- preparing reports and publications
- participating on NPFMC, NMFS, and inter-agency working groups
- preparing and reviewing research proposals and programs
- preparing analyses of proposed management measures
- assisting Alaska Regional Office and NPFMC staff in preparing regulatory analyses
- providing data summaries

Many of the activities of the Program are conducted in collaboration with other Federal and State agencies and universities. Current research topics being addressed include regional economic impact models, behavioral models of fishing operations, indicators of economic performance, and the non-market valuation of living marine resources.

Regarding socio-economic data collection, AFSC's Economic and Social Sciences Research Program produces an annual Economic Status Report of the Groundfish fisheries in Alaska. This comprehensive report (Fissel, et. al. 2016) provides estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, values of catch and resulting food products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, and employment on at-sea processors. The report contains a wide range of analyses and comments on the performance of a range of indices for different sectors of the North Pacific fisheries, and relates changes in value, price, and quantity, across species, product and gear types, to changes in the market. This report includes extensive economic data for the commercial Pacific Halibut fishery.

In 2005, the Alaska Fisheries Science Center (AFSC) compiled baseline socioeconomic information about 136 Alaska communities most involved in commercial fisheries. In 2010 and 2011, the AFSC went through the process of evaluating the community profiles and determining how to update them. A NOAA Technical Memorandum finalized in October 2011 documents the process been undertaken to update the *Community Profiles for North Pacific Fisheries – Alaska* ([NOAA-TM-AFSC-230](#)). In addition, the communities to be included in the updated document were reevaluated to ensure that communities with significant reliance on commercial, recreational and subsistence fishing are included. A total of 196 communities have been profiled. The new profiles add a significant amount of new information to help provide a better understanding of each community's reliance on fishing. Introductory materials cover purpose, methods, and an overview of the profiled communities in the larger context of the state of Alaska and North Pacific fisheries. The community profiles comprise additional information including, but not limited to, annual population fluctuation, fisheries-related infrastructure, community finances, natural resources, educational opportunities, fisheries revenue, shore-based processing plant narratives, landings and permits by species, and subsistence and recreational fishing participation, as well as information collected from communities in the Alaska Community Survey, which was implemented during summer 2011, and the Processor Profiles Survey, which was implemented in Fall 2011³¹.

2.6./2.7/2.8. Research and monitoring of the coastal environment, mechanisms for cooperation and coordination, appropriate technical capacities and financial resources, conflict avoidance amongst user groups

Monitoring of the coastal environment in Alaska is performed by federal and state agencies. The NMFS and NPFMC as federal agencies participate in coastal area management-related institutional frameworks through federal NEPA processes. Other State and federal entities that cooperate at the sub-regional level in order to improve coastal area management include:

³¹ <https://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/CPU.php>

- Alaskan Department of Environmental Conservation (DEC)
- Alaska Department of Fish and Game (ADFG)
- Alaskan Department of Natural Resources (DNR)
- DNR Office of Project Management and Permitting (OPMP)
- U.S. Fish and Wildlife Service (USFWS)
- Bureau of Ocean Energy Management (BOEM)

Other entities involved in collaborative research in the North Pacific region include the Alaska Fisheries Science Center (AFSC), North Pacific Research Board (NPRB), NMFS Pacific Marine Environmental Lab (PMEL) and institutes of higher learning such as the University of Alaska Fairbanks' (UAF) Institute of Marine Science (IMS).

The NPRB funds major research projects in the Gulf of Alaska³² and the Bering Sea³³ aimed at examining physical and biological mechanisms that determine the survival of juvenile groundfishes in the GOA and understanding the impacts of climate change and dynamic sea ice cover on the eastern BS ecosystem respectively. For oceanography, the NPRB has funded numerous studies describing baseline oceanographic parameters and supported environmental buoy arrays.

PMEL regularly collect oceanographic and environmental data important to understanding the changing habitat of halibut and other marine species in Alaskan waters³⁴.

Additionally the IPHC, in collaboration with Washington Sea Grant, developed a sampling protocol for collecting seabird occurrence data and oceanographic data on the IPHC setline surveys. The 2017 longline research cruise for example was the ninth consecutive year of the IPHC coastwide oceanographic data collection program³⁵. Oceanographic data are collected using water column profilers during the IPHC fishery-independent setline survey that spans the area from southern Oregon in the U.S. northward to British Columbia, into the Gulf of Alaska, Bering Sea, and Aleutian Islands. The IPHC has operated profilers since 2000 on a limited basis, and coastwide since 2009. Oceanographic data were successfully collected at a total of 1,281 stations out of a possible 1,420 in 2017. The coldest near-bottom water (-0.82°C) was detected around St. Matthew Island in the Bering Sea. The warmest near-bottom water (13.85°C) was found at a shallow station off of southern Oregon. For the first time in several years, profiler data indicated a severe hypoxic zone off of the Washington coast with dissolved oxygen levels measured as low as 0.069 ml/L. Counts of live seabirds, taken immediately following gear retrieval, have been conducted during IPHC fishery-independent setline surveys since 2002. The Convention waters, extending from off Oregon northward to Alaska and the EEZ border with Russia, are surveyed annually between late May and early September. A total of 20,921 seabird counts have been conducted over the last 16 years, with 1,368 occurring in 2017

ADFG Habitat Division³⁶ conducts research on coastal and marine environments throughout Alaska in an effort to document and mitigate human-related impacts, changes in habitat & species abundance. The agency also collects physical and chemical data, including temperature, depth, salinity and conductivity during their St. Matthew's pot survey using data loggers placed on the survey pots.

The NMFS' Habitat Conservation Division (HCD) works to avoid, minimize, or offset adverse anthropogenic effects on Essential Fish Habitat (EFH) and living marine resources in Alaska. This work includes conducting and/or

³² <http://www.nprb.org/gulf-of-alaska-project/about-the-project/>

³³ <http://www.nprb.org/bering-sea-project/about-the-project/>

³⁴ <http://www.pmel.noaa.gov>

³⁵ <https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf>

³⁶ <http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main>

reviewing environmental analyses for a large variety of activities including commercial fishing. The HCD focuses on activities in habitats used by federally managed fish species in marine, estuarine, and freshwater areas³⁷.

The Coast Guard enforces fisheries laws at sea including regulations to aid the protection and/or recovery of marine protected species and their associated habitats³⁸.

The IPHC is financially resourced through money it receives from both the U.S. and Canadian governments, through the Department of State and DFO respectively. It is considered part of the U.S. Federal government for purchasing and travel and is afforded not-for-profit status in the U.S.³⁹ The costs incurred by the NMFS in its management of the Alaskan Halibut IFQ Program are recovered as obligated by the MSA through a fee to be paid by IFQ fishermen based on the ex-vessel value of their catches landed under the Program.

IPHC and NPFMC meetings provide fora for resolution of potential conflicts with users being afforded the opportunity to testify in person or in writing. These dispute resolution mechanisms have proven to be effective at dealing with most issues avoiding the necessity for disputes to escalate to the stage of legal action. However, in cases where processes have not resulted in the resolution of disputes, parties can and do resolve the disputes in the federal court system.

³⁷ <http://www.fakr.noaa.gov/habitat/default.htm>

³⁸ <http://www.uscg.mil/hq/cg5/cg531/LMR.asp>

³⁹ <http://www.iphc.int/about-iphc.html>

8.1.3. Fundamental Clause 3

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

Number of Supporting clauses	7
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

3.1. Long-term management objectives shall be translated into a plan or other management document and be subscribed to by all interested parties.

No significant changes have occurred since the re-assessment in January 2017. USA and Canada agreement and long term objectives for management, conservation, and sustainable utilization of Pacific Halibut in the North Pacific has been in use since 1923. Relevant fisheries management plans are developed from these management objectives and included: seasonal fishery closures, halibut bycatch restrictions in other fisheries, IFQ and CDQ, as well as systems for mandatory reporting catch (removals), fishery monitoring, and persecutions where violations are identified. The IPHC promulgates regulations governing the Pacific Halibut fishery under the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea (Convention) (signed on March 2, 1953) as amended by a Protocol Amending the Convention (signed on 29th March 1979). Regulations developed by the IPHC are subject to approval by the Secretary of State with concurrence from the Secretary of Commerce (Secretary). After approval by the Secretary of State and the Secretary, the IPHC regulations are published in the *Federal Register* as annual management measures. Overall management objectives of NMFS includes promoting the conservation and management of halibut and sablefish resources, and to further the objectives of the Northern Pacific Halibut Act of 1982 (Halibut Act) and the Magnuson Fishery Conservation and Management Act (Magnuson Stevens Act or MSA) that provided authority for regulating these fisheries. The Halibut Act also provides the North Pacific Fishery Management Council (Council) with authority to develop regulations, including limited access regulations that are in addition to, and not in conflict with, approved IPHC regulations. Such Council–developed regulations may be implemented by NMFS only after approval by the Secretary⁴⁰.

The IPHC is currently undertaking a major Management Strategy Evaluation (MSE) process with the aim of developing a formal process of evaluating existing and alternative management procedures for Pacific Halibut. The Commission’s Management Strategy Evaluation process is a formal process in which to evaluate the performance of alternative management procedures for the Pacific Halibut stock against a range of scenarios that encompass observation and process uncertainty in stock assessments, alternative hypotheses about stock dynamics and structural assumptions. To assist and help guide this process the Commission formed a Management Strategy Advisory Board (MSAB) comprised of harvesters (commercial, sport, and subsistence), fisheries managers (DFO, NMFS, and regional fishery management councils), processors, and IPHC commissioners. The MSAB is working with IPHC staff to initially define clear measurable objectives for the Pacific Halibut fishery, define candidate management procedures (MP) for testing within the MSE framework, and define the performance measures to evaluate alternative MPs.

At the end of the October 2013 meeting, the MSAB has established a set of preliminary working management

⁴⁰ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

objectives and a set of working performance measures which are an essential component of the MSE process. The working set of management objectives are directly related to stock conservation and fishery performance. The MSAB held two meetings in 2017⁴¹.

The main recommendations and request items covered at the 26 and 27 of October 2017 MSAB meeting (MSAB10) were as follows:

RECOMMENDATIONS

MSAB10–Rec.01 (para. 11) The MSAB AGREED to further revise the goals, objectives, and performance metrics, as detailed at Appendix IV, at MSAB11, and also RECOMMENDED that the Commission review and provide guidance on them at the 94th Session of the Commission, thereby providing clear direction for the IPHC Secretariat and MSAB for action in 2018.

Discussion of the performance metrics reported.

MSAB10–Rec.02 (para. 32) The MSAB RECOMMENDED that future iterations of the simulations focus on the reduced range of SPR targets (greater than 40%, less than 55%) based on preliminary interpretation of results, and that 2% intervals between SPR values is sufficient to interpret future results.

MSAB10–Rec.03 (para. 41) The MSAB RECOMMENDED the updated Program of Work provided at Appendix VI, for the Commission’s further consideration.

REQUESTS

Performance metrics for evaluation

MSAB10–Req.01 (para. 15)⁴² The MSAB REQUESTED that the IPHC Secretariat link the goals and objectives to each reported performance metric and provide a summary of key performance metrics over the range of Management Procedures evaluated for presentation to the Commission at the 93rd Interim Meeting and the 94th Annual

MSAB10–Req.02 (para. 21) NOTING the current simulated bycatch mortality probability distribution is unrelated to the total mortality in the operating model, the MSAB REQUESTED the IPHC Secretariat to consider alternative methods to simulate bycatch mortality at various Pacific Halibut abundances.

MSAB10–Req.03 (para. 22) The MSAB AGREED that additions to the simulation framework are required. These include adding variability to the simulated selectivities for all sectors (e.g. changes in selectivity of bycatch due to future management changes), incorporating time-varying maturity-at-age, improvements to simulating weight-at-age, using an estimation model to introduce estimation error (and data generation with error if necessary), and incorporate implementation variability in the simulations. The MSAB REQUESTED that these modifications be added to the simulation framework and assumptions.

MSAB10–Req.04 (para. 29) CONSIDERING the need to determine appropriate methods for producing and reporting short-term, medium-term, and long-term results, the MSAB REQUESTED the IPHC Secretariat to review literature of past MSEs with regard to principles to help define appropriate time periods, consider the development of informative methods, and communicate any concerns at the MSAB11 meeting.

MSAB10–Req.05 (para. 30) The MSAB AGREED that recent realized SPRs are within the range of target SPRs described in para. 24, and REQUESTED that the management procedures described in MSAB09-R should continue

⁴¹ <https://iphc.int/uploads/pdf/msab/msab09/iphc-2017-msab09-01-.pdf>

⁴² <https://iphc.int/uploads/pdf/msab/msab10/iphc-2017-msab10-r.pdf>

to be evaluated under the revised simulation framework.

MSAB10–Req.06 (para. 31) CONSIDERING the effect that operational control points (OCPs) have on the conservation, yield, and stability objectives, the MSAB REQUESTED that in addition to 30:20 and 40:20, additional OCPs should be evaluated as determined at subsequent meetings.

IPHC meetings calendar (2018-20): MSAB

MSAB10–Req.07 (para. 43) The MSAB AGREED that MSAB11 should take place from 7-10 May 2018, and the MSAB12 take place from 22-25 October 2018, and REQUESTED that the IPHC Secretariat include these dates in the IPHC meetings calendar for the Commissions consideration

3.2. Management measures should limit excess fishing capacity, promote responsible fisheries, take into account artisanal fisheries, protect biodiversity and allow depleted stocks to recover.

The fishery is a closed access fishery managed under an Individual fishing Quota (IFQ) system. In 1991, the NPFMC recommended an IFQ Program for management of the fixed gear (hook and line) halibut and sablefish fisheries off Alaska. The Secretary of Commerce approved the Council's IFQ Program as a regulatory amendment in 1993, and the program was implemented by NMFS for the fishing season in 1995 (58 FR 215). The fundamental component of the IFQ Program is QS, issued to participants as a percentage of the QS pool for a species-specific IFQ regulatory area, which is translated into annual IFQ allocations in the form of fishable pounds. The IFQ Program was developed to address issues associated with the race-for-fish that had resulted from the open-access and effort control management of the halibut and sablefish fisheries⁴³. Specifically, the Council identified several problems that emerged in these fisheries due to the previous management regime, including increased harvesting capacity, decreased product quality, increased conflicts among fishermen, adverse effects on halibut and sablefish stocks, and unintended distributions of benefits and costs from the fisheries. The stock is currently at B41, well above the B30 reference point and the fishery is not considered to have significant effects on reduction of biodiversity in the ecosystem.

Pacific Halibut is taken throughout its range as a personal use (or subsistence) harvest by several fisheries. The primary harvests occur in the treaty Indian ceremonial and subsistence fishery in the waters off northwest Washington State, the First Nations food fish fishery in British Columbia, and the subsistence fishery by rural residents and federally-recognized native tribes in Alaska. The coastwide personal use estimate for 2017 is 1.16 Mlbs (529.33 mt). New estimates for all areas are not available so proxy estimates are used: the allocation amount was used for the Area 2A treaty Indian ceremonial and subsistence fishery estimate and the 2015 estimate was used again for Alaska in 2017. The estimate for Area 2B remained unchanged⁴⁴.

⁴³ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

⁴⁴ <https://www.iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf>

8.2. Section B. Science and Stock Assessment Activities

8.2.1. Fundamental Clause 4

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

Number of Supporting clauses	13
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Minor Non-Conformance
Non Conformances	1 Minor (4.2)

Summarized evidence:

4.1. All fishery removals and mortality of the target stock(s) shall be considered by management.

No significant changes have occurred since the re-assessment in January 2017. Full stock assessment consistent with contemporary methods, was completed at the end of 2017 (Stewart and Hicks 2018)⁴⁵, and all fishery removals and mortality of Pacific Halibut are considered in the assessment and management of the stock. Reliable and accurate data are provided annually to IPHC to assess the status of Pacific Halibut fisheries and ecosystems. These data include information on retained catch in the commercial, recreational and sport fisheries⁴⁶, the personal use and subsistence fisheries⁴⁷, as well as estimates of bycatch and discards. Several data reporting systems are in place for the various fishery components to ensure timely and accurate collection and reporting of catch data. These include an eLandings⁴⁸ system, in which data are checked by NMFS and entered along with observer data into the catch accounting system (CAS) which is maintained by NMFS. Data from the eLandings are made available to the three collaborating agencies, i.e. NMFS, IPHC, and ADFG.

