Alaska Responsible Fishery Management Certification

Certificate Extension of Scope Report

Addendum to Final Assessment Report 26th January 2017 (AK/HAL/002/2016)

For The

Alaska Pacific Halibut Commercial Fishery

Facilitated by

Alaska Seafood Marketing Institute (ASMI)

And

'Eat on the Wild Side' (FVOA)

Assessors: **Dr. Ivan Mateo, Lead Assessor**
William Brodie, Assessor

Report Code: **AK/HAL/002a/2018**
Published Date: **29th January 2019**

SAI Global
3rd Floor, Block 3,
Quayside Business Park,
Mill Street, Dundalk,
Co. Louth, Ireland.
T: +353 42 932 0912
www.saiglobal.com

Foreword

The Alaska Responsible Fisheries Management (RFM) Standard Version 1.3 is composed of Conformance Criteria and is 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: https://www.alaskaseafood.org/rfm-certification/certified-fisheries/

Table of Contents

List of Figures

List of Tables

Acronyms

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

i. Summary and Recommendations

This report is a Certificate Extension of Scope Report (AK/HAL/002a/2018) for the Alaska Pacific Halibut Commercial Fishery produced on behalf of the "Eat on the Wild Side (Fishing Vessel Owners' Association (FVOA))". This Report documents the results of an Extension of Scope assessment as a means of extending the Alaska Pacific Halibut Commercial Fishery (200nm EEZ) fishery certificate to include Pacific halibut incidentally caught by salmon trolls and sablefish pots.

The Alaska Pacific Halibut Commercial Fishery was originally certified on April 23rd 2011, and re-certified on 26th January 2017. The Initial and 1st Re-assessment (AK/HAL/002/2016) Reports are both available at: https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

The assessment was conducted according to the SAI Global Certification procedures for Alaska Responsible Fisheries Management Certification using the AKRFM Standard v1.3. The assessment was conducted by a team of SAI Global appointed assessors. Details of the assessment team are provided in Appendix 1.

The main outcomes have been summarized in Section 6. Assessment Outcome Summary.

Following this assessment, the recommendation of the Assessment Team was that the current certification be extended to include halibut caught by the two additional gear types covered by this assessment.

In accordance with a determination by SAI Global's internal Fishery Certification Committee, that the Assessment Team's recommendation be approved, the existing certificate has been amended to include the two new gear types. The expiry date of the certificate has not changed. Going forward all three eligible gears will be considered together at annual surveillance audits and will ultimately, if the Client wishes to continue certification, be re-assessed at the same time.

ii. Schedule of Key Assessment Activities

Assessment Activities	Date(s)
Appointment of Assessment Team	April 14th 2018
On-site Witnessed Assessment and Consultation Meetings	May 14th – May 18th 2018
Draft Assessment Report	August 31th 2018
External Peer Review	November 2nd 2018
Final Report for Determination	November 30th 2018
Certification Review/Decision	January 8th 2019
Final Assessment Report	January 16th 2019

iii. Assessment Team and Peer Reviewer Details

Assessment Team:
Further details of the relevant fisheries experience of the Assessment Team is provided in Appendix 1.

Dr. Ivan Mateo, Lead Assessor
SAI Global/Global Trust Certification Ltd.
Quayside Business Centre,
Dundalk, Co. Louth, Ireland.
Email: ivan.mateo@saiglobal.com

William Brodie, Assessor
Independent fishery expert,
St. John's, Newfoundland, Canada.

Peer Reviewer:
Further details of the relevant fisheries experience of the Peer Reviewer is provided in Appendix 2.

Ms. Nancie Cummings, Fisheries Research Biologist
NOAA Southeast Fisheries Science Center,
Miami, Florida, USA.

1 Introduction

This report documents the results of an Extension of Scope assessment as a means of extending the Alaska Pacific Halibut Commercial Fishery (200nm EEZ) fishery certificate to include Pacific halibut caught by salmon trolls and sablefish pots. The Alaska Pacific Halibut (*Hippoglossus stenolepis*) Commercial Fishery was originally certified on April 23rd 2011, and re-certified on 26th January 2017. This report also provides an account of the process followed by the assessment team during this assessment.

In this Certificate Extension of Scope Report, the Assessment Team has identified any Clauses from the 2017 re-assessment of this fishery for which the original supporting rationale does not sufficiently address or is not applicable to the situation with respect to the two additional gear types covered by this scope extension. Any clauses where the original supporting rationale has been deemed not to be sufficient/applicable have then been scored in full (see Table 1).

Table 1. Summary of clauses re-scored/not re-scored and where additional/updated evidence has/has not been provided during this Scope Extension Assessment.

Section	Fun. Clause	Not re-scored/No additional/ updated evidence provided		Re-scored and/or additional/ updated evidence provided	
Section A: The Fisheries Management System	1	1.1	see Re-assessment Report		
		1.2	see Re-assessment Report		
		1.2.1	see Re-assessment Report		
		1.3	see Re-assessment Report		
		1.3.1	see Re-assessment Report		
		1.4	see Re-assessment Report		
		1.4.1	see Re-assessment Report		
		1.5	see Re-assessment Report		
		1.6	see Re-assessment Report		
		1.6.1	see Re-assessment Report		
		1.7	see Re-assessment Report		
		1.8	see Re-assessment Report		
		1.9	see Re-assessment Report		
	2	2.1	see Re-assessment Report		
		2.1.1	see Re-assessment Report		
		2.1.2	see Re-assessment Report		
		2.2	see Re-assessment Report		
		2.3	see Re-assessment Report		
		2.4	see Re-assessment Report		
		2.5	see Re-assessment Report		
		2.6	see Re-assessment Report		
		2.7	see Re-assessment Report		
		2.8	see Re-assessment Report		
	3			3.1	see this Report
		3.2	see Re-assessment Report		
		3.2.1	see Re-assessment Report		
		3.2.2	see Re-assessment Report		
		3.2.3	see Re-assessment Report		
		3.2.4	see Re-assessment Report		
				3.2.5	see this Report
		3.2.6	see Re-assessment Report		

Section	Fun. Clause	Not re-scored/No additional/ updated evidence provided		Re-scored and/or additional/ updated evidence provided	
B: Science and Stock Assessment Activities	4			4.1	see this Report
				4.1.1	see this Report
				4.1.2	see this Report
				4.2	see this Report
		4.3	see Re-assessment Report		
		4.4	see Re-assessment Report		
				4.5	see this Report
				4.6	see this Report
		4.7	see Re-assessment Report		
		4.8	see Re-assessment Report		
		4.9	see Re-assessment Report		
		4.10	see Re-assessment Report		
		4.11	see Re-assessment Report		
	5	5.1	see Re-assessment Report		
		5.1.1	see Re-assessment Report		
				5.1.2	see this Report
				5.2	see this Report
		5.3	see Re-assessment Report		
		5.4	see Re-assessment Report		
				5.5	see this Report
C: The Precautionary Approach	6			6.1	see this Report
				6.2	see this Report
				6.3	see this Report
				6.4	see this Report
	7	7.1	see Re-assessment Report		
				7.1.1	see this Report
				7.1.2	see this Report
		7.2	see Re-assessment Report		
		7.2.1	see Re-assessment Report		
D: Management Measures	8			8.1	see this Report
				8.1.1	see this Report
				8.1.2	see this Report
				8.1.3	see this Report
				8.2	see this Report
				8.3	see this Report
				8.4	see this Report
				8.5	see this Report
				8.6	see this Report
				8.7	see this Report
				8.8	see this Report
				8.9	see this Report
		8.10	see Re-assessment Report		
				8.11	see this Report
		8.12	see Re-assessment Report		
		8.13	see Re-assessment Report		
		8.14	see Re-assessment Report		
	9			9.1	see this Report