As reported in Stewart and Hicks (2018), known Pacific Halibut removals over the period 1918-2017 have totaled 7.2 billion pounds (~3.2 million t), ranging annually from 34 to 100 million pounds (16,000-45,000 t) with an annual average of 63 million pounds (~29,000 t). Annual removals were above this long-term average from 1985 through 2010 and have been relatively stable near 42 million pounds (~19,000 t) since 2014. Coastwide commercial fishery landings in 2017 were approximately 26.2 million pounds (~11,900 t), up from a low of 23.7 million pounds (~10,700 t) in 2014. Bycatch mortality was estimated to be 6.0 million pounds in 2017 (~2,720 t), the lowest level in the estimated time series and just over one million pounds (~450 t) less than estimated for 2016. The total recreational removals in 2017 was estimated to be 8.1 million pounds (~3,675 t), up 10% from 2016. Removals from all sources in 2017 were estimated to be 42.4 million pounds (~19,200 t), up slightly from 41.8 million pounds in 2016 (~18,960 t) – see **Table 5** below. Additional information on the 2017 catch data can be found in Stewart (2018)⁴⁹.

The assessment authors noted that all available information was finalized on 11 November 2017 in order to provide adequate time for analysis and modeling. As has been the case in all years, some data are incomplete, or include projections for the remainder of the year. These include some commercial fishery data, as well as 2017 removals for all fisheries still operating after 11 November 2017. Catch data are initially compiled by management area and then aggregated to the coastwide level and to four geographical regions: Area 2 (2A,

⁴⁵ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-10.pdf>

⁴⁶ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar14.pdf>

⁴⁷ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar15.pdf>

⁴⁸ <https://elandings.alaska.gov/>

⁴⁹ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-11.pdf>

2B, and 2C), Area 3 (3A, 3B), Area 4 (4A, 4CDE) and Area 4B.

Catch data and other biological information and research results feed into the annual stock assessment process and form the 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).

Table 5. Estimated Pacific Halibut mortality for 2017 based on data through 9 November 2017. All values reported in millions of net pounds. Values in bold are projected to remain constant through 2018 for default calculations. Source – Table 2 from Stewart (2018).

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total
<u>O26 Non-FCEY</u>									
Commercial discards ¹	0.02	0.17	NA	NA	0.21	0.06	0.03	0.03	0.52
Bycatch	0.11	0.23	0.02	1.01	0.45	0.29	0.20	1.96	4.26
Recreational (+ discards)	NA	NA	1.43	1.86	0.01	0.02	0.00	0.00	3.31
Subsistence	NA	0.41	0.44	0.22	0.01	0.01	0.00	0.05	1.14
Total Non-FCEY	0.13	0.81	1.89	3.06	0.69	0.37	0.22	2.04	9.19
<u>O26 FCEY</u>									
Commercial discard	NA	NA	0.08	0.34	NA	NA	NA	NA	0.42
Recreational (+ discards) ²	0.52	1.23	0.96	2.11	NA	NA	NA	NA	4.82
Subsistence	0.03	NA	NA	NA	NA	NA	NA	NA	0.03
Commercial Landings ¹	0.75	6.26	4.23	7.79	3.09	1.30	1.09	1.64	26.16
Total FCEY	1.30	7.49	5.28	10.23	3.09	1.30	1.09	1.64	31.42
TCEY	1.43	8.29	7.16	13.29	3.78	1.67	1.31	3.69	40.61
<u>U26</u>									
Commercial discards	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.05
Bycatch	0.00	0.02	0.00	0.42	0.44	0.11	0.01	0.79	1.79
Total U26	0.00	0.03	0.00	0.42	0.46	0.12	0.01	0.79	1.82
Total Mortality	1.43	8.32	7.17	13.74	4.24	1.79	1.33	4.47	42.49

¹ Includes research catches.

² Includes leases to the recreational sector: XRQ in Area 2B and Guided Angler Fish (GAF) in IPHC Regulatory Areas 2C and 3A.

4.2. An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures shall be established.

The minor NC identified in the 2017 reassessment with regards to sub-clause 4.2 (lack of observer data for halibut vessels less than 40' LOA) remains unclosed. Evidence of progress included the recommendation and implementation of Electronic Monitoring (starting 2017 fishing season) among smaller vessels (<40' LOA) that currently do not participate in the observer program, and subsequent inclusion of EM in the North Pacific Observer Program. As per the Client Action Plan, the most recent information on the Observer Program, Electronic Monitoring, and all related committee and NPFMC meetings on these subjects have been provided to the assessment team in 2018. Data on the EM program for 2017 is also available, and is summarized below in Clause 12.6. Information from EM has been collected from 55 halibut trips in 2017, and the video information collected has been used to assist in determining catch and bycatch in the halibut fishery (see Clause 12.6 for details). The Client Action Plan was accepted, and this NC will remain open throughout the period of certificate (5 years) until the medium confidences move to high as the corrective actions take effect.

Beginning January 1, 2013, amendment 86 (BSAI) and amendment 76 (GOA) were added to the Federal Fisheries

Regulations 50 CFR Part 679: Fisheries of the Exclusive Economic Zone Of Alaska. In compliance with the MSA, these amendments restructured the funding and deployment system for observers in the North Pacific groundfish and halibut fisheries and include some vessels less than 60 ft. in length, as well as halibut vessels in the North Pacific Groundfish Observer Program. Halibut vessels are registered with the NMFS and can be selected on a vessel or trip basis, under the Observer Declare and Deploy System (ODDS), administered by the Fisheries Monitoring and Analysis Division of NMFS at AFSC. The program is covered by fees assessed on landings from both the CDQ and IFQ fisheries. Each year NMFS presents its deployment plan⁵⁰ at meetings of NPFMC.

NPFMC established an intention to integrate electronic monitoring (EM) into the Observer Program for the fixed gear small-boat groundfish and halibut fisheries, so that EM may be used to collect data to be used in catch estimation (retained and discarded) for this fleet. The NPFMC set an interim goal of pre-implementation in the small boat (40-57.5 feet length overall) longline fleet in 2016, focusing on vessels that have trouble carrying an observer due to various limitations. On August 8, 2017, NMFS published a final rule (82 FR 36991) to integrate EM into the North Pacific Observer Program⁵¹. EM will be incorporated into the at-sea deployment design, beginning in 2018, and will be used to collect data to account for retained and discarded catch for fixed-gear vessels. To be considered for EM, a vessel must have requested to participate through ODDS, by Nov. 1, 2017.

Recognizing the challenging logistics of putting observers on small vessels, NMFS continues to recommend that vessels less than 40' LOA be in the no-selection pool for observer coverage. The agency also recognizes that the Council's next priority for EM research has shifted to trawl vessels, so the evaluation of data collected on fixed-gear less than 40' will not begin immediately. However, since there is no monitoring data from this segment of the fleet, NMFS does continue to recommend that vessels less than 40' LOA could be considered for the EM selection pool in the future.

In an Excel spreadsheet from NOAA/NMFS⁵², observed catches by sector (vessel type), gear, species, and kept/discarded are listed for 2013-2017. Tables showing this information in summary format(s) for 2013-2016 can be seen in the annual observer reports for 2014-2017⁵³. Information provided by NPFMC during the May, 2018 site visit indicated that vessels < 40'LOA take about 18% of the total halibut catch.

4.3. Management entities shall make data available in a timely manner and in an agreed format in accordance with agreed procedures.

NMFS, ADF&G, and IPHC have extensive scientific databases which include halibut. NPFMC has extensive information on management of halibut. These data are made widely available through websites, publications and at various publically-attended meetings. Data on certain aspects of commercial fishing are confidential, such as individuals or individual vessels in the analysis of CPUE data, depending on the number of individuals or entities involved. For this surveillance report in 2018, all necessary (updated 2017-18) key documentation such as stock assessment report, observer report, and other documents, records and regulations were available⁵⁴

4.4/4.5. States shall stimulate the research required to support national policies related to fish as food and collect sufficient knowledge of social, economic and institutional factors relevant to the fishery in question to support policy formulation.

State and national policies regarding seafood are guided by the Alaska Seafood Marketing Institute⁵⁵ (ASMI), U.S.

⁵⁰ https://alaskafisheries.noaa.gov/sites/default/files/final_2018_adp.pdf

⁵¹ Ibid

⁵² <https://alaskafisheries.noaa.gov/sites/default/files/2013-2017-observed-catch-tables.xlsx>

⁵³ <https://alaskafisheries.noaa.gov/fisheries/observed-catch-tables>

⁵⁴ <https://iphc.int/venues/details/94th-session-of-the-iphc-annual-meeting-am094>

⁵⁵ <http://www.alaskaseafood.org>

Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), and the U.S. National Institute of Health (NIH). ASMI is the state agency primarily responsible for increasing the economic value of Alaskan seafood through marketing programs, quality assurance, industry training and sustainability certification. ASMI's role includes conducting or contracting for scientific research to develop and discover health, dietetic, or other uses of seafood harvested and processed in the state.

Socioeconomic data collection and economic analyses are required to varying degrees under the Regulatory Flexibility Act (RFA), the MSA, the NEPA, the Endangered Species Act, and other applicable laws. AFSC's Economic and Social Sciences Research Program produces an annual Economic Status Report of the Groundfish fisheries in Alaska (Fissel et al. 2017). This comprehensive report provides estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, values of catch and resulting food products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, and employment on at-sea processors. The report contains a wide range of analyses and comments on the performance of a range of indices for different sectors of the North Pacific fisheries, including Pacific Halibut, and relates changes in value, price, and quantity, across species, product and gear types, to changes in the market.

Lew et al. (2015) studied economic value of sport fishing charters in Alaska, including the significant contribution of Pacific Halibut to this sector.

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.

A major component of small scale fisheries for Alaskan Halibut is covered by ceremonial and subsistence (personal use) fishing. The subsistence halibut fishery off Alaska was formally recognized in 2003 by the NPFMC and implemented by IPHC and National Marine Fisheries Service (NMFS) regulations. The fishery allows the customary and traditional use of halibut by rural residents and members of federally-recognized Alaska native tribes who can retain halibut for non-commercial use, food, or customary trade.

Subsistence (formerly called Personal use/subsistence) categories include ceremonial and subsistence removals in the Area 2A treaty Indian fishery; the sanctioned First Nations Food, Social, and Ceremonial (FSC) fishery conducted in British Columbia; federal subsistence fishery in Alaska; and U32 halibut retained in Areas 4D and 4E under IPHC regulations. Details for these have been reviewed in the 2017 stock assessment documentation (Goen and Erikson 2018).

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.

The major scientific activity for Pacific Halibut is the annual setline survey conducted by IPHC, using commercial vessels from USA and Canada. In 2017 the survey encompassed both nearshore and offshore waters of southern Oregon, Washington, British Columbia, southeast Alaska, the central and western Gulf of Alaska, Aleutian Islands, and the Bering Sea continental shelf (Goen et al. 2018). Thus only the waters under jurisdiction of USA and Canada, the two countries involved in IPHC, were surveyed. Survey activities were compliant with all laws and regulations of those countries, registered commercial halibut vessels were chartered, and all catches in the survey were recorded and reported.

4.8. States shall promote the adoption of uniform guidelines governing fisheries research conducted on the high seas.

Not applicable, both fishery and survey research activities occur and are carried out within the jurisdictions of the

USA and Canada EEZ. No activities occur in the high seas outside the 200 nm EEZ of the US and Canada.

4.9/4.10/4.11. States shall promote and enhance the research capacities of developing countries, support (upon request) States engaged in research investigations aimed at evaluating stocks which have been previously un-fished or very lightly fished.

Not applicable, operations of the fishery takes place in USA and Canada; these areas are not considered developing countries.

8.2.2. 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.

Number of Supporting clauses	7
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized Evidence:

5.1 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. The research shall be disseminated accordingly. 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.

No significant changes have occurred since the re-assessment in Jan. 2017. A full stock assessment consistent with contemporary methods was completed at the end of 2017 (Stewart and Hicks, 2018).

The International Pacific Halibut Commission (IPHC)⁵⁶ was established in 1923 by a Convention between the governments of Canada and the United States of America. Its mandate is research on and management of the stocks of Pacific Halibut within the Convention waters of both nations. The IPHC receives money from both the U.S. and Canadian governments to support a director and staff.

The IPHC has a strong and long-standing structure of professional scientists, researchers and statisticians in place to conduct the necessary research and stock assessment on Pacific Halibut for conservation and management purposes. Appropriate processes exist to ensure proper planning of research projects, as well as ongoing peer review of stock assessment and research activities. The quality, quantity and relevance of IPHC's publications are noteworthy. IPHC staff members are involved in a number of collaborative projects with other researchers and institutions.

The IPHC conducts numerous projects⁵⁷ annually to support its major mandates. The main objectives of the Biological and Ecosystem Science Research Program at IPHC are to: 1) identify and assess critical knowledge gaps in the biology of the Pacific Halibut; 2) understand the influence of environmental conditions; and 3) apply the resulting knowledge to reduce uncertainty in current stock assessment models. As described in the Five-Year Research Plan for the period 2017-2021, the primary biological research activities at IPHC can be summarized in these main areas:

- 1) Reproduction
- 2) Growth and Physiological Condition
- 3) Discard Mortality and Survival
- 4) Distribution and Migration
- 5) Genetics and Genomics.

⁵⁶ <http://www.iphc.int/about-iphc.html>

⁵⁷ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-13.pdf>

The Bering Sea Project, a partnership between the NPRB and the National Science Foundation, is studying the Bering Sea 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 program⁵⁸.

Regarding socio-economic data collection, AFSC's Economic and Social Sciences Research Program produces an annual Economic Status Report of the Groundfish fisheries in Alaska. This comprehensive report (Fissel et. al. 2017) provides estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, values of catch and resulting food products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, and employment on at-sea processors. The report contains a wide range of analyses and comments on the performance of a range of indices for different sectors of the North Pacific fisheries, and relates changes in value, price, and quantity, across species, product and gear types, to changes in the market. This report includes extensive economic data for the commercial Pacific Halibut fishery.

Since 2002, IPHC has been working cooperatively with the Alaska Department of Environmental Conservation (ADEC) in a project monitoring environmental contaminants in Alaskan fish. Over 91 species of fish have been studied, include salmon (5 species), pollock, P. cod, lingcod, black rockfish, sablefish, and Pacific Halibut. The fish are analyzed for organochlorine pesticides, dioxins, furans, polybrominated diphenyl ethers, PCB congeners, methyl mercury and heavy metals (arsenic, selenium, lead, cadmium, nickel, and chromium). As per the most recent IPHC report (Dykstra 2018), over 2700 samples of Pacific Halibut have been tested by ADEC. Results from analysis of persistent organic pollutants found that in general these compounds are either undetectable in halibut or well below other marine fish species. This is a positive finding and is likely attributable to the lower fat content in halibut compared to these other species.

5.2. The state of the stocks under management jurisdiction, including the impacts of ecosystem changes resulting from fishing pressure, pollution or habitat alteration shall be monitored.

Alaska's Pacific Halibut stock assessment program is extensive and comprehensive. Primary sources of information for this assessment include indices of abundance from the IPHC's annual fishery-independent setline survey (numbers and weight) and commercial CPUE (weight), and biological summaries (length-, weight-, and age-composition data). Other data from NMFS trawl surveys in the eastern Bering Sea and GOA, as well as from various tagging programs, are also collected and analysed. The program to determine the stock removals used in the assessment and management considerations is explained in Clause 4.1. Research capacity in environmental science is also extensive as outlined in previous clauses, and in Clause 12 below. The program to determine reference points and evaluate the stock against these in a precautionary approach is described in Clauses 6.1 – 6.4 below.

In the most recent stock assessment (Stewart and Hicks 2018)⁵⁹, the authors report the status of the Pacific Halibut (*Hippoglossus stenolepis*) resource in the International Pacific Halibut Commission (IPHC) Convention Area at the end of 2017. The assessment consists of four equally-weighted models, two long time-series models, and two short time-series models either using data sets by geographical region, or aggregating all data series into coastwide summaries; these models are structurally unchanged since the most recent detailed scientific review in 2015. Results are based on the approximate probability distributions derived from the ensemble of models, thereby incorporating the uncertainty within each model as well as the uncertainty among models. Results of this assessment are presented in Clause 6 below.

⁵⁸ http://www.nprb.org/assets/images/uploads/01.10_bsag_web.pdf

⁵⁹ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-10.pdf>

The 2017 IPHC's fishery-independent setline survey detailed a coastwide aggregate legal (O32) WPUE which was 10% lower than the value observed in 2016, with individual IPHC Regulatory Areas varying from a 1% increase (Regulatory Area 2C) to a 32% decrease (Regulatory Area 3B). Setline survey NPUE showed a more pronounced decrease from 2016 to 2017 (24% coastwide), with individual Regulatory Areas ranging from a 1% increase (Regulatory Area 4A) to a 44% decrease (Area 2A). Details on the setline survey can be found in Goen et al. (2018)⁶⁰.

As part of IPHC's annual setline survey, which provides data for the sablefish assessment, IPHC conducts an extensive oceanographic monitoring program which includes waters off British Columbia, and into the Gulf of Alaska, Bering Sea, and Aleutian Islands (Sadorus and Walker 2018). The IPHC is collaborating with the Joint Institute for the Study of the Atmosphere and Ocean (JISAO) at the University of Washington and NOAA's Pacific Marine Environmental Laboratory to process the oceanographic data and make them publicly accessible, and a number of years of data up to 2014 are currently available⁶¹.

In addition to the oceanographic monitoring done by IPHC, other data on ecosystem impacts are collected and presented in the annual IPHC reports. These studies include data on seabird occurrence (Geernaert 2018), and impacts of marine mammal on setline depredation (Wong 2016). As part of its annual management process for Alaskan groundfish, NPFMC also receives extensive presentations on the status of Alaska's marine ecosystems (GOA and BS/AI) at its SSC and Advisory Panel meetings. The Ecosystem Considerations reports⁶² are produced annually to compile and summarize information about the status of the Alaska marine ecosystems for the NNPFC, the scientific community and the public. As of 2017, there are separate reports for the Eastern Bering Sea (EBS), Aleutian Islands (AI), the Gulf of Alaska (GOA), and Arctic (forthcoming) ecosystems. These reports include ecosystem assessments, and ecosystem-based management indicators that together provide context for ecosystem-based fisheries management in Alaska.

NOAA identifies habitats essential for managed species and conserves habitats from adverse effects on those habitats. These habitats are termed "Essential Fish Habitat" or EFH, and are defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". NMFS and NPFMC must describe and identify EFH in fishery management plans (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. Federal agencies that authorize, fund, or undertake actions that may adversely affect EFH must consult with NMFS, and NMFS must provide conservation recommendations to federal and state agencies regarding actions that would adversely affect EFH. More specific information on EFH and recent 5 year review are described in Clause 12 below.

5.3. Management organizations shall cooperate with relevant international organizations to encourage research in order to ensure optimum utilization of fishery resources.

IPHC is, by definition, an international organization established in 1923 for the preservation of the Pacific Halibut fishery in waters off Canada and the United States of America. Thus there is extensive cooperation on various aspects of research, stock assessment, and management of Pacific Halibut between the fisheries agencies (e.g. DFO and NMFS) of these two nations. Declaration of the 200 mile EEZ's by both countries in the late 1970's drastically reduced and eventually eliminated halibut fishing in these waters by countries other than Canada and USA.

For halibut management, there has also been cooperative research and surveys carried out on the stock involving

⁶⁰ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf>

⁶¹ https://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCData.shtml

⁶² <https://access.afsc.noaa.gov/reem/ecoweb/>

other nations, such as the 1984 US-Japan bottom trawl survey in the GOA (Brown 1986), but it has been quite limited. Pacific Halibut caught in Russian areas of the Bering Seas are believed to be of a different stock, and are thus not included in the IPHC assessments. There is ongoing contact between IPHC and Russian scientists regarding halibut research in the Bering Sea area (I. Stewart, pers. com).

There is considerable discussion and exchange between IPHC and NPFMC on management issues related to Alaska Pacific Halibut. Currently, both organizations are cooperating to develop a Halibut Management Framework⁶³, designed to improve coordination between the Council and IPHC. One goal is for better alignment of the two management bodies when dealing with halibut needs among the various directed fishery and bycatch user groups.

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 trans-boundary aquatic stocks.

The only relevant transboundary issues for the Alaskan Pacific Halibut stock are between Canada and USA, and these are dealt with in the IPHC. Both countries have extensive scientific programs for halibut research and assessment, and collaborate on numerous topics related to science and management. Evidence for this is contained in the IPHC annual Reports of Assessment and Research Activities.

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.

Data collected by scientists from the many surveys and halibut 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 IPHC, NMFS and the NPFMC websites, in order to contribute to fisheries conservation and management. The core of halibut specific information for 2017 is available at the IPHC 2017 annual meeting website page⁶⁴.

Confidentiality of individuals or individual vessels (e.g. in the analysis of fishery CPUE data) is fully respected where necessary. By Alaska Statute (16.05.815 Confidential Nature of Certain Reports and Records)⁶⁵, except for certain circumstances, all records obtained by the state concerning the landing of fish, shellfish, or fishery products and annual statistical reports of fishermen, buyers, and processors may not be released. To ensure confidentiality, fishery data are routinely redacted from ADFG reports if the data for a time/area stratum were obtained from a small number of participants

⁶³ <https://www.npfmc.org/halibut-management-committee/>

⁶⁴ <https://iphc.int/venues/details/94th-session-of-the-iphc-annual-meeting-am094>

⁶⁵ <http://touchngo.com/lglcntr/akstats/Statutes/Title16/Chapter05/Section815.htm>

8.3. Section C. The Precautionary Approach

8.3.1. 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.

Number of Supporting clauses	4
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized Evidence:

6.1/6.2/6.3/6.4 States shall determine for the stock both safe targets for management (Target Reference Points) and limits for exploitation (Limit Reference Points), shall measure the status of the stock against these reference points and agree to actions to be undertaken if reference points are exceeded.

Full stock assessments are conducted annually, and fisheries management and conservation are based on precautionary and ecosystem based approaches, including the use of reference points for spawning biomass and harvest rate. Since 1985, the IPHC followed a constant harvest rate policy to determine annual available yield, termed the Constant Exploitation Yield (CEY). A biological target level for total removals from each regulatory area is calculated yearly by applying a fixed area-specific harvest rate to the estimate of exploitable biomass in each IPHC regulatory area. The apportionment percentages and the target harvest rates for each regulatory area together result in a target distribution for the annual TCEY. The scale of this distribution is based on the estimate of the coastwide exploitable biomass at the beginning of year x+1 from the stock assessment in year x.

IPHC’s policy was to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (B30 threshold) of a level defined as the unfished level. The harvest rate is decreased linearly by a harvest control rule towards a rate of zero as the spawning biomass approaches 20% (B20 limit) of this estimated unfished level. That is, fishing ceases completely if the stock is below 20% of the unfished biomass. This combination of harvest rate and precautionary levels of biomass protection have, in simulation model studies, provided a large fraction of maximum available yield, minimizing risk to the spawning biomass, while allowing for the quickest stock recovery to at least, threshold levels.

However, at its 93rd Annual Meeting in January 2017, the Commission recognized that its ‘current’ harvest strategy was not meeting the Commission’s fisheries management objectives. Subsequently, the harvest strategy was revoked, in recognition of the development process currently underway for a modern harvest strategy for Pacific Halibut⁶⁶. At the 2017 Annual Meeting, Commissioners supported a revised harvest policy that separates the scale and distribution of fishing mortality and accounts for fishing related mortality of Pacific Halibut of all sizes and from all sources. Furthermore, the Commission identified an interim “hand-rail” or reference for harvest advice based on a status quo SPR (46%), which uses the average estimated coastwide SPR for the years 2014–2016 from the stock assessment. The justification for using an average SPR from recent years is that this corresponds to fishing intensities that have resulted in a stable or slightly increasing stock, indicating that, in the short-term, this may provide an appropriate fishing intensity that will result in a stable or increasing spawning biomass⁶⁷.

⁶⁶ <https://iphc.int/the-commission/harvest-strategy-policy>

⁶⁷ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf>

In addition to adopting an average SPR of F46 as the reference level of coastwide fishing intensity to be used as an interim management procedure while a harvest strategy policy is being developed, the Commission directed the IPHC Secretariat to provide for future management decisions to be based on Total Constant Exploitation Yields (TCEY), rather than Fishery Constant Exploitation Yields (FCEY). This allows catch limits to be more directly comparable across IPHC Regulatory Areas. The combination of the stock distribution from the 2017 O32 fishery-independent setline survey catch and relative target harvest rates among IPHC Regulatory Areas results in the target distribution for the annual TCEY⁶⁸.

The following summary paragraphs are from the IPHC assessment conducted in late 2017 (Stewart and Hicks 2018): The 2017 stock assessment for 2018 management consists of an ensemble of four equally-weighted models, and the basic approach has remained unchanged since 2014. As has been the case since 2012, this stock assessment is based on the approximate probability distributions derived from the ensemble of models, thereby incorporating the uncertainty within each model as well as the uncertainty among models.

The results at the end of 2017 indicate that the stock declined continuously from the late 1990s to around 2010, as a result of decreasing size-at-age, as well as somewhat weaker recruitment strengths than those observed during the 1980s. Since the estimated female spawning biomass (SB) stabilized near 200 million pounds (~90,100 t) in 2010, the stock is estimated to have been increasing gradually to 2017. The SB at the beginning of 2018 is estimated to be 202 million pounds (~91,600 t), with an approximate 95% confidence interval ranging from 148 to 256 million pounds (~67,100-116,100 t). A high probability is indicated of decline in both the stock and fishery yield as recent recruitments become increasingly important to the age range over which much of the harvest and spawning takes place.

A comparison of the median 2018 ensemble SB to reference levels specified by the interim management procedure suggests that the stock is currently at 40% (approximate 95% credible range = 26-60%) of specified unfished levels (relative to the SB specified by the current management procedure). However, the probability distribution indicates considerable uncertainty, with a 6% probability the stock is below the SB30% level. There is a less than 1% chance that the stock is below the SB20% limit. A more detailed harvest decision table including a finer grid of management alternatives and additional risk metrics can be seen in Table 3. Status summary of Pacific Halibut in the IPHC Convention Area at the end of 2017. in Stewart and Hicks (2018), and is shown below in Clause 7. The stock is projected to decrease gradually over the period from 2018-20 for removals around the reference SPR (46%) level (31 million pounds, ~14,060 t). There is a relatively small chance (< 21%) that the stock will decline below the threshold reference point (SB30%) in projections for all the levels of TCEY up to 40 million pounds (~18,100 t) evaluated over three years; for TCEYs exceeding that level, the probability begins to increase rapidly. Major sources of uncertainty, retrospective analyses and sensitivity analyses exploring current research avenues are included in the assessment document.

⁶⁸ <https://iphc.int/library/documents/news-releases/iphc-news-release-2017-32-br-outcomes-of-interim-meeting-im093>

8.3.2. 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.

Number of Supporting clauses	5
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized Evidence:

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.

Precautionary approach-based reference points are used in the management of this stock, as described in Clause 6. The scientific information and stock assessments available (as described in Clauses 4 and 5) are at a consistently high level, and provide the necessary basis for conservation and management decisions. Scientific advice for management of the stock is presented for different harvest levels which explain the risk of biomass levels being below adopted reference points at different harvest strategies, also outlined in Clause 6 above. A detailed harvest decision table including a finer grid of management alternatives and additional risk metrics is shown below, (Table 6 from Stewart and Hicks, 2018).

Table 6. Harvest decision table for 2018. Columns correspond to yield alternatives and rows to risk metrics. Values in the table represent the probability, in “times out of 100” (or percent chance) of a particular risk.

		2018 Alternative		Reference: SPR=46%															
		No removals		21.8	28.8	29.8	30.8	31.8	32.8	33.8	34.8	35.8	37.3	41.8	51.8	61.9			
		0.0	11.8	21.8	28.8	29.8	30.8	31.8	32.8	33.8	34.8	35.8	37.3	41.8	51.8	61.9			
		0.0	10.0	20.0	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.5	40.0	50.0	60.0			
		F100%	F73%	F58%	F50%	F49%	F48%	F47%	F46%	F45%	F44%	F43%	F42%	F39%	F32%	F27%			
		Fishing intensity interval		45-73%	37-67%	36-66%	36-65%	35-65%	34-64%	33-63%	32-63%	32-62%	31-61%	28-58%	23-53%	19-48%			
Stock Trend (spawning biomass)	in 2019	is less than 2018	1	3	24	59	64	69	74	78	81	85	87	91	98	>99	>99	a	
		is 5% less than 2018	<1	<1	<1	2	2	3	4	5	7	9	11	14	29	69	96	b	
	in 2020	is less than 2018	<1	1	14	46	52	57	62	67	71	76	80	85	95	>99	>99	c	
		is 5% less than 2018	<1	<1	1	9	11	14	18	21	25	29	34	41	61	94	>99	d	
	in 2021	is less than 2018	<1	2	23	59	63	68	72	76	79	83	86	90	97	>99	>99	e	
		is 5% less than 2018	<1	<1	5	27	32	36	41	46	50	55	59	66	83	99	>99	f	
Stock Status (Spawning biomass)	in 2019	is less than 30%	3	4	5	6	6	7	7	7	7	7	8	9	11	15	g		
		is less than 20%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	h	
	in 2020	is less than 30%	2	2	4	6	6	6	7	7	8	8	9	9	12	21	32	i	
		is less than 20%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	j	
	in 2021	is less than 30%	1	1	4	7	8	8	9	10	11	12	13	15	21	37	54	k	
		is less than 20%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	2	7	l	
Fishery Trend (TCEY)	in 2019	is less than 2018	<1	<1	7	33	38	43	49	55	60	64	68	71	78	89	97	m	
		is 10% less than 2018	<1	<1	3	23	26	30	34	38	43	48	53	59	72	82	92	n	
	in 2020	is less than 2018	<1	<1	10	38	43	49	54	59	63	67	70	73	79	91	98	o	
		is 10% less than 2018	<1	<1	6	27	31	36	40	45	50	54	59	64	74	84	95	p	
	in 2021	is less than 2018	<1	<1	14	44	50	55	59	63	67	69	72	74	81	93	>99	q	
		is 10% less than 2018	<1	<1	9	34	38	43	48	52	56	60	63	67	75	86	99	r	
Fishery Status (Fishing intensity)	in 2018	is above F _{46%}	0	<1	4	29	33	38	43	50	54	60	64	69	77	87	95	s	

7.2. For new and exploratory fisheries, procedures shall be in place for promptly applying precautionary management measures, including catch or effort limits.

Not applicable. The halibut fisheries in question are very well established and extensively managed

7.2.1 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.

For 7.2.1, IPHC regulations contain a specific clause on in-season measures, which include establishment or modification, where necessary, of measures such as: closed areas, fishing periods, gear restrictions, recreational bag limits, and size limits. In its Alaskan Groundfish FMPs , NPFMC notes that information and data relating to stock status may become available to the Council during the course of a fishing year which warrants in-season adjustments to a fishery. Certain changes warrant swift action by NMFS to protect the resource from biological harm by instituting gear modifications or adjustments through closures or restrictions. Other changes warrant action to provide greater fishing opportunities for the industry by instituting time or area adjustments through openings or extension of a season beyond a scheduled closure. Other in-season actions may be necessary for interim fishery closures to reduce prohibited species (e.g. halibut) bycatch rates and the probability of premature attainment of PSC limits

8.4. Section D. Management Measures

8.4.1. 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.

Number of Supporting clauses	17
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	High Conformance
Non Conformances	N/A

Summarized evidence:

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

Conservation and management of the fishery is based on an average coastwide fishing intensity SPR of F46. As noted above in Clause 6, the justification for using an average SPR from recent years is that this corresponds to fishing intensities that have resulted in a stable or slightly increasing stock, indicating that, in the short-term, this may provide an appropriate fishing intensity that will result in a stable or increasing spawning biomass. The previous harvest strategy was revoked, in recognition of the development process (management strategy evaluation) currently underway. In previous years, the harvest policy was 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% of the level defined as unfished.