Section	Fun. Clause	Not re-scored/No additional/ updated evidence provided		Re-scored and/or additional/ updated evidence provided	
		9.2	see Re-assessment Report		
				9.3	see this Report
E: Implementation, Monitoring and Control	10			10.1	see this Report
		10.2	see Re-assessment Report		
				10.3	see this Report
				10.3.1	see this Report
		10.4	see Re-assessment Report		
		10.4.1	see Re-assessment Report		
	11	11.1	see Re-assessment Report		
		11.2	see Re-assessment Report		
				11.3	see this Report
F: Serious Impacts of the Fishery on the Ecosystem	12			12.1	see this Report
				12.2	see this Report
				12.3	see this Report
				12.4	see this Report
				12.5	see this Report
		12.5.1	see Re-assessment Report		
				12.6	see this Report
		12.7	see Re-assessment Report		
		12.8	see Re-assessment Report		
				12.9	see this Report
				12.10	see this Report
		12.11	see Re-assessment Report		
		12.12	see Re-assessment Report		
				12.13	see this Report
		12.14	see Re-assessment Report		
		12.15	see Re-assessment Report		
	13	13.1	see Re-assessment Report		
		13.1.1	see Re-assessment Report		
		13.2	see Re-assessment Report		
		13.2.1	see Re-assessment Report		
		13.3	see Re-assessment Report		
		13.4	see Re-assessment Report		
		13.5	see Re-assessment Report		
		13.5.1	see Re-assessment Report		
		13.5.2	see Re-assessment Report		
		13.5.3	see Re-assessment Report		
		13.6	see Re-assessment Report		
		13.7	see Re-assessment Report		
		13.8	see Re-assessment Report		
		13.9	see Re-assessment Report		
		13.10	see Re-assessment Report		
		13.11	see Re-assessment Report		
		13.12	see Re-assessment Report		
		13.13	see Re-assessment Report		
		13.14	see Re-assessment Report		

Following scoring, all the usual steps applicable to a Full Assessment were followed as normal except for the fact that only a single peer reviewer was used. Note. As no stakeholders registered for this assessment there were no stakeholders with whom to consult during the public consultation phase.

Following this assessment, certification has been extended to include halibut caught by the two additional gear types covered by this assessment; the existing certificate has therefore been amended to include the two new gear types. The expiry date of the certificate has not been extended meaning that, going forward, all three gears will be considered at the same annual surveillance audits and re-assessed at the same time.

The assessment was conducted according to the Global Trust procedures for Alaska RFM Certification against the clauses outlined in the Alaska RFM Standard (v1.3).

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 SAI Global internal staff (Appendix 1).

1.1 Recommendations of the Assessment Team

The Assessment Team recommends that the scope of the current Fishery Certificate for the applicant fishery, the US Alaska Pacific commercial halibut fishery, fished by benthic longlines within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, be extended to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

2 Fishery Applicant Details

Table 2. Fishery Applicant Details.

Applicant Information		
Organization/Company Name:	Eat on the Wild Side (Fishing Vessel Owners' Association (FVOA))	
Correspondence Address:		
Street:	4005 - 20th Ave. West, Room 232	
City:	Seattle	
State:	Washington	
Country:	USA	
Zip code	98199	
Key Management Contact Information		
Full Name:	**(Last)** Alverson	**(First)** Robert (Bob)
Position:	Manager	
Phone:	+1 (206) 283-7735	
E-mail Address:	robertalverson@msn.com	

3 Background to the Fishery

This Certificate Extension of Scope Report represents an addendum to Final Assessment Report (26th January 2017). As such much of the background information provided in the original report remains relevant and will not be repeated here. Therefore, only background information that is additional to or updated from that provided in the Re-assessment Report is presented here.

3.1 Species Biology (see Re-assessment Report)

See Re-assessment Report.

3.2 Fishery Location

See Re-assessment Report for further details. Note only those areas within the boundaries of the Alaskan EEZ in the North Pacific (i.e. those outlined in green in Figure 1) are covered by this Certificate and only catches from these areas are eligible for Certification.

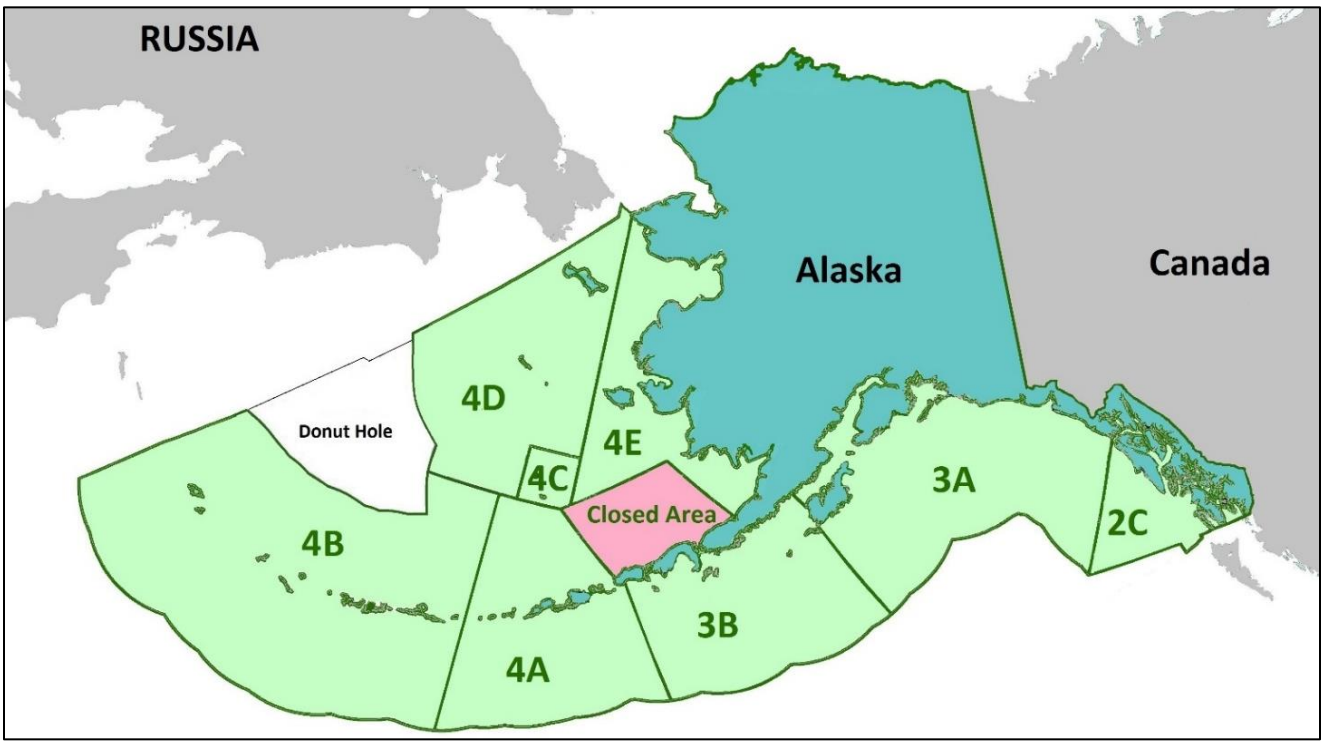

Figure 1. IPHC Regulatory Areas within the boundaries of the Alaskan EEZ in the North Pacific that are covered in detail in this assessment and from which catches eligible for Certification may come (Modified from: http://tinyurl.com/jnclh6r). IPHC Regulatory Areas 4A=Western GOA, 3B=Central GOA, 3A= West Yakutat, 4B= Bering Sea Aleutian Islands, 3C=Southeast/Yakutat District.

3.3 Fishing Methods

See Re-assessment Report for further information on benthic longlines.

Sablefish Pots

Sablefish pots are large steel-framed cages covered in net mesh. The baited pots are placed on the seafloor where they trap the fish. Fish enter the traps through tunnels but cannot escape. Later the pots are retrieved and the fish are sorted on deck. Non-target catch are returned to the sea.

Figure 2. Sablefish Pots (Source https://www.nationalfisherman.com/alaska/catch-pot-blackcod/).