IPHC is developing a Management Strategy Evaluation (MSE) for the Pacific Halibut stock mainly through its Management Strategy Advisory Board (MSAB). The MSAB oversees the MSE process and advises the Commission on the development and evaluation of candidate objectives and strategies for managing the fishery. The MSAB has been working to develop candidate management objectives, procedures to achieve these objectives, and performance metrics with which to measure success. Progress and results of the Board's meetings are posted on the IPHC/MSAB website⁶⁹.

Typically, the NPFMC determines the regulations for halibut taken as (prohibited species) by-catch in the Alaskan fisheries under its management, and requires that all halibut caught incidentally in these groundfish fisheries must be discarded, regardless of whether the fish is living or dead. Recent measures have been introduced within NPFMC to reduce the halibut bycatch in the Gulf of Alaska groundfish fisheries. There are numerous technical management measures aimed at conservation and sustainable utilization of the halibut resources. Under the individual fishing quota share system, the fishing capacity (vessels and gear) has been reduced, seasons were extended and wastage was reduced. Longline is the principal gear utilized for this fishery. Regulations are in place to address discards. The NPFMC has established additional trawl closures that benefit juvenile fish and adult spawners. Bycatch of seabirds has been addressed by specific regulations now including the use of streamer (tory) lines, night setting, line shooters and lining tubes.

The fleet is managed under an IFQ system. In 1991, the NPFMC recommended an IFQ Program for management

⁶⁹ <https://iphc.int/uploads/pdf/msab/msab10/iphc-2017-msab10-r.pdf>

of the fixed gear (hook and line) halibut and sablefish fisheries off of Alaska and the program was implemented by NMFS for the fishing season in 1995 (58 FR 215). The fundamental component of the IFQ Program is Quota Share (QS), issued to participants as a percentage of the QS pool for a species-specific IFQ regulatory area, which is translated into annual IFQ allocations in the form of fishable pounds. The IFQ Program was developed to address issues associated with the race-for-fish that had resulted from the open-access and effort control management of the halibut and sablefish fisheries. Specifically, the Council identified several problems that emerged in these fisheries due to the previous management regime, including increased harvesting capacity, decreased product quality, increased conflicts among fishermen, adverse effects on halibut and sablefish stocks, and unintended distributions of benefits and costs from the fisheries.

In December 2016, the NPFMC released the Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program⁷⁰. The intent of the review was to evaluate the IFQ Program as required by the MSA and within the framework of the scope requested by the Council and its advisory bodies. Primarily, the IFQ Program was examined with respect to how well it has met its 10 original policy objectives and how it is providing entry opportunities for new participants, an objective that the Council has sought to provide through numerous revisions since the IFQ Program was implemented. The Council, its Advisory Panel (AP), Scientific and Statistical Committee (SSC), and IFQ Implementation Committee all provided feedback on the proposed structure and policy scope of this review document. In the 20 years since implementation of the IFQ Program, this was the first formal and comprehensive review of the program.

The Pacific Halibut longline fishery was one of the first fully domestic fisheries to become established off Alaska. As the groundfish fisheries developed, regulations were implemented to limit bycatch of halibut, so as to minimize impacts on the domestic halibut fisheries. Halibut are taken as incidental catch in federally managed groundfish trawl, hook-and-line, and pot fisheries in the Gulf and Alaska and Bering Sea/Aleutian Islands areas. Interception of juvenile and adult halibut occurs in trawl fisheries targeting groundfish species (such as rockfish, flatfish, pollock, and Pacific cod). Incidental catch of halibut also occurs in groundfish hook-and-line and pot fisheries that typically focus on Pacific cod. Regulations require that all halibut caught incidentally in these groundfish fisheries must be discarded, regardless of whether the fish is living or dead. Halibut catch is controlled in the groundfish fisheries using prohibited species catch (PSC) limits. PSC limits are applied to specific target fisheries, gear types, and seasons. During some fishing years, halibut PSC limits have resulted in the closure of specific groundfish fisheries prior to the fleet harvesting the available TAC. In recent years, NPFMC has taken a number of actions to reduce halibut PSC mortality limits in Alaskan groundfish fisheries, including Amendment 95 which came into effect in 2014, and brought about reductions in halibut bycatch in GOA groundfish fisheries.

IPHC receives and considers proposals which deal with the socioeconomic importance of its annual catch levels and associated management measures. NPFMC's annual FMPs include a section on the economic and socioeconomic characteristics of the fisheries and communities in Alaska. Harvest levels for each groundfish species or species group that are set by NPFMC, including halibut PSCs, are based on the best biological, ecological, and socioeconomic information available

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

By IPHC regulation, Pacific Halibut are permitted to be taken only by hook and line gear, or in sablefish pots or traps in certain areas. Incidental catch of halibut in trawl fisheries regulated by NPFMC must be discarded, regardless of whether the fish are alive or dead. No dynamiting, poisoning or similarly comparable destructive practices are carried out in Alaska.

8.3. States shall seek to identify domestic parties having a legitimate interest in the use and management of the

⁷⁰ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

fishery.

The IPHC currently apportions the QS for the halibut fishery among commercial, sport and personal use subsistence sectors. The NPFMC is responsible for allocation of the halibut resource among user groups in Alaska waters. One of the Council's policy priorities is 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. In 2009, the Council approved a recommendation to initiate a standing Rural Outreach Committee to provide input to the Council on ways to improve outreach to communities and Alaska Native entities. The committee was initiated in June 2009. The Council identified three primary tasks for the committee:

1. To advise the Council on how to provide opportunities for better understanding and participation from
2. Alaska Native and rural communities;
3. To provide feedback on community impacts sections of specific analyses, if requested; and
4. To provide recommendations regarding which proposed Council actions need a specific outreach plan and prioritize multiple actions when necessary.

The committee has been instrumental in recommending and implementing changes to improve overall outreach and two-way communication with rural stakeholders, as well as assisting in the development of project-specific, long-term outreach plans for Council actions⁷¹.

In June, 2018, NPFMC established its Community Engagement Committee⁷². This was established to identify and recommend strategies for the Council and Council staff to enact processes that provide effective community engagement with rural and Alaska Native Communities. Effective community engagement may involve two-way communication between the Council and communities at additional stages of the Council process or a project and allow for community concerns, information, perspectives, and priorities to be shared clearly with the Council, whether part of an active Council action or not.

The Western Alaska Community Development Quota (CDQ) Program was created by the NPFMC 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 CDQ Program allocates a percentage of all Bering Sea and Aleutian Islands quotas for groundfish, prohibited species, halibut, and crab to eligible communities. The purpose of the CDQ Program is to (i) to provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the Bering Sea and Aleutian Islands Management Area; (ii) to support economic development in western Alaska; (iii) to alleviate poverty and provide economic and social benefits for residents of western Alaska; and (iv) to achieve sustainable and diversified local economies in western Alaska. There are approximately 65 communities within a fifty-mile radius of the BS coastline who participate in the program⁷³.

In addition to the NPFMC fora, the IPHC serves its parties by allowing continuous participation to a number of its advisory bodies which include:

The Conference Board is an IPHC advisory panel representing Canadian and United States halibut fishers. The Board was created by the Commission in 1931 to obtain advice and recommendations from halibut harvesters on conservation measures and halibut management. The Board also reviews staff reports and recommendations and provides its advice concerning these items to the Commission at its Annual Meeting, or on other occasions as

⁷¹ <https://www.npfmc.org/committees/rural-outreach-committee/>

⁷² <https://www.npfmc.org/community-engagement/>

⁷³ <http://www.npfmc.org/community-development-program/>

requested. Its members are designated by unions, vessel owner organizations, and associations of harvesters throughout the halibut range and include commercial, sport, and tribal interests. The CB is co-chaired by U.S. and Canadian representatives. The 88th Session⁷⁴ of the Conference Board (CB088) was held in Portland, Oregon, U.S.A. from 23-24 January 2018. A total of 78 members attended the Session from the two Contracting Parties.

The **Processor Advisory Group** is an IPHC advisory panel representing the Canadian and United States processing industry. It advises the Commission on issues related to the management of halibut resources in the Exclusive Economic Zone of North America. Recognizing the particular expertise the processing industry can provide, the PAG was founded in 1995. The PAG encourages stability and growth of the North American halibut industry by fostering a cooperative relationship, better understanding, and a spirit of mutual benefit among seafood processors, fishermen, and the Commission. The Commission relies on the PAG for comprehensive industry advice on various potential conflicts between participants within a given fishery resource or area, and on the extent to which the halibut resources are managed by the Commission.

Other Boards existing within IPHC include the Management Strategy Advisory Board (MSAB), the Research Advisory Board (RAB), and a Scientific Review Board (SRB). Some details on these have been presented earlier in this report, and recent work/meeting reports of these Boards can be found on the IPHC website

8.4. Mechanisms shall be established where excess capacity exists, to reduce capacity. Fleet capacity operating in the fishery shall be measured. 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.

The Halibut fishery in Alaska is a closed access fishery managed using an IFQ system. The number of vessels participating in the fleet has decreased since implementation of the IFQ program in the mid 1990's. Annually, NMFS issues eligible QS holders an IFQ fishing permit that authorizes participation in the IFQ fisheries. Those to whom IFQ permits are issued may harvest their annual allocation at any time during the eight plus-month IFQ halibut and sablefish seasons. The IFQ program is a complex management program authorized by federal regulations, which, along with the various definitions required can be viewed on a NOAA website⁷⁵.

Under the individual fishing quota (IFQ) share program in the Alaskan fishery for the Pacific Halibut and sablefish fishery (introduced for halibut in 1995), fishing capacity (vessels and gear) has been significantly reduced. With the implementation of IFQs in the fishery, the derby-style fisheries often lasting only a few days were eliminated, seasons were extended and wastage was reduced in the halibut fishery. The number and size of fishing vessels involved in Alaskan fisheries is recorded and reported annually by NMFS/AFSC. In the years after IFQ was implemented, the average annual decrease in the number of active vessels fishing halibut was about 4%, with 863 active vessels in the halibut IFQ fishery in 2016, compared to 2060 in 1995 (Fissel et. al 2017). This demonstrates a clear ability to control and reduce capacity as necessary.

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.

IPHC regulations covering the directed halibut fisheries (commercial and sport) can be found on the IPHC

⁷⁴ <https://iphc.int/uploads/pdf/cb/cb088/iphc-2018-cb088-r.pdf>

⁷⁵ <https://alaskafisheries.noaa.gov/fisheries-679regs>

website⁷⁶. The full suite of NMFS fishery regulations for Alaskan waters can be found on their website⁷⁷. Concerning specific technical measures, a brief summary by category, as contained in these IPHC regulations, is as follows:

The IPHC establishes halibut season (open and closed) dates under authority of the Halibut Act. NMFS establishes IFQ season dates by publishing a notice annually, in the Federal Register, and these have been set simultaneous with those for halibut to reduce waste and discards. Separate dates and seasons exist for the sport fisheries in the various areas, as outlined in the IPHC regulations.

Areas closed to halibut fishing are defined in IPHC regulations, and include certain specific waters in the Bering Sea in Isanotski Strait. A number of areas in GOA and BSAI waters are closed to trawling (and thus to halibut bycatch outside the directed fisheries). Other areas require use of modified bottom trawls. These specific areas are defined in the NMFS regulations.

Size limits for halibut in the commercial fishery are as follows, from the IPHC regulations: No person shall take or possess any halibut that: (a) with the head on, is less than 32 inches (81.3 cm) as measured in a straight line, passing over the pectoral fin from the tip of the lower jaw with the mouth closed, to the extreme end of the middle of the tail; or (b) with the head removed, is less than 24 inches (61.0 cm) as measured from the base of the pectoral fin at its most anterior point to the extreme end of the middle of the tail. Specific size limits also exist for the sport fisheries, and can vary by area.

The only legal gear for directed halibut fishing is hook and line, with exceptions for some sablefish traps and pots (allowable bycatch of halibut). Halibut retained as bycatch in trawl fisheries in Alaskan waters must be released as Prohibited Species Catch, whether the fish are dead or alive, and these limits are set by NPFMC.

In 2003, the subsistence halibut fishery off Alaska was formally recognized by the NPFMC, and regulations were implemented by IPHC and NMFS. The fishery allows the customary and traditional use of halibut by rural residents and members of federally-recognized Alaska native tribes who can retain halibut for non-commercial use, food, or customary trade. The NMFS regulations defined legal gear, number of hooks, and daily bag limits, and IPHC regulations set the fishing season. Prior to subsistence fishing, eligible persons registered with NMFS Restricted Access Management to obtain a Subsistence Halibut Registration Certificate (SHARC). Further details on personal harvest of Pacific Halibut, including catch data, can be found in Goen and Erikson (2018).

8.6. Fishing gear shall be marked.

Fishing gear is marked. Details can be found in the IPHC regulations for Pacific Halibut fishing, Section 20, of the 2018 Fishery Regulations⁷⁸:

- (4) All gear marker buoys carried on board or used by any United States vessel used for halibut fishing shall be marked with one of the following: (a) the vessel's State license number; or (b) the vessel's registration number.
- (5) The markings specified in paragraph (4) shall be in characters at least four inches in height and one-half inch in width in a contrasting color visible above the water and shall be maintained in legible condition

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

⁷⁶ <https://iphc.int/the-commission/fishery-regulations>

⁷⁷ <https://alaskafisheries.noaa.gov/fisheries-679regs>

⁷⁸ <https://iphc.int/uploads/pdf/regs/iphc-2018-regs.pdf>

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.

The US participation in IPHC is outlined in the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea (Basic Instrument for the International Pacific Halibut Commission – IPHC⁷⁹). The US laws governing the halibut fishery are fully consistent with and supportive of a number of international laws and agreements related to fisheries management, such as the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, the UN Straddling and Highly Migratory Fish Stocks Agreement, and the Convention on Biological Diversity.

NPFMC⁸⁰ states that it will carry out its objectives by considering reasonable, adaptive management measures, as described in the Magnuson-Stevens Act and in conformance with the National Standards, the Endangered Species Act, the National Environmental Policy Act, and other applicable laws. This management approach takes into account the National Academy of Science's recommendations on Sustainable Fisheries Policy. As noted in previous clauses, IPHC uses a precautionary harvest control rule in its management approach which is aimed at preventing overfishing of the resource and allowing stock rebuilding if/when necessary. The Pacific Halibut stock in Alaska as assessed is currently not depleted. The main fishing gear used to capture halibut is longline, which has minimal impact on seabed habitat compared to many other gears.

8.8/8.9/8.10/8.11/8.12/8.13. States shall encourage the development and implementation of technologies and operational methods that reduce waste and discards and reduce the loss of fishing gear. The implications of the introduction of new fishing gears, methods and operations shall be assessed and the effects of such introductions monitored. New developments shall be made available to all fishers and shall be disseminated and applied appropriately.

The halibut fleet utilizes demersal longline gear; IPHC regulations require all halibut that are caught and are not retained to be immediately released and returned to the sea with a minimum of injury by: (a) hook straightening; (b) cutting the gangion near the hook; or (c) carefully removing the hook by twisting it from the halibut with a gaff. IPHC's By-catch Working Group also reviews selectivity studies and fishing practices intended to reduce waste and bycatch. A 2014 WG report and list of publications considered by this WG, along with IPHC studies on hook type, size, bait, effect of fish size, etc. can be found on the IPHC website⁸¹.

The groundfish trawl industry in Alaska have deployed halibut excluder devices in their gear with success. The NMFS, in collaboration with the Pacific States Marine Fisheries Commission (PSMFC) and the Alaska Whitefish Trawlers Association, tested the efficacy of a flexible sorting grate bycatch reduction device (BRD) designed to reduce halibut bycatch⁸². The results showed that halibut bycatch was reduced numerically by 57% and by 62% by weight. Target species loss ranged from 9% to 22%.