Beginning in the early 2000s, the North Pacific Fishery Management Council (Council) and NMFS received reports from fishermen that there have been numerous whale interactions with the sablefish IFQ fleet in the BSAI and GOA regions[1]. Sperm whale depredation on hook-and-line fishing gear is most common in the Central GOA [, West Yakutat District, and Southeast Outside District sablefish areas and killer whale depredation is most common in the Western GOA and Bering Sea and Aleutian Islands. While sperm whale depredation events are difficult to quantify on a per-vessel basis, fishery participants reported that depredation continues to be a major cost to the sablefish IFQ fishery through reduced catch per unit effort and increased operating costs. For example, Fishermen endure lost catch, spend time waiting out whales in the area before hauling gear, or spend time and fuel relocating to avoid whales[2].

Measures taken to avoid depredation reduce fishing efficiency through variable operational costs (fuel, labor) and through the opportunity cost of time lost that would have been available for additional fishing effort or dedicated to other fishing and non-fishing activities. Because the sablefish IFQ fishery is quota-based, the key cost of depredation to fishermen is the cost of the additional time and bait required to catch the same amount of fish. Gear damage from depredation is also a direct cost. In a study conducted with six longline vessels operating in the WGOA and BSAI areas during 2011 and 2012, killer whale depredation resulted in an estimated additional $980 per vessel-day for additional fuel, crew food and the opportunity cost of lost time.

[1] https://alaskafisheries.noaa.gov/fisheries/pot-tag-faq
[2] https://alaskafisheries.noaa.gov/sites/default/files/analyses/goa101eariririfa.pdf

Based on data from the observed commercial fishery, the additional costs associated with catching the same amount of sablefish on killer whale depredated sets was estimated to be approximately $433 (± $147) per set for additional fuel alone (not including additional crew, bait or opportunity costs). The estimated reduction in CPUE for depredated sets in that area ranged between 35 percent and 69 percent for observed sets during the time period from 1998 through 2012. Estimated fuel costs associated with those sets were 82 percent higher. A study published in 2014, estimated opportunity costs of time lost to fishing at $522 per vessel-day.

The Council and NMFS determined that authorizing longline pot gear in the BSAI and GOA sablefish IFQ fishery could reduce the adverse impacts of depredation for those vessel operators who choose to switch from hook-and-line gear. The Council recommended and NMFS implemented regulations to the use of longline pot gear in the BSAI sablefish IFQ region in 2008[73 FR 28733] and in the GOA sablefish IFQ fishery beginning with the 2017 fishing season [50 CFR Part 679].

Vessel operators in the Bering Sea and Aleutian Islands sablefish regulatory areas have been authorized to use pot gear for sablefish during the entire fishing season since 2008. Beginning with the 2017 fishing season, longline pot gear is an allowable gear type in the Southeast Outside District, West Yakutat, Central GOA, and Western GOA sablefish IFQ regulatory area.

NMFS authorizes only longline pot gear in the GOA sablefish IFQ fishery. Longline pot gear means a stationary, buoyed, and anchored line with two or more pots attached. Vessel operators in the Southeast Outside District, West Yakutat, Central Gulf, and Western Gulf sablefish IFQ regulatory areas are prohibited from using pot-and-line gear (i.e., single pot gear) to harvest sablefish IFQ. Vessel operators in the Bering Sea and Aleutian Islands sablefish IFQ regulatory areas may continue to use longline pot gear or pot-and-line gear.

Regulations specify that pots used in a longline pot or pot-and-line set for sablefish must comply with the following:

(i) Biodegradable panel. Each pot must be equipped with a biodegradable panel at least 18 inches (45.72 cm) in length that is parallel to, and within 6 inches (15.24 cm) of, the bottom of the pot, and that is sewn up with untreated cotton thread of no larger size than No. 30.

(ii) Tunnel opening. Each pot must be equipped with rigid tunnel openings that are no wider than 9 inches (22.86 cm) and no higher than 9 inches (22.86 cm), or soft tunnel openings with dimensions that are no wider than 9 inches (22.86 cm).

Retention of Halibut in IFQ Sablefish in GOA

In GOA Vessel operators must retain legal size halibut (32 inches or greater) caught in longline pot gear while fishing for sablefish IFQ in the GOA if 1) the operator complies with all of the requirements for using longline pot gear in the GOA (i.e., pot tags, pot limits, gear removal and redeployment, gear marking, logbook reporting, VMS, and additional PNOL information), and 2) any IFQ permit holder on board the vessel has sufficient unused halibut IFQ for the IFQ regulatory area fished and IFQ vessel category. If halibut are discarded because they are less than legal size or no IFQ permit holders on board hold sufficient unused halibut IFQ, the halibut must be immediately released and returned to the sea with a minimum of injury. NPFMC is currently considering an amendment to allow halibut retention in BSAI IFQ pots. Note a final resolution to this amendment has yet to be reached.

Salmon Trolls

Troll vessels (Figure 3) catch salmon, principally Chinook and coho salmon, by dragging (trolling) bait or lures through feeding concentrations of salmon[3]. Typically, four to six main wire lines are fished, each of which may have up to a 50 pound lead or cast iron sinker (*cannon ball*) on its terminal end, and 8 to 12 nylon leaders spaced out along its length, each of which ends in either a lure or baited hook. To retrieve hooked fish, the main lines are wound about small, on-board spools via hand crank (hand trollers) or with hydraulic power (power trollers), and large salmon are gaffed when alongside the vessel to bring them aboard. Alaska salmon fisheries include the SE/Yakutat Region Troll fishery.

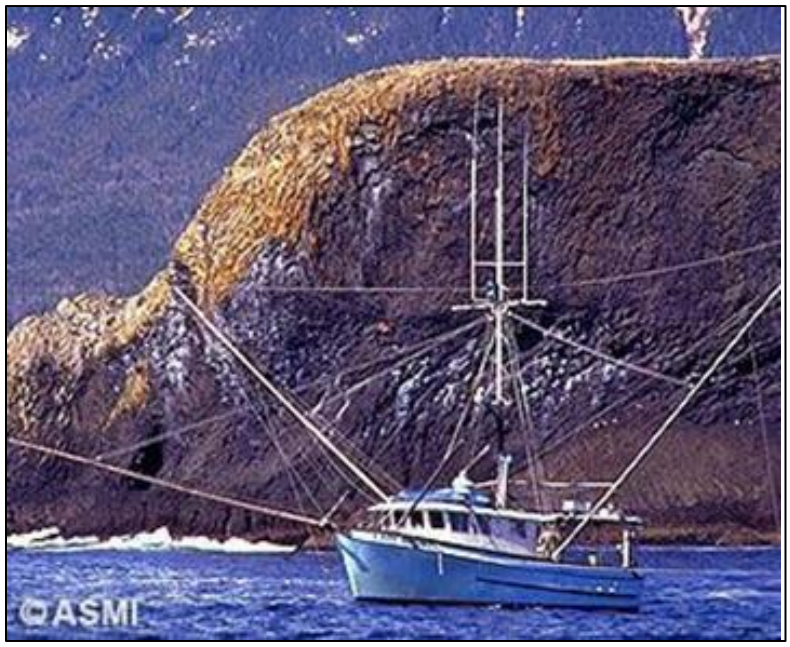

Figure 3. Fishing vessel Trolling (ASMI).

3.4 Fishery Management History and Organization (see Re-assessment Report)

See Re-assessment Report.

3.5 Stock Assessment Activities (see Re-assessment Report)

See Re-assessment Report.

3.6 Historic Biomass and Removals in the Fishery

Pacific halibut removals are comprised of target fishery landings and discard mortality (including research), recreational fisheries, subsistence, and bycatch mortality in fisheries targeting other species (where Pacific halibut retention is prohibited) (Stewart *et al.,* 2018). Over the period 1918 – 2017 removals totaled 7.2 billion pounds (~3.2 million metric tons, 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; Figure 4).

[3] https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf

Commercial Pacific halibut 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)2, the lowest level in the estimated time series, beginning with the arrival of foreign fishing fleets in 1962, and just over one million pounds (~450 t, xx %) less than estimated for 2016. Total recreational removals were 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), a 1.25 % increase from 41.8 million pounds in 2015 (~18,960 t).

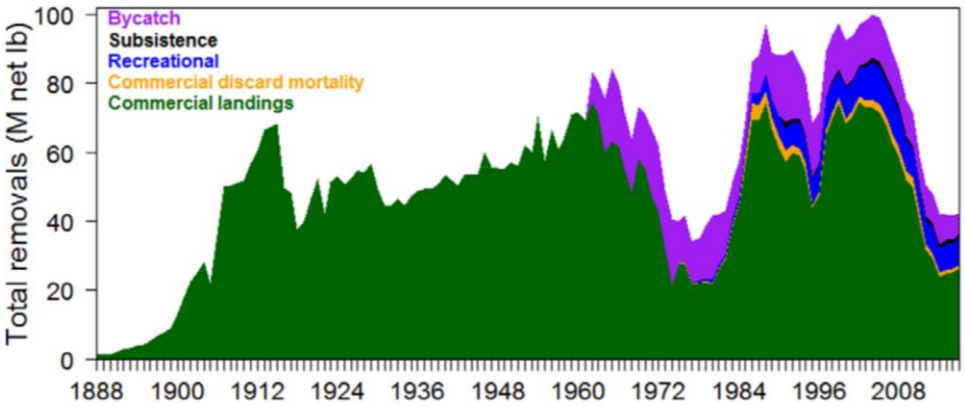

Figure 4. Summary of estimated historical mortality by source, 1888-2017 (Source Stewart et al 2018).

As reported in the 2017 stock assessment Pacific halibut stock biomass declined continuously from the late 1990s to around 2010 (Figure 5) (Stewart *et al.,* 2018)[4]. That trend is estimated to have been largely 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 increased gradually to 2017. The 2017 SB estimate from the 2017 stock assessment is only 2% below the estimate from the 2016 stock assessment.

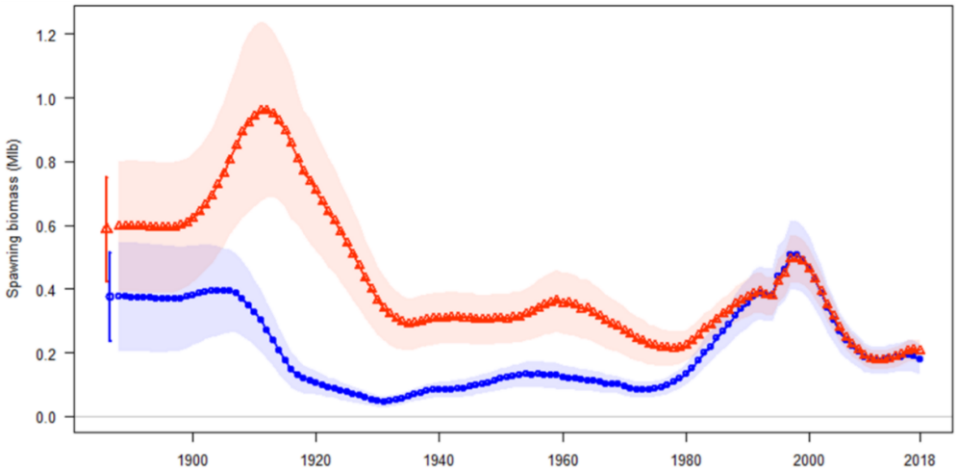

Figure 5. Spawning biomass estimates from the two long time-series models. Shaded region indicates the approximate 95% within-model interval. The red (upper) series is the AAF model and the blue (lower) series is the coastwide model (Source: Stewart *et al.*, 2018).

[4] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-08.pdf

3.7 Economic Value of the Fishery (see Re-assessment Report)

The halibut resource in Alaska contributes to the economy mainly through the commercial fisheries as well as sport/recreational fishing activities. Fissel et al. (2017) presented economic data in the Alaskan commercial longline fishery for halibut, in Table 3 of their report.

Table 3. Ex-vessel and price in the commercial Pacific halibut off Alaska by FMP area, 2012-2016 ($millions and $/lb net weight, respectively) (Source: Fissel et al., 2017).

	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
Year	Value	Price	Value	Price	Value	Price
2012	117.32	5.72	26.80	5.13	144.13	5.60
2013	95.75	5.03	16.66	4.32	112.41	4.91
2014	89.54	6.23	15.77	5.34	105.31	6.08
2015	94.33	6.26	17.68	5.74	112.01	6.17
2016	99.37	6.55	19.59	5.89	118.96	6.44

These data indicate that the ex-vessel value of the Alaskan commercial halibut catch was just over $118 million in 2016. Furthermore, the price per pound has shown consistent increase from $5.03/lb to $6.55/lb over these 5 years. Most of the halibut catch comes from the Gulf of Alaska area, and about 20% of the catch value in 2014 was taken by vessels less than 40 feet in overall length. 82% of the halibut mortality (total catch) in 2017 was reported from Areas 2ABC, and 3AB (Gulf of Alaska), as per Table 2 of IPHC-2018-AM094-11 Rev_. Information provided by NPFMC during the May, 2018 site visit indicated that vessels <40'LOA take about 18% of the total halibut catch in Alaska.

Lew et al., (2015), using surveys conducted of the saltwater sport fishing charter operators in Alaska, estimated that annual revenues in this sector ranged from $125 million to $172 million in 2011 – 2013. Although halibut was a primary target in these sport charter fisheries, it was not the only one, as operators often combined fishing opportunities for halibut, salmon, and/or other species on the same trip. Thus, it is difficult to obtain the actual estimated value of the halibut recreational fishery alone from this study.

4 Units of Assessment and Certification

4.1 Current Unit of Certification

The current Unit of Certification is the U.S. Alaska Pacific halibut commercial fishery, under international, federal and state management, fished with benthic longline, within Alaska's 200 nm EEZ as presented below.

Table 4. Current Unit of Certification for the U.S. Alaska Pacific halibut commercial fishery.

#	Fish Species Common name *Scientific Name*	Gear Type	Location of Fishery	Principal Management Authority
1	Pacific halibut *Hippoglossus stenolepis*	Benthic longline	U.S. Federal and State fisheries within the Gulf of Alaska and the Bering Sea & Aleutian Islands.	▪ International Pacific Halibut Commission (IPHC) ▪ National Marine Fisheries Service (NMFS) ▪ North Pacific Fishery Management Council (NPFMC) ▪ Alaska Department of Fish and Game (ADFG) and Board of Fisheries (BOF)

4.2 Proposed additional Units of Certification

The two additional Units of Certification considered during this Scope Extension were the U.S. Alaska Pacific halibut commercial fishery, under international, federal and state management, fished with pot and troll gears, within Alaska's 200 nm EEZ as presented below.

Table 5. Proposed additional Unit(s) of Certification for the U.S. Alaska Pacific halibut commercial fishery.

#	Fish Species Common name *Scientific Name*	Gear Type	Location of Fishery	Principal Management Authority
2	Pacific halibut *Hippoglossus stenolepis*	Pots	U.S. Federal and State fisheries within the Gulf of Alaska and the Bering Sea & Aleutian Islands.	▪ International Pacific Halibut Commission (IPHC) ▪ National Marine Fisheries Service (NMFS) ▪ North Pacific Fishery Management Council (NPFMC) ▪ Alaska Department of Fish and Game (ADFG) and Board of Fisheries (BOF)
3		Troll		

4.3 Proposed revised Units of Certification

If the proposed extension of scope is successful the revised Units of Certification will be the U.S. Alaska Pacific halibut commercial fishery, under international, federal and state management, fished with benthic longline, pot and troll gears, within Alaska's 200 nm EEZ.

Table 6. Proposed UoCs for the U.S. Alaska Pacific halibut commercial fishery following this Scope Extension.

#	Fish Species Common name *Scientific Name*	Gear Type	Location of Fishery	Principal Management Authority
1	Pacific halibut *Hippoglossus stenolepis*	Benthic longline	U.S. Federal and State fisheries within the Gulf of Alaska and the Bering Sea & Aleutian Islands.	▪ International Pacific Halibut Commission (IPHC) ▪ National Marine Fisheries Service (NMFS) ▪ North Pacific Fishery Management Council (NPFMC) ▪ Alaska Department of Fish and Game (ADFG) and Board of Fisheries (BOF)
2		Pots		
3		Troll		

4.4 Final Units of Certification

Following the determination of SAI Global's Certification Committee that the scope of the existing certificate should be extended, the revised Units of Certification are confirmed. Therefore, the Final Units of Certification for this fishery are as outlined in Table 7 below and as described by:

The U.S. Alaska Pacific halibut commercial fishery, under international, federal and state management, fished with benthic longline, pot and troll gears, within Alaska's 200 nm EEZ.