Exempted Fishing Permits (EFPs) have been granted by NMFS to some fleets to allow halibut deck sorting experiments (Gauvin 2013), with the aim of reducing halibut mortality on fish under PSC limits. The program requires observer coverage and electronic video monitoring on all vessels, and is supported by previous scientific study. An example of an EFP for this fishery can be found on the NOAA Alaska fisheries website⁸³.

Vessels fishing longline gear in Alaskan waters (e.g. IFQ halibut fleet) are required by NMFS regulation to take measures to avoid seabird bycatch. Such measures include using hooks that when baited sink as soon as they are

⁷⁹ http://www.nmfs.noaa.gov/ia/agreements/regional_agreements/pacific/iphc.pdf

⁸⁰ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf>

⁸¹ <http://www.iphc.int/research/biology/hook.html>

⁸² <http://marineconservationalliance.org/seafacts-the-development-of-halibut-excluders/>

⁸³ <https://alaskafisheries.noaa.gov/sites/default/files/efp2016-01-050616permit.pdf>

put in the water, and the use of streamer lines. In the trawl flatfish fisheries in the Bering Sea and the central Gulf of Alaska, a trawl sweep gear modification has been required by NPFMC. Elevating devices (e.g., discs or bobbins) are required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor.

Information on the amount of gear lost or abandoned by the halibut longline fishery was collected through logbook interviews or from fishing logs received via mail. The number of legal-sized halibut estimated to have been taken by lost or abandoned gear decreased by over 95% between 1985 and 2012⁸⁴. Since the implementation of the quota share (IFQ) fisheries, the amount of halibut fishing gear deployed has been reduced significantly, and therefore lost gear is much less common in the fishery of recent years. Under the IFQ program, there is also more incentive for fishermen to retrieve any lost gear, as it does not result in reduced income, and decreases gear replacement costs. Under IPHC regulations, vessels fishing for halibut in Alaska must record the amount and location of all fishing gear deployed, including any lost gear.

There is no evidence that regulations involving gear selectivity are being circumvented either by omission, or through the illegal use of gear technology. Advancements or developments in gear are made widely available to fishers through websites and public meetings and other forms of communication.

New fishing gears have seldom been allowed for halibut fishing, where longline is the preferred method of catching halibut. Before Amendment 101 allowing the use of longline pot gear to fish for sablefish in GOA, and the recent regulation change allowing IFQ vessels using this gear to retain halibut under certain conditions, a comprehensive review was conducted within NPFMC, which included extensive dialogue between NPFMC and IPHC⁸⁵. A review on the effects of allowing GOA Sablefish longline pot gear will be conducted 3 years after implementation and NMFS is to include pot gear effort in their management report to NPFMC. As reported in NPFMC documentation⁸⁶, 277 catcher vessels fished GOA IFQ sablefish in 2017, 245 using only hook and line (HAL) gear, 5 using only pot gear, and 17 using both. Of those 22 vessels which used pot gear in their reported harvest of sablefish, 14 of the vessels retained halibut, totaling 18.6 mt of halibut, or 3% of the sablefish catch weight.

The Council is currently reviewing/considering allowing retention of halibut in pots in the BSAI⁸⁷. As quoted from the June 2018 NPFMC Newsletter⁸⁸, following its June 2018 meeting: “After reviewing the initial review analysis for halibut retention in pots in the BSAI, the Council revised its purpose and need statement and chose a preliminary preferred alternative (PPA). The PPA would allow retention of halibut in pots in the BSAI, if participants have sufficient halibut IFQ or CDQ for the appropriate regulatory area. The Council recommended the analysis be released for public review pending certain changes and additions. ... The Council requested that prior to releasing a new draft, staff address changes to the current motion and incorporate the Council’s comments, including a discussion of how gear retrieval and storage requirements would impact the existing BSAI sablefish pot fishery. Due to concerns over bycatch, particularly Pribilof Islands Blue King Crab, the Council also asked staff to further explore potential crab escapement mechanisms in halibut pots. Additionally, the Council requested that staff develop a list of potential topics to review regarding the effects of allowing retention of halibut in pot gear, which would be reviewed by the Council three years after implementation of a halibut pot fishery in the BSAI.”

As noted above, there are a number of measures implemented in the halibut fishery to minimize non-utilized catches. These include deployment of halibut excluder devices in groundfish trawl gear, use of streamers on

⁸⁴ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

⁸⁵ <http://npfmc.legistar.com/gateway.aspx?M=F&ID=7d531a12-e2df-4f1c-b22f-29df93f5422a.pdf>

⁸⁶ <http://npfmc.legistar.com/gateway.aspx?M=F&ID=053d586a-3053-434f-b539-e8eaf01a39a2.pdf>

⁸⁷ <https://www.npfmc.org/halibut-retention-in-pots/>

⁸⁸ <https://www.npfmc.org/bsai-halibut-in-pots/>

longline gear to reduce seabird bycatch, deck sorting of halibut to improve survival of live halibut returned to the sea, and work on hook selectivity and efficiency. These measures are typically implemented following rigorous scientific study and periods of allowed experimental fishing to test their effectiveness. Many of the studies and subsequent implementation have involved cooperative efforts between researchers at institutions in NMFS, DFO, IPHC, universities, and industry. More information is also presented in Clause 12 below.

NOAA/NMFS has a National Bycatch Reduction Strategy⁸⁹, which is intended to guide and coordinate efforts to reduce bycatch and bycatch mortality. Key areas of focus include:

- monitor and estimate the rates of bycatch and bycatch mortality in fisheries to understand the level of impact and the nature of the interaction;
- research to improve estimates of bycatch rates, better understand the impacts of bycatch on species interactions and community dynamics, modify fishing gear, and develop mitigation tools to minimize bycatch and its impacts;
- develop and implement domestic management measures and promote the adoption and implementation of international measures to address bycatch and its impacts;
- evaluate the effectiveness of science and management programs to determine whether programs achieve stated goals and identify needed improvements;
- enforce fishery management measures and work with state, federal, and international partners to ensure compliance with all applicable laws;
- communicate with agencies and stakeholders to maximize the impact of bycatch reduction efforts.

8.14. Policies shall be developed for increasing stock populations and enhancing fishing opportunities through the Use of artificial structures.

Not applicable. The halibut stock is not depleted below target reference points or subjected to enhancing practices.

⁸⁹ <https://www.fisheries.noaa.gov/national/bycatch/national-bycatch-reduction-strategy>

8.4.2. 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.

Number of Supporting clauses	3
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

9.1./9.2./9.3. Education and training programs.

No significant changes have occurred since the re-assessment in January 2017. Any aspirant halibut fisher must have 150 days of halibut fishing experience before being able to purchase halibut IFQs under NMFS/NOAA rules. Obtaining halibut IFQ share most often will require the purchaser (aspirant halibut fisherman) to enter into loan capital arrangements with banks that will require comprehensive fishing business plans supported by competent, professional fishermen with demonstrable fishing experience. This competence and professionalism is a learned experience with the culmination of entrants into the fishery starting at deck hand level working their way up through proof of competence.

The State of Alaska, Department of Labor and Workforce Development (ADLWD) includes AVTEC (formerly called Alaska Vocational Training & Education Center, now called Alaska’s Institute of Technology). One of AVTEC’s main divisions is the Alaska Maritime Training Center. The goal of the Alaska Maritime Training Center is to promote safe marine operations by effectively preparing captains and crewmembers for employment in the Alaskan maritime industry⁹⁰. This center is a United States Coast Guard (USCG) approved training facility located in Seward, Alaska, and offers USCG/STCW-compliant maritime training (STCW is the international Standards of Training, Certification, and Watchkeeping). In addition to the standard courses offered, customized training is available to meet the specific needs of maritime companies. Courses are delivered through the use of their ship simulator, computer based navigational laboratory, and modern classrooms. The Center’s mission is to provide Alaskans with the skills and technical knowledge to enable them to be productive in Alaska’s maritime industry. Supplemental to their on-campus classroom training, the Alaska Maritime Training Center has a partnership with the Maritime Learning System to provide mariners with online training for entry-level USCG Licenses, endorsements, and renewals.

The University of Alaska Sea Grant Marine Advisory Program (MAP) provides education and training in several sectors, including fisheries management, in the forms of seminars and workshops. In addition, MAP conducts sessions of their Alaska Young Fishermen’s Summit (AYFS). AYFS is designed to provide training, information and networking opportunities for commercial fishermen early in their careers. In 2017, the AYFS coincided with the North Pacific Fisheries Management Council December meeting in Anchorage and included sessions on Science and Management of Alaska’s fisheries, and the Regulatory Process⁹¹.

⁹⁰ <http://www.avtec.edu/>

⁹¹ https://docs.google.com/document/d/1Ah1pe9LSVahEAoE4farU02keWb-UGD65kby_8dioRM/edit

The Alaska Marine Safety Education Association (AMSEA)⁹² provides courses on small boating safety, drill conductor training, stability and damage control, ergonomics and survival at sea training.

All regulations governing the halibut fisheries are available on the IPHC, NPFMC, and NMFS websites, as previously documented. Changes to regulations are considered only after detailed processes which include open and public discussions, and the results of any changes are widely communicated.

Data on the number and location of Alaskan of fishers, permits issued, etc. can be found in Fissel et al. 2017. Information on Alaska sport fish and crew license holders has been compiled through the Alaska Fisheries Information Network for Alaska Fisheries (AKFIN)⁹³. Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska's CFEC website⁹⁴.

⁹² <http://www.amsea.org/>

⁹³ <http://www.akfin.org/home/>

⁹⁴ https://www.cfec.state.ak.us/fishery_statistics/earnings.htm

8.5. Section E. Implementation, Monitoring and Control

8.5.1. 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.

Number of Supporting clauses	6
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

10.1. Enforcement agencies and framework:

No significant changes have occurred since the re-assessment in January 2017. The Northern Pacific Halibut Act governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The Alaska Wildlife Troopers enforce halibut regulations in state waters. All landings of halibut must be reported to NMFS via its mandatory “e-landings” reporting system.

OLE and USCG are responsible for enforcement of regulations in the IFQ fisheries. OLE is responsible for shoreside enforcement and provides after hours surveillance while USCG engages in at-sea enforcement. The USCG documents at-sea violations and refers them to OLE for final action. OLE employs a multifaceted strategy to maximize compliance in the IFQ fisheries. This strategy includes educational outreach, partnerships, patrols, inspections, and investigations. OLE spends thousands of hours annually providing marine resource users with compliance assistance, including staffing booths at organized events, daily contacts in communities, ports, harbors, and at-sea to ensure that the most current and accurate regulatory information is widely distributed and understood.

OLE works closely with the Wildlife Troopers and the USCG to maximize compliance by sharing information, intelligence, knowledge, and resources. The formalized JEA with the Wildlife Troopers provide the state with federal funding for personnel, equipment, operations, and authorization for the Wildlife Troopers to enforce federal fishing regulations while engaged in their regular duties. OLE also spends thousands of hours annually conducting patrols to provide a visible deterrence to potential violators, to monitor fishing and other marine activities, to detect violations, to conduct compliance inspections, and to provide compliance assistance. OLE personnel investigate reports or complaints of IFQ violations as well as regularly analyze IFQ data that may lead to investigations of abnormal activity and missing or questionable information. OLE has identified two monitoring and enforcement concerns related to IFQ fishing requirements.

Quota share in the IFQ Program are allocated by specific regulatory area. False reporting of the area of harvest for IFQ is a concern for OLE. Such area fished violations have the potential to significantly impact the IFQ fisheries because the IPHC establishes catch limits by management area and NMFS tracks IFQ catch by area to ensure these catch limits are not exceeded. OLE has limited ability to track at sea fishing activity and areas fished without the use of VMS. In cases where VMS data is available, it has been instrumental in prosecuting false reporting violations in the IFQ fisheries where a fisherman has caught fish in one area, and upon landing, reported it from a different area. Requiring the use of VMS in IFQ fisheries would substantially improve OLE’s ability to prosecute false

reporting violations. This intentional violation is hard to detect without VMS and has the potential to impact the fishery resource.

The second enforcement concern is a type of IFQ overage caused when a QS holder on board a vessel has IFQ in two areas, but the vessel does not have VMS or an observer onboard. In this situation the QS holder is not allowed to harvest more fish in any one area than the amount of IFQ he has available for that given area. Violation of this requirement is commonly referred to as a multiple area violation and is considered an IFQ overage even though the QS holder has IFQ in both areas. This type of violation can result in significant fines and forfeiture of the “overage”. Requiring VMS in the IFQ fisheries could help fishery participants avoid unintentional multiple area overages (**Table 7**).

The Alaska Enforcement Division utilizes Enforcement Officers, Special Agents and partnerships with the Alaska Wildlife Troopers and the U.S. Coast Guard to enforce federal fishing regulations over 842,000 square miles of ocean, 6,600 miles of coastline and 2,690 islands off of Alaska⁹⁵. Compliance is achieved by providing outreach and education, conducting patrols, monitoring offloads, and by investigating violations of civil and criminal marine resource laws (**Table 8**). During 2017, Alaska Enforcement Division personnel spent over 4,972 hours conducting patrols to provide a visible deterrence to potential violators, to monitor fishing and other marine activities, to detect violations, to provide compliance assistance, and to provide outreach and education. This is compared to 4,476 patrol hours in 2016, and 3,363 patrol hours in 2015. Alaska Enforcement Division personnel boarded 1216 fishing vessels during 2017; 698 were halibut related boardings.

Table 7. Total Number of Boardings by Year.

	2015			2016*			2017		
	Vessel Boardings	Violations Discovered During Boarding	Observed Compliance	Vessel Boardings	Violations Discovered During Boarding	Observed Compliance	Vessel Boardings	Violations Discovered During Boarding	Observed Compliance
Subsistence Halibut	4	2	50%	18	9	50%	34	4	88%
Commercial Halibut	195	5	97%	550	65	88%	231	27	88%
Charter Halibut	70	18	75%	197	56	72%	185	24	87%
Sport Halibut	229	8	97%	368	59	84%	248	12	95%
Total	498	33	93%	1133	189	83%	698	67	90%

* In July 2016 OLE implemented a new records management system (RMS) that contains data migrated from the old RMS to the new RMS. Not all data fields were exact matches between the two RMS systems and some data transfer error may have occurred.

Table 8. Halibut Related Violations.

	2015 Violations Documented	2016* Violations Documented	2017 Violations Documented
Subsistence Halibut	18	33	26
Commercial Halibut	178	211	121
Charter Halibut	186	309	203
Sport Halibut	36	64	15
TOTAL	418	602	365

* In July 2016 OLE implemented a new records management system (RMS) that contains data migrated from the old RMS to the new RMS. Not all data fields were exact matches between the two RMS systems and some data transfer error may have occurred.

Halibut Related Violations documented by NOAA in Alaska in 2017 were characterized as follows:

26 Subsistence halibut fishing violations, most common violations included:

- Unqualified person applied for SHARC
- Improperly or unmarked subsistence halibut fishing gear
- Subsistence halibut fishing without SHARC

⁹⁵ <https://www.iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar16.pdf>

- Exceeding bag and/or possession limits
- Mutilating Halibut

121 Commercial IFQ or CDQ halibut, most common violations included:

- 34 IFQ halibut overages in 2017
- 33 IFQ halibut overages in 2016
- 40 IFQ halibut overages in 2015
- Record keeping or reporting violations (PNOL, Landing Report, Logbook)
- Gear marking violations
- Retain undersized halibut, or discarding legal sized halibut
- Hired Skipper and Permit Holder violations
- Vessel Cap Overages
- Misreporting IFQ area fished or fishing in an area with no IFQ available
- Crab pots onboard
- Fishing without an FFP

203 plus Charter halibut fishing violations were documented, most common violations included:

- Logbook violations-
- Fail to ensure charter halibut anglers sign the logbook
- Fail to record CHP on front of ADFG logbook, invalid CHP
- Report inaccurate information
- GAF reporting violations- Failure to report GAF in the required time, submitting inaccurate information
- Illegal guiding - No CHP
- Filleting, mutilating or skinning halibut onboard a vessel
- Exceeding bag limit; possession limit; size limits or annual limits
- Over annual limit
- Crew retaining Charter halibut
- Fishing on closed days
- Charter fish without a CHP

15 Sport halibut fishing violations were documented, most common violations included:

- Sale or attempted sale of sport caught halibut
- Exceeding bag and/or possession limits
- Filleting, mutilating or skinning halibut onboard a vessel-10 cases
- Fishing without a permit
- Using illegal gear
- Sport caught halibut onboard with commercial caught salmon

19 Commercial groundfish violations involving halibut, most common violations included:

- Fail to carefully release halibut or allow halibut to contact a crucifier or hook stripper.
- Retain halibut caught with fixed gear without a valid IFQ permit in the name of an individual aboard.
- Making an IFQ landing without an IFQ permit in the name of the individual making the landing.
- Failure to have an IFQ hired master permit, as appropriate, in the name of the individual making the landing.