Table 7. Final UoCs for the U.S. Alaska Pacific halibut commercial fishery following this Scope Extension.

#	Fish Species Common name *Scientific Name*	Gear Type	Location of Fishery	Principal Management Authority
1	Pacific halibut *Hippoglossus stenolepis*	Benthic longline	U.S. Federal and State fisheries within the Gulf of Alaska and the Bering Sea & Aleutian Islands.	▪ International Pacific Halibut Commission (IPHC) ▪ National Marine Fisheries Service (NMFS) ▪ North Pacific Fishery Management Council (NPFMC) ▪ Alaska Department of Fish and Game (ADFG) and Board of Fisheries (BOF)
2		Pots		
3		Troll		

5 Consultation Meetings

5.1 On-Site Assessment and Consultation Meetings

Table 8. Summary of Meetings with Stakeholders

Date	Organization and Location	Representative	Main Topics of Discussion
Monday, May 14th 2018, 9:30 AM	Alaska Division Fish and Game (ADFG) 802 3rd Street (1st Floor) Douglas, AK 99824-5412	Karla Bush Janet Rumble Mark Stichert	Halibut state fisheries management updates. Halibut catch in Sablefish Pots and Salmon Troll fishery
Tuesday May 15th, 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	Federal Enforcement and compliance activities.
Tuesday May 15th, 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 16th, 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. Halibut catch on Sablefish Pots
Thursday May 17th, 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 18th, 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 22th, 2018, 1:00 PM	Alaska Wild Trooper 2760 Sherwood Ln, Juneau, AK 99801 CONFERENCE CALL	Alaska State Troopers Lt. Jonathan Streifel	State Enforcement activities.

6 Assessment Outcome Summary

A. The Fisheries Management System

There are effective legal and administrative frameworks, appropriate for management of the halibut fishery, in place at international, Federal and State levels. The management system and the fishery operate in compliance with the requirements of local, national and international laws and regulations, including the requirements of the IPHC and the MSA.

An appropriate policy, legal and institutional framework by which the sustainable and integrated use of living marine resources may be achieved exists that considers the fragility of coastal ecosystems, the finite nature of natural resources and the rights, needs and customary practices of coastal communities. In addition when formulating policies for the management of coastal areas the framework takes account of the risks and uncertainties involved. Management objectives based on the best available scientific evidence (BASI) are incorporated into Fishery Management Plans (FMPs) which are subscribed to by all interested parties. Management objectives and underlying estimates of stock size explicitly take account of uncertainty and imprecision.

B. Data Collection, Stock Assessment and Scientific Advice

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 including information on retained catch in the commercial and sport fisheries, the subsistence and personal use fisheries, as well as estimates of bycatch, discards and wastage. This includes the minimal bycatch taken in the salmon troll and sablefish pot fisheries. Multiple data reporting systems are in place for the various fishery components to ensure timely and accurate collection and reporting of catch data. The current stock assessment methodology includes all sizes and sources of mortality, as well as all currently available data. It includes uncertainty due to estimation as well as structural uncertainty among the four models that comprise the stock assessment ensemble.

The IPHC has a strong and long-standing structure of highly skilled 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 high technical quality, quantity and relevance of IPHC's publications is noteworthy. IPHC staff are involved in a number of collaborative projects with other researchers and institutions. The Five-Year Research Plan proposed for the period 2017-21 includes extensive studies covering five major research areas aimed to address critical topics that impact stock status determinations: 1) Reproduction (i.e., sex identification, maturity ogive estimates), 2) Growth (i.e., observed decrease in size-at-age, temperature effects on??), 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.

A full stock assessment consistent with contemporary, robust and internationally accepted methods was completed at the end of 2017 (Stewart and Hicks 2018). The assessment noted that the estimated female spawning stock biomass (SSB) had stabilized near 200 million pounds (~90,100 t) in 2010, the stock is estimated to have been increasing gradually to 2017. The spawner stock biomass on 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.

The IPHC conducts numerous projects annually to support its major mandates: stock assessment and basic halibut biology. 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. Scientific information and stock assessments provide a consistently high level of credible information to inform status, and clearly provide the necessary basis for conservation and management decisions. Uncertainties are taken into account in the stock assessment process where possible, and risk assessment is used in providing harvest options.

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 since this time included the recommendation and implementation of Electronic Monitoring (EM) starting in 2017 on 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.

C. Precautionary Approach Management Objectives for the Stock

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, MSE) currently underway within IPHC. 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 $SB_{30\%}$ level, and less than 1% probability that the stock size is below $SB_{20\%}$.

Scientific information and stock assessments available provide a consistently high level of credible information to inform status, and clearly provide the necessary basis for conservation and management decisions. Uncertainties are taken into account in the stock assessment process, and risk assessment is used in providing harvest options.

D. Management Objectives for the Stock

Typically, the Pacific halibut fishery is intensively 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 and timely implemented consistently with a precautionary approach. 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 (e.g. Amendment 95) 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. Specific actions taken include use of halibut excluder devices in trawls, and deck sorting to improve survival of live-released halibut.

There are numerous technical management measures aimed at conservation and sustainable utilization of the halibut resources. Under the IFQ share system, the total fishing capacity (number 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.

E. Implementation, Monitoring and Control (IMC)

Alaska fisheries laws and regulations, especially 50CFR679 address IMC. 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 (OLE) Alaska Division and are prosecuted by NOAA's Office of General Counsel's Enforcement Section. OLE Special Agents and Enforcement Officers conduct extensive and comprehensive criminal and civil investigations, conduct on-board vessels at sea inspections, inspect fish processing plants, review sales of wildlife products on the world wide web ("internet" and conduct patrols on land, in the air and at sea. 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).

F. Serious Impacts of the Fishery on the Ecosystem

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

Bycatches of halibut in the salmon troll and sablefish pot fishery can be legally retained in some instances, but are minimal. Halibut have low discard rates, and various management measures are in place to avoid halibut by-catch and further minimize halibut bycatch mortality (discard mortality rate). These include deck sorting to allow halibut to be returned to the water in better condition thus improving the probability of post release survival, the use of halibut excluder devices in some trawl fisheries, and closure areas that benefit juvenile fish and adult spawners. 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, grenadier, 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.

A minor non-conformance (NC) 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 better inform catch and bycatch levels in the halibut fishery.

6.1 Summary of Assessment Outcomes by Section

Table 9. Summary of Assessment outcomes by Section.

Section	Applicable	N/A	Critical NC	Major NC	Minor NC	Full	Status
A. The Fisheries Management System	26	4	0	0	0	26	**Pass**
B. Science and Stock Assessment Activities	17	3	0	0	0	17	**Pass**
C. The Precautionary Approach	9	0	0	0	0	9	**Pass**
D. Management Measures	19	1	0	0	0	19	**Pass**
E. Implementation, Monitoring and Control	7	2	0	0	0	7	**Pass**
F. Serious Impacts of the Fishery on the Ecosystem	13	22	0	0	1	12	**Pass – CAP required**
Overall	91	32	0	0	1	90	**Pass – CAP required**

6.2 Summary of Assessment Outcomes by Scoring Element

Table 10. Summary of Assessment outcomes by scoring elements.

Section	Fun. Clause	Scoring Element		Relevant	Confidence	NC No.	Conformance Level
A. The Fisheries Management System	**1**	**1.1**		Yes	High		Full
		1.2		Yes	High		Full
			1.2.1	Yes	High		Full
		1.3		Yes	High		Full
			1.3.1	Yes	High		Full
		1.4		No			N/A
			1.4.1	Yes	High		Full
		1.5		Yes	High		Full
		1.6		Yes	High		Full
			1.6.1	No			N/A
		1.7		Yes	High		Full
		1.8		Yes	High		Full
		1.9		No			N/A
	2	**2.1**		Yes	High		Full
			2.1.1	Yes	High		Full
			2.1.2	Yes	High		Full
		2.2		Yes	High		Full
		2.3		Yes	High		Full
		2.4		Yes	High		Full
		2.5		Yes	High		Full
		2.6		Yes	High		Full
		2.7		No			N/A
		2.8		Yes	High		Full
	3	**3.1**		Yes	High		Full
		3.2	**3.2.1**	Yes	High		Full
			3.2.2	Yes	High		Full
			3.2.3	Yes	High		Full
			3.2.4	Yes	High		Full
			3.2.5	Yes	High		Full
			3.2.6	Yes	High		Full

Section	Fun. Clause	Scoring Element		Relevant	Confidence	NC No.	Conformance Level
B. Science and Stock Assessment Activities	4	4.1		Yes	High		Full
			4.1.1	Yes	High		Full
			4.1.2	Yes	High		Full
		4.2		Yes	High		Full
		4.3		Yes	High		Full
		4.4		Yes	High		Full
		4.5		Yes	High		Full
		4.6		Yes	High		Full
		4.7		Yes	High		Full
		4.8		Yes	High		Full
		4.9		No			N/A
		4.10		No			N/A
		4.11		No			N/A
	5	5.1		Yes	High		Full
			5.1.1	Yes	High		Full
			5.1.2	Yes	High		Full
		5.2		Yes	High		Full
		5.3		Yes	High		Full
		5.4		Yes	High		Full
		5.5		Yes	High		Full
C. The Precautionary Approach	6	6.1		Yes	High		Full
		6.2		Yes	High		Full
		6.3		Yes	High		Full
		6.4		Yes	High		Full
	7	7.1		Yes	High		Full
			7.1.1	Yes	High		Full
			7.1.2	Yes	High		Full
		7.2		Yes	High		Full
			7.2.1	Yes	High		Full
D. Management Measures	8	8.1		Yes	High		Full
			8.1.1	Yes	High		Full
			8.1.2	Yes	High		Full
			8.1.3	Yes	High		Full
		8.2		Yes	High		Full
		8.3		Yes	High		Full
		8.4		Yes	High		Full
		8.5		Yes	High		Full
		8.6		Yes	High		Full
		8.7		Yes	High		Full
		8.8		Yes	High		Full
		8.9		Yes	High		Full
		8.10		Yes	High		Full
		8.11		Yes	High		Full
		8.12		Yes	High		Full
		8.13		Yes	High		Full
		8.14		No			N/A
	9	9.1		Yes	High		Full

Section	Fun. Clause	Scoring Element		Relevant	Confidence	NC No.	Conformance Level
		9.2		Yes	High		Full
		9.3		Yes	High		Full
E. Implementation, Monitoring and Control	10	10.1		Yes	High		Full
		10.2		Yes	High		Full
		10.3		Yes	High		Full
			10.3.1	Yes	High		Full
		10.4		No			N/A
			10.4.1	No			N/A
	11	11.1		Yes	High		Full
		11.2		Yes	High		Full
		11.3		Yes	High		Full
F. Serious Impacts of the Fishery on the Ecosystem	12	12.1		Yes	High		Full
		12.2		Yes	High		Full
		12.3		Yes	High		Full
		12.4		Yes	High		Full
		12.5		Yes	High		Full
			12.5.1	Yes	High		Full
		12.6		Yes	Medium	1	Minor NC
		12.7		No			N/A
		12.8		Yes	High		Full
		12.9		Yes	High		Full
		12.10		Yes	High		Full
		12.11		Yes	High		Full
		12.12		Yes	High		Full
		12.13		Yes	High		Full
		12.14		No			N/A
		12.15		No			N/A
	13	13.1		No			N/A
			13.1.1	No			N/A
		13.2		No			N/A
			13.2.1	No			N/A
		13.3		No			N/A
		13.4		No			N/A
		13.5		No			N/A
			13.5.1	No			N/A
			13.5.2	No			N/A
			13.5.3	No			N/A
		13.6		No			N/A
		13.7		No			N/A
		13.8		No			N/A
		13.9		No			N/A
		13.10		No			N/A
		13.11		No			N/A
		13.12		No			N/A
		13.13		No			N/A
		13.14		No			N/A

6.3 Conformity Statement

The Assessment Team recommended that the scope of the current Fishery Certificate for the applicant fishery, the US Alaska Pacific commercial halibut fishery, fished by benthic longlines within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, be extended to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

Following a meeting on January 8th 2019, SAI Global's Fishery Certification Committee has determined that the scope of the already existing Fishery Certificate for the applicant fishery, the US Alaska Pacific commercial halibut fishery, fished by benthic longlines within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, is to be extended to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

7 Fishery Assessment Evidence

Section A: The Fisheries Management System

7.1 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.

FAO CCRF (1995) 7.1.3/7.1.4/7.1.9/7.3.1/7.3.2/7.3.4/7.6.8/7.7.1/10.3.1
FAO Eco (2009) 28
FAO Eco (2011) 35, 37.3

7.1.1 Clause 1.1 (see Re-assessment Report)
7.1.2 Clause 1.2 (see Re-assessment Report)
7.1.2.1 Clause 1.2.1 (see Re-assessment Report)
7.1.3 Clause 1.3 (see Re-assessment Report)
7.1.3.1 Clause 1.3.1 (see Re-assessment Report)
7.1.4 Clause 1.4 (see Re-assessment Report)
7.1.4.1 Clause 1.4.1 (see Re-assessment Report)
7.1.5 Clause 1.5 (see Re-assessment Report)
7.1.6 Clause 1.6 (see Re-assessment Report)
7.1.6.1 Clause 1.6.1 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.1.7 Clause 1.7 (see Re-assessment Report)

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

- Review procedures shall be established within the management system.
- A mechanism for revision of management measures shall exist.

FAO CCRF (1995) 7.6.8

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
There are established procedures for continuous review of conservation and management measures in the eastern North Pacific halibut fishery. Additional mechanisms are also in place to revise/abolish conservation and management measures where necessary and where supported by evidence.

Evidence:
Both the IPHC and the NPFMC annually review their previous, current, and possible future conservation and management measures. 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[5] with all meetings being open to the public comment. 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.

The Magnuson-Stevens Act requires the NPFMC and NMFS to review all Limited Access Privilege Programs (LAPPs), including those programs approved prior to the enactment of the reauthorized Magnuson-Stevens Act in 2007. Furthermore, the Magnuson-Stevens Act specifies that reviews of LAPPs should occur no less frequently than once every 7 years. In December 2014, NMFS recommended that the NPFMC initiate a formal and comprehensive review of the Halibut and Sablefish IFQ Program. An outline of the proposed scope of the IFQ program review, which will be the first formal and comprehensive review of the program since its implementation in 1995, can be seen on the NPFMC webpage[6].

The IPHC follows a similar process, in which the agenda for its annual meetings include any topic deemed relevant regardless of whether it constitutes new or old business[7]. Additionally, the IPHC's Scientific Review Board provides independent scientific review of IPHC science products and programs and helps to support and strengthen the stock assessment process[8]. The SRB currently consists of three independent fisheries science experts from academic and management institutions in the U.S. and Canada, although the intention is to increase this to a full complement of five.

As previously outlined, where areas are of concern are identified revisions to management measures are proposed, debated at IPHC/NPFMC meetings with resulting recommendations going to the respective governments for approval. Upon approval, the revised regulations are implemented and enforced by the appropriate agencies of both governments.

References:	See footnotes.

Non-Conformance Number (if relevant)	**NA**

[5] http://www.npfmc.org/council-meeting-archive/
[6] http://www.npfmc.org/halibutsablefish-ifq-program/
[7] https://iphc.int/meetings/calendar?category=3
[8] https://iphc.int/library/documents/meeting-documents/scientific-review-board-srb

7.1.8 Clause 1.8 (see Re-assessment Report)

7.1.9 Clause 1.9 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.2 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.