During 2017, NOAA's Alaska Enforcement Division opened 986 halibut related incidents including outreach, vessel boardings, dockside monitoring, and compliance assistance. Of the 986 incidents, officers identified 523 halibut

related violations which were handled by Compliance Assistance, Summary Settlement or a Written Warning (Table 9).

Table 9. Number and percentage of Halibut related Violations documented by Year

	2015	2016*	2017
Total Cases Opened	623	2873	3151
Total Violations Documented	1,393	1741	1621
Halibut Related Violations	475	602	523
Percentage of Violations Halibut Related	34%	35%	32%

10.2./10.3/10.4. Fishing permit requirements:

All vessels harvesting halibut must be authorized and permitted (by way of license and ITQ) to fish, in accordance with federal regulations, 50CFR679⁹⁶. Further, all halibut harvesting must be conducted in accordance with the NPFMC's IFQ program⁹⁷.

⁹⁶ <https://alaskafisheries.noaa.gov/fisheries-679regs>

⁹⁷ <https://alaskafisheries.noaa.gov/fisheries/ifq>

8.5.2. Fundamental Clause 11

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

Number of Supporting clauses	3
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Full Conformance
Non Conformances	N/A

Summarized evidence:

11.1/11.2/11.3. Enforcement policies and regulations, state and federal:

No significant changes have occurred since the re-assessment in January 2017. The sanction and violation framework are based on the Magnuson-Stevens Act (50CFR600.740 Enforcement policy) provides four basic enforcement remedies for violations: 1) Issuance of a citation (a type of warning), usually at the scene of the offense, 2) Assessment by the Administrator of a civil money penalty, 3) for certain violations, judicial forfeiture action against the vessel and its catch, 4) Criminal prosecution of the owner or operator for some offenses. In some cases, the Magnuson-Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine.

The Northern Pacific Halibut Act governs halibut fisheries in the U.S. The USCG and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The Alaska Wildlife Troopers enforce halibut regulations in state waters. The violations in this fishery are reported to and investigated by NOAA's OLE Alaska Division and prosecuted by NOAA's Office of General Counsel's Enforcement Section. Penalties (**Table 10**) under the Halibut Act are as follows:

Table 10. Offence level and penalty matrix according to the MSA⁹⁸.

Gravity Offense Level	Level of Culpability			
	A Unintentional	B Negligent	C Reckless	D Intentional
I	Written warning- \$2,000	Written warning- \$4,000	\$2,000-\$6,000	\$6,000-\$8,000
II	\$2,000-\$4,000	\$4,000-\$6,000	\$6,000-\$10,000	\$10,000-\$20,000
III	\$4,000-\$10,000	\$10,000-\$15,000	\$15,000-\$20,000	\$20,000-\$40,000 Permit sanction of 5-20 days for subsequent violations*
IV	\$10,000-\$15,000	\$15,000-\$25,000	\$20,000-\$40,000 Permit sanction of 10-20 days for subsequent violations *	\$40,000-\$60,000 Permit sanction of 20-60 days *
V	\$15,000-\$25,000	\$25,000-\$40,000 Permit sanction of 10-20 days for subsequent violations *	\$40,000-\$60,000 Permit sanction of 20-60 days*	\$60,000-\$100,000 Permit sanction of 60-180 days*
VI	\$25,000-\$40,000 Permit sanction of 5-20 days for subsequent violations *	\$40,000-\$60,000 Permit sanction of 20-60 days*	\$60,000-\$100,000 Permit sanction of 60-180 days*	\$100,000- statutory maximum Permit sanction of 180 days to 1 year *

⁹⁸ http://www.gc.noaa.gov/documents/Penalty%20Policy_FINAL_07012014_combo.pdf

OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation (GCEL).

The MSA provides four basic enforcement remedies for violations (50CFR600.740 Enforcement policy):

1. Issuance of a citation, usually at the scene of the offense (see 15 CFR part 904, subpart E).
2. Assessment by the Administrator of a civil money penalty.
3. For certain violations, judicial forfeiture action against the vessel and its catch.
4. Criminal prosecution of the owner or operator for some offenses.

In some cases, the MSA requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. In summary, the MSA treats sanctions against the fishing vessel permit to be the carrying out of a purpose separate from that accomplished by civil and criminal penalties against the vessel or its owner or operator⁹⁹.

⁹⁹ http://www.gc.noaa.gov/documents/Penalty%20Policy_FINAL_07012014_combo.pdf

8.6. Section F. Serious Impacts of the Fishery on the Ecosystem

8.6.1. 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.

Number of Supporting clauses	16
Supporting clauses applicable	N/A
Supporting clauses not applicable	N/A
Overall level of conformity	Minor Non-Conformance
Non Conformances	1 Minor (12.6)

Summarized evidence:

12.1. Assessment of environmental effects on target stocks and ecosystem

The impacts of environmental factors on halibut and other fish or non-fish species associated or dependent upon them continue to be assessed appropriately by the IPHC, NMFS/NPFMC and ADFG. Appropriate scientific evaluations are conducted using best available information from surveys and commercial data. Limitations in observer data from vessels <40' LOA have been identified and this is being addressed through management actions. An electronic monitoring program has been being implemented to help deliver necessary improvements. Marine resource management is multi-dimensional (with regards to stakeholders as well as resources), and is guided by information that is updated annually or more frequency. The precautionary as well as ecosystem-based approaches are applied to deliver conservation, sustainability and optimum economic management measures.

The IPHC compared long-term changes in Pacific Halibut recruitment and growth with long-term changes in climate and stock size. IPHC scientists found that environmental variability—both interdecadal and inter-annual—is responsible for most of the observed variation in Pacific Halibut recruitment. However, the dramatic decline in size at age, resulting in the large changes in growth rates that occurred during the twentieth century, appears to have been density-dependent responses to changes in stock size and competition with expanding flatfish stocks in general, with virtually no environmental influence (Martell et al. 2015).

As part of IPHC's annual setline survey, which provides data for the sablefish assessment, IPHC conducts an extensive oceanographic monitoring program which includes waters off British Columbia, and into the Gulf of Alaska, Bering Sea, and Aleutian Islands (Sadorus and Walker 2018). The IPHC is collaborating with the Joint Institute for the Study of the Atmosphere and Ocean (JISAO) at the University of Washington and NOAA's Pacific Marine Environmental Laboratory to process the oceanographic data and make them publicly accessible, and a number of years of data up to 2014 are currently available¹⁰⁰.

Another major ecosystem research report is the AFSC Ecosystem Consideration Report series¹⁰¹. The Ecosystem Considerations reports are produced annually to compile and summarize information about the status of the Alaska marine ecosystems for the NPFMC, the scientific community and the public. As of 2017, there are separate reports for the Eastern Bering Sea (EBS), Aleutian Islands (AI), the Gulf of Alaska (GOA), and Arctic (forthcoming) ecosystems. These reports include ecosystem assessments, and ecosystem-based management indicators that

¹⁰¹ <https://access.afsc.noaa.gov/reem/ecoweb/>

together provide context for ecosystem-based fisheries management in Alaska. A research plan has been developed by the Alaska Fisheries Science Center focusing on forecasting fish, shellfish and coral population responses to ocean acidification in the north Pacific Ocean and Bering Sea¹⁰². On an annual basis there is also a Stock Assessment and Fisheries Evaluation (SAFE) process that looks at a broad set of Ecosystem Considerations prior to the Council setting annual harvest rates and limits.

Other research bodies carry out work to obtain information about the ecosystem, status and management of Pacific Halibut fisheries. Examples include:

North Pacific Research Board (NPRB)¹⁰³

The NPFB conducts research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean prioritizing on research efforts designed to address pressing fishery management or marine ecosystem information needs.

Bering Sea Integrated Ecosystem Research Program¹⁰⁴ is a \$52 million partnership between the NPRB and the National Science Foundation (NSF) that seeks to understand the impacts of climate change and dynamic sea ice cover on the eastern Bering Sea ecosystem. More than one hundred scientists are engaged in field research and ecosystem modeling to link climate, physical oceanography, plankton, fishes, seabirds, marine mammals, humans, traditional knowledge and economic outcomes to better understand the mechanisms that sustain this highly productive region.

The Gulf of Alaska Integrated Ecosystem Research Project (IERP)¹⁰⁵ is a program of the NPRB that seeks to understand how environmental and anthropogenic processes, including climate change, affect trophic levels and dynamic linkages among trophic levels, with emphasis on fish and fisheries, marine mammals, and seabirds within the GOA. Implementation of the GOA IERP is structured around four separately completed components which will link together to form a fully integrated ecosystem study in the Gulf of Alaska. The four components of this program are Upper Trophic Level, Forage Base, Lower Trophic Level and Physical Oceanography, and Ecosystem Modeling.

The Alaska Climate Integrated Modeling (ACLIM) project¹⁰⁶ is a collaboration of diverse researchers aimed at giving decision makers critical information regarding the far-reaching impacts of environmental changes in the Bering Sea. To better predict and respond to future changes, the ACLIM project will develop cutting-edge and multi-disciplinary models. The models will consist of alternative climate scenarios and the associated estimates of potential impacts or benefits to people, industry and the Bering Sea ecosystem. The ACLIM team has 19 members and includes oceanographers, ecosystem modelers, socioeconomic researchers and fishery management experts from NOAA Alaska Fisheries Science Center, NOAA Pacific Marine Environmental Laboratory, the University of Washington Joint Institute for the Study of Atmosphere and Ocean (JISAO) and School of Aquatic and Fishery Sciences (SAFS) and the Norwegian Institute for Water Research (NIVA).

The North Pacific Marine Science Organization (PISCES) is an intergovernmental scientific organization, established in 1992 to promote and coordinate marine research in the northern North Pacific and adjacent seas. Its present members are Canada, Japan, People's Republic of China, Republic of Korea, the Russian Federation, and the United States of America. Its scientific program named FUTURE¹⁰⁷ (Forecasting and Understanding Trends,

¹⁰² <https://www.afsc.noaa.gov/Publications/ProcRpt/PR2008-07.pdf>

¹⁰³ <http://www.nprb.org/>

¹⁰⁴ <http://www.nprb.org/bering-sea-project>

¹⁰⁵ <http://gulfofalaska.nprb.org/>

¹⁰⁶ <https://www.afsc.noaa.gov/REFM/REEM/ACLIM.htm>

¹⁰⁷ <http://meetings.pices.int/Members/Scientific-Programs/FUTURE>

Uncertainty and Responses of North Pacific Marine Ecosystems) is an integrative program undertaken by the member nations and affiliates of PICES to understand how marine ecosystems in the North Pacific respond to climate change and human activities

In 2016, NPFMC appointed 12 people to a Plan Team to begin developing the Council's Bering Sea Fishery Ecosystem Plan (FEP). The Team's primary responsibilities were to develop the core FEP document, to discuss potential and ongoing FEP action modules, make recommendations to the Ecosystem Committee and the Council about future steps, and to help communicate results to the Council. While the team is a scientific and technical team, the focus is also to ensure that FEP action modules interface with the Council's management needs, and can be integrated into the Council's decision making and management process. The NPFMC Ecosystem Committee met on February 6, 2018 and reviewed a pre-draft of the Bering Sea Fishery Ecosystem Plan¹⁰⁸, and the Council plans to review the preliminary draft FEP in October, 2018.

At its June 2018 meeting, NPFMC received a summary report¹⁰⁹ on the one-day ecosystem research workshop held on February 7, 2018. The workshop was intended to engage the broader Council community, including Council members, scientific and industry advisors, and stakeholders, in a discussion about how the growing body of ecosystem knowledge can be incorporated into the Council process.

Also, the Pacific States Marine Fisheries Commission¹¹⁰ coordinates research activities, monitors fishing activities, collects and maintains databases on marine fish occurring off the California, Oregon, Washington, and Alaska coast.

12.2 Research and Institutional capacity for environmental impact assessment

The IPHC, NPFMC and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE documents, annual Ecosystem Considerations documents, and various other research reports. Furthermore, every time a major change is proposed to regulations affecting fisheries management such as the revision of a fishery management plan, a federal National Environmental Policy Act (NEPA) analysis is initiated (essentially a socio-economic and environmental assessment of the proposed changes)¹¹¹.

The benthic longline fishery has minimal or temporary impacts on halibut habitat. As noted in Clause 8 above, gear modifications have been implemented to reduce the impacts of trawl fisheries, e.g. raising the bobbins from the seafloor. By-catches in the directed halibut fishery are recorded by observers and reported through the NMFS CAS. Most of bycatches include sharks, skate, sculpins, and rockfish species, but the fishery does not pose a threat to bycatch species.

Management measures limit interactions with seabirds and the fishery has minimal impact on the short-tailed albatross, the only seabird listed as endangered under the ESA (more information on this in the next clause/section). Interactions with whales remain a problem as they take fish off longline gear, but the fishery does not adversely affect whale populations.

The effects of lost/abandoned gear on legal O32 halibut have been considered by IPHC and NPFMC, and catch estimates have declined substantially from over 2 million pounds annually from 1986-91, to less than 100

¹⁰⁸ <https://www.npfmc.org/bsfepfeb2018/>

¹⁰⁹ <http://npfmc.legistar.com/gateway.aspx?M=F&ID=68e1afcc-0265-4e96-87e6-b1f5551c53a6.pdf>

¹¹⁰ <http://psmfc.org>

¹¹¹ https://ceq.doe.gov/docs/get-involved/Citizens_Guide_Dec07.pdf

thousand pounds annually after 2010¹¹². Much of this reduction occurred following the implementation of the IFQ program in 1995. Use of longline gear in the halibut fisheries substantially reduces the impact on bottom habitats and bycatch of many bottom dwelling species. Longline is typically not associated with as much ghost fishing as some other fishing gears, such as gillnets and some types of traps (NOAA 2015)¹¹³.

12.3./12.4/12.5/12.6. Fishery Interaction with the ecosystem, non-target catches, discards associated, dependent or endangered species

The NC with regards to sub-clause 12.6 remains unclosed, however the Client Action Plan was accepted. Evidence of progress included the recommendation and implementation of Electronic Monitoring (starting 2017 fishing season) among smaller vessels (<40' LOA) that currently do not participate in the observer program. Data on the EM program has been provided, and is summarized below (see also Clause 4.2 above re observer data). Information from EM has been collected from 55 halibut trips in 2017, and has been used to assist in determining catch and bycatch in the halibut fishery. A Client corrective action plan was provided and accepted for the non-conformance on sub-clause 12.6. This NC will remain open throughout the period of certificate (5 years) until the medium confidences move to high as the corrective actions take effect.

Halibut bycatch in other fisheries

The IPHC relies upon information supplied by observer programs run by domestic agencies for bycatch estimates in most fisheries. Non-IPHC research survey information is used to generate estimates of bycatch in the few cases where fishery observations are unavailable. Trawl fisheries off British Columbia (BC) are comprehensively monitored and bycatch information is provided to IPHC by DFO.

The NPFMC adopts Pacific Halibut bycatch mortality limits for the Alaskan groundfish fisheries during its annual specification process in the fall of the preceding year. Currently, limits are set by management area (GOA and BSAI). The limits are fixed in regulation and can only be changed through a formal amendment, which can take up to a year. For both regions, regulations allow NPFMC to apportion trawl and fixed-gear limits into seasonal amounts, by fishery, to enable the groundfish fisheries to maximize their groundfish catch within specified limits.