FAO CCRF (1995) 10.1.1/10.1.2/10.1.4/10.2.1/10.2.2/10.2.4

7.2.1 Clause 2.1 (see Re-assessment Report)
7.2.1.1 Clause 2.1.1 (see Re-assessment Report)
7.2.1.2 Clause 2.1.2 (see Re-assessment Report)
7.2.2 Clause 2.2 (see Re-assessment Report)
7.2.3 Clause 2.3 (see Re-assessment Report)
7.2.4 Clause 2.4 (see Re-assessment Report)
7.2.5 Clause 2.5 (see Re-assessment Report)
7.2.6 Clause 2.6 (see Re-assessment Report)
7.2.7 Clause 2.7 (see Re-assessment Report)
7.2.8 Clause 2.8 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.3 Fundamental Clause 3

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

FAO CCRF (1995) 7.3.3/7.2.2
FAO ECO (2009) 28.1, 28.2
FAO ECO (2011) 35.1, 35.2

7.3.1 Clause 3.1

Long term management objectives shall be translated into a plan or other management document (taking into account uncertainty and imprecision) and be subscribed to by all interested parties.

FAO CCRF (1995) 7.3.3
FAO ECO (2009) 28.1
FAO ECO (2011) 35.1

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Management objectives based on the best available scientific evidence are incorporated into Fishery Management Plans (FMPs) which are subscribed to by all interested parties. Management objectives and underlying estimates of stock size explicitly take account of uncertainty and imprecision.

Evidence:
As previously outlined, the Alaska halibut fishery is managed cooperatively by the IPHC, NMFS and the NPFMC. The IPHC conducts research on, and make recommendations as to the regulation of, halibut fisheries within Convention waters and seeks to address the fishery development and conservation objectives set out in the various agreements between the two countries. The Commission's Annual Report details the performance of the fisheries (commercial, sport, and personal use), with emphasis on the biological considerations, stock assessment, management issues (e.g. bycatch), and scientific research. The Report also presents the results of the Commission's annual meeting at which the catch limits for upcoming season are determined. NPFMC and NMFS manage the halibut fishery in the Alaska region of the American EEZ. Management decisions are made by the NPFMC, and implemented and enforced by NMFS. The NPFMC has developed Pacific halibut regulations that are in addition to, and not in conflict with, the regulations of the IPHC.

The NPFMC is bound by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) which is the primary domestic legislation governing management of marine fisheries in U.S. waters. The MSA sets out ten National Standards Guidelines for fishery conservation and management, specifies long-term objectives for U.S. fisheries and establishes a formal set of processes for the setting of short-term objectives and management measures aimed at achieving those long-term objectives. The Guidelines direct the relevant authorities, in this case the NPFMC, to develop FMPs that apply the precautionary approach when setting harvest control rules in U.S. fisheries. The Guidelines also prescribe how uncertainty should be addressed such that there is a low risk that management limits are exceeded, mandating that HCRs become increasingly conservative as either estimates of stock size decrease or uncertainty increases.

The NPFMC outlines its management objectives for groundfish fisheries in the Gulf of Alaska (GOA) and the Bering Sea and Aleutian Islands Management Area (BSAI) in two separate FMPs[9,10]; while the FMPS do not directly cover the Alaskan halibut fishery (as it is managed by the IPHC) many of the management objectives have direct impacts on the halibut fishery. These management objectives are consistent across both FMPs and are intended to frame consideration of potential management measures at annual NPFMC meetings. As of the August 2015 editions of both FMPs, a total of 45 objectives for GOA and 46 for BSAI, organised into 9 broader policy objectives, have been outlined. The policy objectives into which the management objectives are currently organised are:

- Prevent Overfishing
- Promote Sustainable Fisheries and Communities
- Preserve Food Web
- Manage Incidental Catch and Reduce Bycatch and Waste
- Avoid Impacts to Seabirds and Marine Mammals
- Reduce and Avoid Impacts to Habitat
- Promote Equitable and Efficient Use of Fishery Resources
- Increase Alaska Native Consultation
- Improve Data Quality, Monitoring and Enforcement

The NPFMC develops its Pacific halibut fishery regulations pursuant to its authority under the Northern Pacific Halibut Act of 1982 and these regulations are implemented only after review and rulemaking conducted by the NMFS. The NPFMC process is extremely transparent and inclusive of all stakeholders; all stakeholders are active participants. Additionally, all stakeholders have a voice in the IPHC process, either directly, or through the Commission's Conference Board and/or Processor Advisory Group.

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. As part of the MSE process the IPHC has established a Management Strategy Evaluation Board (MSAB) whose role is to define clear, measurable fishery management objectives and to provide technical input on the development of an operating MSE model for the halibut fishery that will permit the evaluation of various management strategies[11]. At its October 2013 meeting, the MSAB established a set of overarching management objectives, a set of preliminary working management objectives, directly related to stock conservation and fishery performance, and a set of working performance metrics, focused on the abundance of spawning stock biomass, directed fishery and non-directed fishery catch, legal biomass in each regulatory area, and bycatch in each regulatory area.

Overarching objectives (following MSAB meeting October 2013):

- Biological sustainability – identify stock conservation objectives
- Fishery sustainability (all directed) – identify harvest minimum and acceptable variability
- Assurance of access – minimize probability of fisheries closures
- Minimize bycatch mortality
- Serve consumer needs

Preliminary working objectives (following MSAB meeting October 2013):

1. Maintain a minimum number of mature female halibut coast-wide (level to be determined) in each year with a probability of 0.99
2. Maintain a minimum female spawning stock biomass above 20% of the unfished biomass in each year in 95 out of 100 trials (spawning biomass limit)

[9] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf
[10] http://www.npfmc.org/wp-content/PDFdocuments/fmp/BSAI/BSAIfmp.pdf
[11] http://dec.alaska.gov/media/5788/dec-disaster-response-plan.pdf

3. Maintain a minimum female spawning stock biomass above 30% of the unfished biomass in each year in 75 out of 100 trials (spawning biomass threshold)
4. Maintain and economically viable directed fishing opportunity each year for all user groups in each regulatory area, conditional on satisfying objectives 1 and 2, in 95 out of 100 trials
5. Maximize yield in each regulatory area each year without exceeding the target harvest rate in 50 out of 100 trials
6. Limit annual changes in the coast-wide total CEY to a tuned percentage that is consistent with objectives 4 and 5, conditional on satisfying objectives 1 and 2
7. Reduce bycatch mortality to the extent possible in both directed and non-directed fisheries

Performance metrics:

1. Absolute number of sexually mature female halibut
2. Ratio of current SSB relative to unfished SSB_0 (where SSB_0 is based on current size-at-age)
3. Total catch and directed catch from each regulatory area
4. Legal biomass in each regulatory area in each year
5. Bycatch from each regulatory area in each year

In 2017 the MSAB held two meetings in 2017[12].

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)[13] 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.

[12] https://iphc.int/uploads/pdf/msab/msab09/iphc-2017-msab09-01-.pdf
[13] https://iphc.int/uploads/pdf/msab/msab10/iphc-2017-msab10-r.pdf

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 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

As previously discussed the NPFMC is mandated under the MSA to take uncertainty into account in its management of the fishery. The IPHC also takes the significant level of uncertainty due to estimations, data treatment, structure of selectivity, natural mortality etc. inherent in its assessment models into account when recommending catch options for the halibut fishery. Population assessment methods for the halibut stock are continually refined in an effort to improve model assumptions and reduce the uncertainty surrounding resulting estimates.
In 2013 the IPHC, recognising that there is no “perfect” assessment model for the stock, and instead adopted an “ensemble approach” whereby multiple models are included in the assessment thereby reducing the risk of uncertainties in any single model resulting in widely inaccurate estimates of stock size, fishing mortality etc. For 2014, the IPHC’s SRB endorsed a final ensemble that included four individual models the particular combination of which accounts for various sources of uncertainty, including natural mortality rates, environmental effects on recruitment, and fishery and survey selectivity. The “ensemble approach” models provides for a robust risk analysis and allows for the addition of new models as they are developed/refined or indeed the exclusion of old models where their inclusion is no longer deemed appropriate.