For 2017, estimates of bycatch mortality (pounds net weight) of Pacific Halibut by year, regulatory area, and fishery were provided for 2007 through 2017 (**Table 11** from Goen and Erikson (2018))¹¹⁴. Estimates for 2017 are preliminary and subject to change as new information becomes available. The total estimated by-catch of halibut in other fisheries in 2017 was estimated to be 6 million pounds, down from over 7 million per year in 2015-16, and around 9 million per year 2012-14. Groundfish trawls took about 82% of the total in 2017.

Bycatch of other species resulting from the halibut directed fishery

As noted in the 20-year review of the IFQ program published in 2016, discards of other FMP groundfish species by the halibut IFQ fleet have historically not been estimated. The NPFMC Groundfish Plan Team has discussed estimating other FMP groundfish, non-target species, and prohibited species catch discards for the halibut IFQ fleet using observer data from the restructured Observer Program that began in 2013. There are other sources of information available on bycatch in the halibut fishery, as listed below:

IPHC survey bycatch data¹¹⁵

¹¹² https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

¹¹³ https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

¹¹⁴ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf>

¹¹⁵ <https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf>

The IPHC provides ADFG and NMFS with detailed catch data for halibut and other species from the IPHC stock assessment setline survey, as well as summarized commercial halibut catch and effort data by depth strata to assist them in estimating bycatch of other species in the halibut fishery, particularly for bycatch of rockfish species, skates, and sharks. A total of 112 species of fish and invertebrates were caught as incidental catch during the setline survey. Hook occupancy of species groups varied by Regulatory Area. The predominant incidental catches in Regulatory Areas 2A, 2B, 2C, and 3A were sharks. The most frequent incidental catch in Areas 3B, 4A, and 4D was Pacific cod. In Areas 4B and 4C, the “other species” category was most common and was comprised of yellow Irish lord sculpins, unidentified starfish, grenadiers, and arrowtooth flounder.

Results from the 2017 Electronic Monitoring Project

In 2017, EM pre-implementation¹¹⁶ was included in the NMFS Annual Deployment Plan¹¹⁷, and EM systems were deployed on small boat longline and pot vessels targeting sablefish, Pacific cod and Pacific Halibut. Fifty-three longline and pot vessels participated in the 2017 pre-implementation EM project, and some vessels participated in more than one fishery. EM data was collected on 143 trips - 55 halibut, 43 Pacific cod, and 45 sablefish - containing a total of 12,467 hauls (**Table 11**). The data spanned 259 halibut sea days out of a total of 706 sea days, with trips averaging 4.9 days across all fisheries. A complete logbook was submitted with video data for 118/143 trips (83%).

Table 11. Summary of EM monitored fishing activity for 2017. (Source: 2017 Observer Report¹¹⁸)

	Halibut Target		Pacific Cod Target		Sablefish Target			All Fisheries
	Fixed Hook Longline	Snap Longline	Single Pot	Snap Longline	Fixed Hook Longline	Snap Longline	String Pot	
Vessels	23	18	5	8	19	4	1	53
Trips	29	26	23	20	34	6	5	143
Reviewed Trips*	13	9	17	19	16	1	1	76
Hauls	249	154	11,420	243	249	97	55	12,467
Reviewed Hauls	78	52	2,489	225	89	10	11	2,954
Sea Days	162	97	105	80	177	48	37	706
Average Trip Length (Days)	5.6	3.7	4.6	4.0	5.2	8.0	7.4	4.9

PSMFC has participated in the NPFMC EM working group and has reviewed EM data for Alaska longline vessels since 2014. Video reviewers recorded the method of release and the condition of each individual halibut at the time of release. Most halibut were judged to have minor damage at the time of release, of those that could be assessed. Information on EM data and image quality was also collected and reviewed.

Based on species identified in the EM video review, and corroborated by the IPHC setline survey, main bycatches in the halibut fishery include sablefish, various species of rockfish, grenadiers, spiny dogfish, Pacific cod, and skates. These species are included in the NPFMC North Pacific Stock Assessment and Fishery Evaluation (SAFE) Reports¹¹⁹, and based on the most recent assessments (2016 and/or 2017), for the stocks where the appropriate criteria can be evaluated, these stocks are not being subjected to overfishing, are not currently overfished, and are not approaching an overfished condition.

Using information from the NMFS Alaska Regional Office Prohibited Species Catch database, as per AKFIN, Fissel et al. (2017), in Table H3, provided data from 2012-2016 on PSC on Pacific Halibut targeted trips in GOA and BSAI.

¹¹⁶ https://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/Final2017EMPre-impPlan.pdf

¹¹⁷ <https://alaskafisheries.noaa.gov/sites/default/files/2017finaladp.pdf>

¹¹⁸ <http://www.afsc.noaa.gov/Publications/ProcRpt/PR2018-02.pdf>

¹¹⁹ <https://www.npfmc.org/safe-stock-assessment-and-fishery-evaluation-reports/>

These data included estimates from fisheries in both federal and state waters. PSC species included King and Tanner crabs, Chinook and other salmon, and herring.

Overall, based on the above data and considering the evaluation in the previous assessment surveillance audit reports, the impact of the halibut directed fishery on other species does not appear to be significant.

ETP species, seabirds and marine mammal interactions

The short-tailed albatross is currently listed as Endangered under the Endangered Species Act and is protected by the Migratory bird Treaty Act which are implemented by the U.S. Fish and Wildlife Service (USFWS). In order to address the issue of bycatch in commercial fisheries, USFWS works with the National Marine Fisheries Service to set bycatch limits for the short-tailed albatross and implement seabird deterrent measures and requirements to reduce incidental take of seabirds. The USFWS consulted with NOAA Fisheries Alaska Region under section 7 of the ESA on the effects of the groundfish and halibut fisheries on the short-tailed albatross. In both its 2015 (groundfish) and 2018 (halibut) biological opinions, the USFWS determined these fisheries off Alaska are likely to adversely affect short-tailed albatross, but they are not likely to jeopardize its continued existence (USFWS 2015, 2018). The 2018 opinion also concluded that the subsistence and sport Pacific Halibut fisheries in U.S. Convention waters off Alaska are not likely to adversely affect the short-tailed albatross. The commercial Pacific Halibut fishery off Alaska has a documented take of one short-tailed albatross in 1987 (NMFS 2017). The 2015 biological opinion included an incidental take limit of six short-tailed albatross every two years in the groundfish fisheries off Alaska, either by hook-and-line gear or trawl gear. The 2018 biological opinion included an incidental take limit of two short-tailed albatross every two years in the halibut fisheries off Alaska. Measures in place to reduce seabird interactions now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, which have been shown to reduce seabird interactions when setting or retrieving gear.

The following table gives the estimated seabird catch in the commercial hook and line fishery for halibut, for 2013-2016, from the Alaska CAS database (**Table 12**, source Table 12 from document prepared by NMFS Alaska Region, Sustainable Fisheries Division¹²⁰).

Table 12. Estimated seabird catch in the commercial hook and line fishery for halibut, for 2013-2016

	2013	2014	2015	2016	Grand Total
BSAI					
Black-footed Albatross	0	29	0	0	29
Laysan Albatross	17	0	21	0	38
Northern Fulmar	0	0	0	106	106
Gull	14	0	0	29	43
Unidentified	20	0	0	0	20
GOA					
Black-footed Albatross	51	33	0	0	84
Laysan Albatross	0	0	19	0	19
Northern Fulmar	0	19	41	59	119
Gull	75	99	144	42	359

Although marine mammals are known to interact with halibut longline gear, bycatch is non-significant. Whales, sea lions and fur seals may selectively eat hooked groundfish species directly from the longline gear before the line is retrieved by the vessel. In such instances there would be only empty hooks as the line is retrieved over the

¹²⁰ https://alaskafisheries.noaa.gov/sites/default/files/analyses/ak_halibut_seabird_ba_august-2017.pdf

roller and into the vessel. In Alaska, depredation primarily affects the economically significant halibut and sablefish fisheries. Sperm whale depredation occurs primarily in the central and eastern Gulf of Alaska and in southeast Alaska, while killer whale depredation is more likely to take place in the western Gulf of Alaska, the Aleutian Islands, and the Bering Sea.

Other Considerations

Halibut size-at-age has been declining since the mid-1980s¹²¹, and reasons behind the ongoing decline are not well understood. Potential reasons for this decline are attributed to density-dependent decline in growth rate due to the greatly increased numbers/biomass of benthic competitors such as Arrowtooth flounder. Environmental factors (e.g. temperature, salinity) as well as diet changes, fishery induced evolution, and size-selective fishing have been considered as possible explanations contributing to the decline at size at age. However, no strong environmental correlate has been found.

12.7. Role of the “stock under consideration” in the ecosystem

Pacific Halibut are not typically categorized as a key prey species for any single marine predator. Several comprehensive studies of the food web in various regions of the northern Pacific Ocean have not indicated that halibut are heavily utilized by any predator. Predation on halibut, especially by marine mammals, is apparently low, except in cases where the fish were attached to fishing gear. This is understandable, because adult halibut are large, active animals that would be difficult to capture in open water. Also, their bottom dwelling habits, generally in offshore areas, make them less accessible to predation than schooling, pelagic species.

12.8. Pollution – MARPOL.

MARPOL 73/78 (the "International Convention for the Prevention of Pollution From Ships") is one of the most important treaties regulating pollution from ships. Six Annexes of the Convention cover the various sources of pollution from ships and provide an overarching framework for international objectives. In the U.S., the Convention is implemented through the Act to Prevent Pollution from Ships (APPS).

Under the provisions of the Convention, the United States can take direct enforcement action under U.S. laws against foreign-flagged ships when pollution discharge incidents occur within U.S. jurisdiction.

12.9. Knowledge of the essential habitats for the “stock under consideration” and potential fishery impacts on them.

There is considerable knowledge of the essential habitats for the Pacific Halibut and potential fishery impacts on them. Pacific Halibut are common inhabitants of shallow estuarine waters, and spend a portion of their life cycles in the estuarine ecosystem complex¹²². Seasonal ocean circulation and stratification patterns, health of species (levels of contaminants, size and weight), population numbers, and food quality all contribute to fish population levels.

Major spawning grounds are thought to be concentrated in the central and western Gulf of Alaska (GOA) and the southern Bering Sea shelf edge. In terms of their general distribution in the first year after settlement. Pacific Halibut are found extensively in coastal nursery areas and have been shown to prefer small-grain sandy sediment. With increasing age and size, the fish move to deeper water and migrate south to the fishing grounds. Halibut are usually on or near the bottom over mud, sand, or gravel banks. Most are caught at depths of 90 to 900 feet, but halibut have been recorded at depths up to 3,600 feet. As halibut mature, they migrate in a clockwise direction in the Gulf of Alaska, countering the drift of eggs and larvae.

¹²¹ http://www.iphc.int/publications/rara/2014/rara2014_11stockassessment.pdf

¹²² http://www.seakfhp.org/wp-content/uploads/2013/03/estuaries_cap_final_03_30_11.pdf

Although much of the halibut harvest takes place in the Gulf of Alaska, the waters of Bristol Bay and the southeast Bering Sea shelf are nursery grounds important to the overall health of the Pacific Halibut population. Young halibut spend two or three years growing in these rich, nursery areas, after which they migrate to other parts of the Bering Sea, through the Aleutian passes and into the North Pacific where they live out their adult lives. The importance of these nursery grounds has been recognized by fishery managers. In 1967, the IPHC closed a significant area of the southeast Bering Sea to halibut fishing in order to protect young fish during this sensitive life stage. The area was modified in 1990, and its effectiveness has recently come under review by IPHC¹²³.

However, in recent years, even the impacts from trawl fisheries in Alaska resulting from gear modifications (raising the bobbins from the seafloor) have decreased¹²⁴. Furthermore, vast areas of the North Pacific have been permanently closed to groundfish trawling and scallop dredging to reduce potential adverse impacts on sensitive habitat and to protect benthic invertebrates. These marine protected areas comprise a relatively large portion of the continental shelf, and in many respects, serve as marine reserves. In addition, fishery closures established in nearshore areas to reduce interactions with Steller sea lions have ancillary benefits of reducing habitat impacts as well¹²⁵. In total, closures implemented during the last 15 years in large portions of the Bering Sea, combined with previous closures in the AI and GOA, protect approximately 700,000 sq. n. miles of the BSAI and GOA shelf, slope, ridge, and seamount areas from bottom fishing activities.

A 5-year review of EFH through 2015, (see summary report¹²⁶ published in 2017) noted that for the IPHC-managed halibut, overall effects of halibut catch in all fisheries are not likely to be different than was analyzed in the 2005 EFH EIS. Therefore, the 2015 EFH Report does not provide additional analysis of the effects of these and non-MSA fishing activities (e.g. state-water fisheries) on EFH.

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.

Socio-economic data collection and economic analyses are often included under the Regulatory Flexibility Act (RFA), the MSA, the NEPA, the Endangered Species Act, and other applicable laws. AFSC's Economic and Social Sciences Research Program produces an annual Economic Status Report of the Groundfish Fisheries off Alaska (Fissel et al 2017)¹²⁷.

The primary mission of the Economic and Social Sciences Research Program is to provide economic and sociocultural information that will assist NMFS in meeting its stewardship responsibilities. Activities in support of this mission include:

- Collecting economic and sociocultural data relevant for the conservation and management of living marine resources
- Developing models to use that data both to monitor changes in economic and sociocultural indicators and to estimate the economic and sociocultural impacts of alternative management measures
- Preparing reports and publications
- Participating on NPFMC, NMFS, and inter-agency working groups
- Preparing and reviewing research proposals and programs
- Preparing analyses of proposed management measures

¹²³ <https://www.iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-propa1.pdf>

¹²⁴ <https://www.afsc.noaa.gov/REFM/Docs/2016/ecosysEBS.pdf>

¹²⁵ <https://www.npfmc.org/habitat-protections/>

¹²⁶ <https://repository.library.noaa.gov/view/noaa/17257>

¹²⁷ <https://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php>

- Assisting Alaska Regional Office and NPFMC staff in preparing regulatory analyses
- Providing data summaries

Many of these are cooperative activities conducted with other scientists at the Center, other NMFS sites, the NPFMC, other natural resource agencies, and universities. Currently, the research topics being addressed cooperatively by program staff and scientists at the University of Washington, the University of Alaska, and the University of California, Davis include regional economic impact models, behavioral models of fishing operations, indicators of economic performance, and the non-market valuation of living marine resources.

The Alaskan Halibut and sablefish IFQ program has gone through numerous innovations over the years and has been officially modified many times since initial implementation including modifications to trading restrictions, eligibility rules, administrative catch accounting systems and more. As noted previously, in December 2016 Twenty-Year Review of the Pacific Halibut and Sablefish IFQ Management Program was released.

The intent of the review was to evaluate the IFQ Program as required by the MSA and within the framework of the scope requested by the Council and its advisory bodies. Primarily, the IFQ Program was examined with respect to how well it has met its 10 original policy objectives and how it is providing entry opportunities for new participants, an objective that the Council has sought to provide through numerous revisions since the IFQ Program was implemented. The Council, its Advisory Panel (AP), Scientific and Statistical Committee (SSC), and IFQ Implementation Committee all provided feedback on the proposed structure and policy scope of this review document at the December 2015 and February 2016 Council meetings. In the 20 years since implementation of the IFQ Program, this was the first formal and comprehensive review of the program¹²⁸.

In the original Supplemental Environmental Impact Statement for the IFQ Program, the Council identified 10 policy objectives that it intended to address through specific elements of the IFQ Program. Specifically, in selecting the elements of the IFQ Program the Council attempted to do the following:

1. Address the problems that occurred with the open-access management regime. The Council identified 10 specific problems: Allocation conflicts, gear conflicts, deadloss from lost gear, bycatch loss, discard mortality, excess harvesting capacity, product wholesomeness, and safety, economic stability in the fisheries and communities, and rural coastal community development of a small boat fleet.
2. Link the initial QS allocations to recent dependence on the halibut and sablefish fixed gear fisheries.
3. Broadly distribute QS to prevent excessively large QS from being given to some persons.
4. Maintain the diversity in the fleet with respect to vessel categories.
5. Maintain the existing business relationships among vessel owners, crews, and processors.
6. Assure that those directly involved in the fishery benefit from the IFQ Program by assuring that these two fisheries are dominated by owner/operator operations.
7. Limit the concentration of quota share ownership and IFQ usage that will occur over time.
8. Limit the adjustment cost to current participants including Alaskan coastal communities.
9. Increase the ability of rural coastal communities adjacent to the Bering Sea and Aleutian Islands to share in the wealth generated by the IFQ Program.
10. Achieve previously stated Council goals and objectives and meet MSA requirements.

The reviewed assessed the impacts of the IFQ Program with respect to these initial 10 policy objectives.

12.11. Outcome indicator(s) and management objectives for non-target stocks.

Management of non-target species consists of:

¹²⁸ https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

1. a catch accounting system,
2. observer program to estimate catches of non-target species,
3. fishery independent surveys,
4. statistical stock assessments for most non-target species,
5. a tiered system of assessments that provides for more precautionary annual catch limits when assessments use less precise methods and clear procedures for restricting catch limits if stock rebuilding is necessary,
6. mandatory use of seabird avoidance devices on all vessels larger than 55', and
7. a spatial management strategy that prohibits or restricts vessels from fishing in sensitive habits.

This system is expected to keep bycatch species at levels that are highly likely to be within biological limits and minimize impacts to habitat. Among some of outcome indicators consistent with inferring on the status of bycatch species are Acceptable Biological Catch (ABC), as well as Overfished and Overfishing status which are included on the Amendments to the BSAI and GOA Groundfish FMPs. The evidence for successful implementation of this management strategy includes regular (often annual or bi-annual) stock assessment, in-season catch accounting, and the healthy stock status for most non-target species relative to reference points. According to the Council stock status report, there are established empirical reference points for main bycatches in the halibut fisheries such as sablefish, P. cod, rockfish, shark, skate and grenadier, and where evaluations are possible, all of these species are not overfished nor is overfishing occurring¹²⁹.

12.12. Outcome indicator(s) and management objectives for endangered species.

The main management objectives for the halibut fleet in regards to endangered species refer to regulations aimed at protecting short tailed albatrosses from longline fishery interactions.

In Alaska, seabird avoidance measures are required to be used by operators of all vessels greater than 26 ft LOA using hook-and-line gear while fishing for 1) IFQ halibut, Community Development Quota halibut, or IFQ sablefish in the EEZ off Alaska or State of Alaska (State) waters (0 to 200 nm [nautical miles] combined); or 2) groundfish in the EEZ off Alaska (3 to 200 nm). Vessels greater than 55 ft. LOA in the EEZ must use a minimum of a single (if using snap gear) or paired (if using other than snap gear) streamer line of a specified performance and material standard. Vessels greater than 26 ft. LOA and less than or equal to 55 ft. LOA must use a minimum of a single streamer line or, in limited instances, a minimum of one buoy bag line. An exemption from seabird avoidance regulations exists for operators of vessels in certain locations as well as for operators of vessels less than or equal to 32 ft. LOA using hook-and-line gear in IPHC Area 4E in waters shoreward of the EEZ. Additionally, for crew safety, allowances are made to use a single streamer line or no streamer line under specific weather conditions Other than noted above, vessel operators using hook-and-line gear and fishing for groundfish in State waters must comply with State regulations (see 5AAC 28.055). Offal discharged while gear is being set or hauled should be discharged in a manner that distracts seabirds from baited hooks, to the extent practicable (50 CFR part 679. 24(e) (2) (v)). Hooks should be removed from any offal that is discharged. The discharge site on board a vessel must be either aft of the hauling station or on the opposite side of the vessel from the hauling station. Directed discharge of residual bait or offal through chutes or pipes should not occur over sinking hook-and-line gear while gear is being deployed. No endangered short tailed albatrosses were caught as bycatch in halibut fisheries in recent years (see Clause 12.6 above).

The NOAA Alaska Regional Office Protected Resources Division (PRD) is responsible for implementing marine mammal conservation and recovery programs under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in close coordination with the State of Alaska and other partners. PRD develops and implements conservation programs for marine mammals including whales, ice seals, harbor seals, northern fur

¹²⁹ <https://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmfp.pdf>

seals, and Steller sea lions; develops and implements recovery programs for threatened and endangered species including Cook Inlet beluga whales, bowhead whales, North Pacific right whales, Steller sea lions, and Arctic ringed seals; coordinates the Alaska Marine Mammal Stranding Network to respond to stranded or entangled marine mammals; consults with federal agencies to minimize the effects of proposed actions on threatened and endangered marine mammals and their critical habitat, such as oil and gas development and coastal construction projects; develops and implements co-management agreements with Alaska Native organizations to cooperatively manage subsistence use of marine mammals; works collaboratively with stakeholders to implement guidelines and practices for marine mammal viewing to avoid harassment; conducts reviews to determine if species warrant protection under the ESA or if ESA-listed species no longer need such protection; and analyzes interactions between marine mammals and commercial fisheries to minimize adverse effects. All marine mammal encounters in these fishery are required to be released without harm. Although marine mammals such as sea lions are known to interact with longline gear, bycatch is considered non-significant as shown in the most recent data available. There are also extensive management measures to protect Steller sea lions in Alaskan waters, as detailed in the NPFMC FMPs. Bycatch of marine mammals is not considered an issue in the halibut or sablefish fleet in Alaska.

12.13. Outcome indicator(s) and 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.

NPFMC Fisheries management plans for BSAI/GOA groundfish fisheries provide clear management guidelines and outcome indicators for the protection of essential fish habitats for many groundfish species and vulnerable habitats. The longline halibut fishery is not considered to cause harm to essential habitats for the stock under consideration and on other vulnerable habitats. All fishery management plans include a description and identification of essential fish habitat, adverse impacts, and actions to conserve and enhance habitat.

Gulf of Alaska

In February 2005, bottom trawling for all groundfish species was prohibited in 10 designated areas along the continental shelf of the Gulf of Alaska. The GOA Slope Habitat Conservation Areas, which are thought to contain high relief bottom and coral communities, total 2,086 nm².

Additionally, the NPFMC adopted several new HAPCs. The Alaska Seamount Habitat Protection Area encompasses all 16 seamounts in Federal waters off Alaska, named on NOAA charts, fifteen of which are in the Gulf of Alaska. Bottom-contact fishing is prohibited in all of these HAPCs, an area which totals 5,329 nm².

In Southeast Alaska, three sites with large aggregations (“thickets”) of long-lived *Primnoa* coral are also identified as HAPCs, a total of 67 nm². The Gulf of Alaska Coral Habitat Protection Area designates five zones within these sites where submersible observations have been made, totaling 13.5 nm². All bottom-contact gear (longlines, trawls, pots, dinglebar gear, etc.) is prohibited in this area¹³⁰.

Aleutian Islands

In February 2005, the Council adopted several new closure areas to conserve EFH. To minimize the effects of fishing on EFH, and more specifically to address concerns about the impacts of bottom trawling on benthic habitat (particularly on coral communities) in the Aleutian Islands, the Council took action to prohibit all bottom trawling in the Aleutians, except in small discrete “open” areas. Over 95% of the management area is closed to bottom trawling (277,100 nm²). Additionally, six Habitat Conservation Zones with especially high density coral and sponge

¹³⁰ <https://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmfp.pdf>

habitat were closed to all bottom-contact fishing gear (longlines, pots, trawls). These “coral garden” areas, which total 110 nm², are essentially marine reserves. To improve monitoring and enforcement of the Aleutian Island closures, a vessel monitoring system is required for all fishing vessels in the Aleutian management area. Additionally, the Council adopted several new HAPCs. The Alaska Seamount Habitat Protection Area encompasses all 16 seamounts in Federal waters off Alaska, named on NOAA charts, of which one occurs in the Aleutian Islands (Bowers). Bottom-contact fishing is prohibited in this HAPC.

The Aleutian Islands Coral Habitat Protection Area designates six areas where submersible observations of high density coral have been made. All bottom-contact gear (longlines, trawls, pots, dinglebar gear, etc.) is prohibited in these areas. The relatively unexplored Bowers Ridge is also identified as a HAPC. As a precautionary measure, the Council prohibited mobile fishing gear that contacts the bottom within this 5,286 nm² area.

Bering Sea

In June 2007, the Council adopted precautionary measures to conserve benthic fish habitat in the Bering Sea by “freezing the footprint” of bottom trawling by limiting trawl effort only to those areas more recently trawled. Implemented in 2008, the new measures prohibit bottom trawling in a deep slope and basin area (47,000 nm²), and three habitat conservation areas around St Matthew Island, St Lawrence Island, and an area encompassing Nunivak Island-Etolin Strait-Kuskokwim Bay. The Council also established the Northern Bering Sea Research Area that includes the shelf waters to the north of St. Matthew Island (85,000 nm²). The entire Northern Bering Sea Research Area will be closed to bottom trawling while a research plan is developed by AFSC¹³¹

12.14. Outcome indicator(s) and management objectives for dependent predators.

Pacific Halibut in Alaska are not typically categorized as a key prey species for any single marine predator. As such, this clause is NOT APPLICABLE

12.15. Outcome indicator(s) and 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.

The IPHC main objective for the Pacific Halibut resource is to manage the fishery responsibly and ensure conservation of the stock in the midst of its harvesting activities. Such management minimizes adverse impacts of the halibut fleet on the structure, processes and function of the north Pacific ecosystem that are likely to be irreversible or very slowly reversible.

The NPFMC approach to groundfish fisheries explicitly includes ecosystem-based management principles that protect managed species from overfishing, and where appropriate and practicable, increase habitat protection and bycatch constraints. This includes the setting of outcome indicators related to preserving the food web, managing incidental catch, avoiding impacts on seabirds and mammals and reduce and avoid impacts to habitats.

The IPHC, NPFMC and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. Species richness and diversity on the eastern Bering Sea shelf¹³², and in the GOA, have undergone significant variations over time but the halibut fishery is not considered to have significant effects on the structure, process and function of the North Pacific ecosystem.

¹³¹ <https://www.npfmc.org/habitat-protections/>

¹³² <https://www.afsc.noaa.gov/REFM/Docs/2017/ecosysEBS.pdf>

There is no evidence to suggest that either Pacific Halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Alaskan Pacific Halibut. There is no use of artificial structures for the benefit of the Pacific Halibut stock; as such that portion of the Clause is not applicable.

9. Performance specific to agreed corrective action plans

Two minor non-conformances are active for this fishery.

Non-Conformance #1 (MINOR non-conformance: Clause 4.2)

An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures is established for the Alaskan Pacific Halibut fishery. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently account for the risk posed by the <40ft LOA sector of the commercial Pacific Halibut fleet.

A corrective action plan from the client shall detail;

1. how FVOA intends to address this issue, and
2. a set of specific timelines to allow for assessment during the next surveillance activities in 2017, 2018 and 2019 and the second full assessment audit in 2020, as relevant and if needed.

Non-Conformance #2 (MINOR non-conformance: Clause 12.6)

Non-target catches, including discards, of stocks other than Pacific Halibut are monitored and likely do 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. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently monitor and account for non-target catches by the <40ft LOA sector of the commercial Pacific Halibut fleet.

This is the first surveillance assessment following the re-assessment in January 2017. An electronic monitoring system is recommended for implementation in the <40ft fleet in order to improve data collection and fishery monitoring. Some progress is made according to the Client Action Plan; however it is not yet sufficient to be considered fulfillment of the NC.

These NC will remain open throughout the period of certificate (5 years) until the medium confidences move to high as the corrective actions take effect.

10. Unclosed, new non-conformances and new corrective action plans

No new non-conformances (NC) was identified during this surveillance assessment of the fishery and the progress identified on the unclosed NC is aligned to the accepted Client Action Plan (CAP).

Unclosed non-conformances (NC) identified from the re-assessment and certification in January 2017 were two minor NC, as detailed below:

Non-Conformance #1 (MINOR non-conformance: Clause 4.2)

An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures is established for the Alaskan Pacific Halibut fishery. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently account for the risk posed by the <40ft LOA sector of the commercial Pacific Halibut fleet.

A corrective action plan from the client shall detail;

3. how FVOA intends to address this issue, and
4. a set of specific timelines to allow for assessment during the next surveillance activities in 2017, 2018 and 2019 and the second full assessment audit in 2020, as relevant and if needed.

Non-Conformance #2 (MINOR non-conformance: Clause 12.6)

Non-target catches, including discards, of stocks other than Pacific Halibut are monitored and likely do 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. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently monitor and account for non-target catches by the <40ft LOA sector of the commercial Pacific Halibut fleet.

Evidence of progress on both NC was identified from the recommendation for Electronic Monitoring to be implemented (starting 2017) among smaller vessels (<40f) that currently do not participate in the observer program; evidence of this is yet to be seen. A Client corrective action plan was provided and accepted for the non-conformance on sub-clause 4.2 and 12.6. These NC will remain open throughout the period of certificate (5 years) until the medium confidences move to high as the corrective actions take effect.

11. Future Surveillance Actions

Next assessment will be a surveillance assessment before or on the anniversary of the re-certification in 2018.

12. Client signed acceptance of the action plan

The signed Client Action Plan, aligned to the previously mention NC was accepted by the assessment Team on 20th October 2016 (Complete details are outline in the full assessment report - <http://www.alaskaseafood.org/wp-content/uploads/2017/02/Alaska-RFM-Final-Full-Assessment-Halibut-Report-Jan-2017-final.pdf>).

13. Recommendation and Determination

Following this 2nd Surveillance Assessment, the assessment team recommends that continued Certification under the Alaska Responsible Fisheries Management Certification Program is maintained for the management system of the applicant fisheries, the US Alaska Pacific Halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management and fished with benthic longline (within Alaska's 200 nm EEZ).

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15. Appendices

15.1. Appendix 1 – Assessment Team Details

Assessment Team Details

Dr. Ivan Mateo, Lead Assessor

Dr. Ivan Mateo has over 20 years of experience working with natural resources population dynamic modeling. His specialization is in fish and crustacean population dynamics, stock assessment, evaluation of management strategies for exploited populations, bioenergetics, ecosystem-based assessment, and ecological statistical analysis. Dr. Mateo received a Ph.D. in Environmental Sciences with Fisheries specialization from the University of Rhode Island. He has studied population dynamics of economically important species as well as candidate species for endangered species listing from many different regions of the world such as the Caribbean, the Northeast US Coast, Gulf of California, and Alaska. He has done research with NMFS Northeast Fisheries Science Center Ecosystem Based Fishery Management on bioenergetics modeling for Atlantic cod. He also has been working as environmental consultant in the Caribbean doing field work and looking at the effects of industrialization on essential fish habitats and for the Environmental Defense Fund developing population dynamics models for data poor stocks in the Gulf of California. Recently, Dr. Mateo worked as National Research Council postdoc research associate at the NOAA National Marine Fisheries Services Ted Stevens Marine Research Institute on population dynamic modeling of Alaska sablefish.

William (Bill) Brodie – Assessor

Bill Brodie is an independent fisheries consultant with previously, a 36-year career with Science Branch of Fisheries and Oceans Canada (DFO, Newfoundland and Labrador Region). He has a B.Sc. in Biology from Memorial University of Newfoundland and Labrador. For the last 12 years with DFO he worked as Senior Science Coordinator/Advisor on Northwest Atlantic Fisheries Organization (NAFO) issues, serving as chair of the Scientific Council of NAFO and chairing 3 of its standing committees. As a stock assessment biologist, he led assessments and surveys for several flatfish species and stocks, including American plaice, Greenland halibut, and yellowtail and witch flounders. These include the largest stocks of flatfish in the NW Atlantic. He also participated in assessments of flatfish, gadoid, and shrimp stocks in the NE Atlantic and North Sea. Bill has participated in over 30 scientific research vessel surveys on various Canadian and international ships, and has published extensively in the scientific and technical literature, primarily on flatfish stock assessment. He participated with fishery managers and the fishing industry in a variety of issues, including identification of ecologically sensitive areas, and developing rebuilding plans for groundfish under a Precautionary Approach. Since retirement from DFO in 2014, Bill has been contracted to serve as an assessor on several FAO-based Responsible Fisheries Management certification assessment and surveillance audits for Alaskan stocks including Pacific cod, halibut, sablefish, Pollock, and flatfish. He has also provided peer review for MSC certification assessments for stocks in the Icelandic and Grand Banks areas.