References:	
Non-Conformance Number (if relevant)	**NA**

7.3.2 Clause 3.2 (see Re-assessment Report)

7.3.2.1 Clause 3.2.1 (see Re-assessment Report)

7.3.2.2 Clause 3.2.2 (see Re-assessment Report)

7.3.2.3 Clause 3.2.3 (see Re-assessment Report)

7.3.2.4 Clause 3.2.4 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.3.2.5 Clause 3.2.5

There shall be management objectives seeking to avoid, minimize or mitigate impacts of the unit of certification on essential habitats for the stock under consideration and on habitats that are highly vulnerable to damage by the fishing gear of the unit of certification.

FAO ECO (2011) 41.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

Management objectives seek to avoid, minimize or mitigate impacts of the longline halibut fishery on essential habitats for the halibut stock and on habitats likely to be highly vulnerable to damage from longlines. Additionally, being a static fishing gear, bottom set longlines as used in the halibut fishery are likely to have greatly reduced ecosystem impacts when compared with mobile demersal fishing gears.

Evidence:

IPHC objectives are primarily consistent with achieving outcomes directly related to the halibut stock and removals. The conservation of Essential Fish Habitat (EFH) and other habitats highly vulnerable to impacts from bottom contact fishing gears know as Habitat Areas of Particular Concern (HAPC) is an integral part of NPFMC's management process as required under the MSA[14,15,16]. These concerns and decisions are summarized in the Ecosystems Considerations chapter of the NPFMC's annual Stock Assessment and Fishery Evaluation (SAFE) reports. The EFH provisions in each FMP must be reviewed, and if appropriate, revised, every 5 years.

Numerous objectives outlined in the GOA and BSAI FMPs speak directly to the need to avoid, minimize or mitigate the impacts of the commercial fishing on vulnerable habitats and those habitats that play a vital role in the life cycle of fish species particularly;

27. Review and evaluate efficacy of existing habitat protection measures for managed species.

28. Identify and designate essential fish habitat and habitat areas of particular concern pursuant to Magnuson-Stevens Act rules, and mitigate fishery impacts as necessary and practicable to continue the sustainability of managed species.

29. Develop a Marine Protected Area policy in coordination with national and state policies.

30. Encourage development of a research program to identify regional baseline habitat information and mapping, subject to funding and staff availability.

31. Develop goals, objectives and criteria to evaluate the efficacy and suitable design of marine protected areas and no-take marine reserves as tools to maintain abundance, diversity, and productivity. Implement marine protected areas if and where appropriate.

In addition the value and importance of certain habitats to ETP species is explicitly considered by management as can be seen from objective 24 directly advocating the protection of habitat essential to Stellar sea lions:

24. Maintain or adjust current protection measures as appropriate to avoid jeopardy of extinction or adverse modification to critical habitat for ESA-listed Steller sea lions.

The MSA defines EFH as; *"those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity"*. NMFS and the NPFMC must describe and identify EFH in FMPs, minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH. 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.

[14] https://alaskafisheries.noaa.gov/habitat/efh
[15] https://alaskafisheries.noaa.gov/habitat/hapc
[16] https://alaskafisheries.noaa.gov/sites/default/files/hapc_ak.pdf

EFH is only identified for species managed under a federal FMP, EFH is not explicitly defined for halibut; however, halibut could be expected to benefit from the protection afforded to other species with similar life histories or occupying similar habitats. Habitat Areas of Particular Concern (HAPCs) are specific sites within EFH that are of particular ecological importance to the long-term sustainability of managed species, are of a rare type, or are especially susceptible to degradation or development. HAPCs are meant to provide for greater focus of conservation and management efforts and may require additional protection from adverse effects. In order to protect HAPCs, certain habitat protection areas and habitat conservation zones have been designated. A habitat protection area is an area of special, rare habitat features where fishing activities that may adversely affect the habitat are restricted. A habitat conservation zone is a subset of a habitat conservation area which additional restrictions are imposed on fishing beyond those established for the conservation area, in order to protect specific habitat features. Habitat protection areas and habitat conservation zones currently in place in Alaskan waters can be seen on the NPFMC website[17]. Fishing with bottom contact gear is permanently restricted in large areas of the North Pacific to reduce potential adverse impacts on sensitive habitats with MPAs comprising a relatively large portion of the continental shelf. These MPAs although not specifically designed with halibut in mind should also provide supplementary benefits to halibut. An example of one such conservation area is the Bristol Bay red king crab savings area[18] which spatially coincides with important nursery grounds for young halibut, as such halibut likely benefit from an area ostensibly closed for the protection of crab. Note the majority of the crab savings area also coincides with the halibut no-take area that be seen in Figure 1.

References:	

Non-Conformance Number (if relevant)	**NA**

7.3.2.6 Clause 3.2.6 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

[17] http://www.npfmc.org/habitat-protections/
[18] http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/EFH/EFHDiscPaper411.pdf

Section B: Science and Stock Assessment Activities

7.4 Fundamental Clause 4

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

FAO CCRF (1995) 7.1.9/7.4.4/7.4.5/7.4.6/8.4.3/12.4
FAO ECO (2009) 29.1-29.3
FAO Eco (2011) 36.1, 36.3-36.5, 37.4

7.4.1 Clause 4.1

All fishery removals and mortality of the target stock(s) shall be considered by management. Specifically, reliable and accurate data required for assessing the status of fisheries and ecosystems - including data on retained catch, bycatch, discards and waste shall be collected. Data can include relevant traditional, fisher or community knowledge, provided their validity can objectively be verified. These data shall be collected, at an appropriate time and level of aggregation, by relevant management organizations connected with the fishery, and provided to relevant States and sub-regional, regional and global fisheries organizations.

FAO CCRF (1995) 7.3.1, 7.4.6, 7.4.7, 12.4
FAO Eco (2009) 29.1-29.3
FAO Eco (2011) 36.1, 36.3, 36.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
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 including information on retained catch in the commercial and sport fisheries, the subsistence and personal use fisheries, as well as estimates of bycatch, discards and wastage. Several data reporting systems are in place for the various fishery components to ensure timely and accurate collection and reporting of catch data.

Evidence:
Halibut removals can be categorized as follows: commercial fishery landings, fishery wastage (a combination of sub-legal and legal-sized fish, now referred to as discard mortality), recreational (formerly called sport), subsistence (formerly called personal use/ subsistence), and bycatch of halibut in fisheries targeting other species. Bycatch and discard mortality have been divided into O26 (over 26 inches) and U26 (under 26 inches) components as the U26 components were not used for purposes of determining the fishery Constant Exploitation Yield (CEY), although they are factored into the total harvest rate. Each of these five categories is considered in the stock assessment and management, and the IPHC collects yearly data from a variety of sources to characterize the fishery, status and population trends in all regulatory areas, and assist in fitting a population assessment model. Catch reports for halibut in 2017 and earlier years can be found on the NMFS Alaskan fisheries website[19]. In 2005, NMFS, ADF&G, and the IPHC implemented an interagency electronic reporting system to reduce reporting redundancy and consolidate fishery landing. Vessels in Federal or state fisheries report groundfish landing and production through a web-based interface known as eLandings[20].

[19] https://alaskafisheries.noaa.gov/fisheries-catch-landings?tid=287
[20] https://elandings.alaska.gov/

Each industry report submitted via eLandings is checked by NMFS and entered along with observer data into the catch accounting system (CAS) maintained by NMFS. Data from the eLandings are made available to the three collaborating agencies. When fish are landed, a representative of the processor submits the landing report into eLandings and a paper "fish ticket" is printed for both the processor and the vessel representative to sign. Landing reports are mandatory for all processors required to have a Federal processing permit. Landing reports include the fishing start date, the delivery date, gear type, area fished, a breakdown of the weight and condition of each species delivered, and weights of any species that were discarded at the plant before processing. Delivering vessels are required to report at-sea discards to the processing facility, but these data are not verified, and so NMFS does not use these landing reports to estimate at-sea discard rates. Logbook data are available to observers on board fishing vessels, but are typically not used in the catch estimation procedure.

State and federal agencies provide IPHC with estimates of Pacific halibut sport fishery harvests. For the Alaska sport fishery, different methodologies are used for estimating harvests between the charter (guided) and non-charter (unguided) fisheries. Charter vessel operators are required to record client catches in a daily logbook to assist in providing timely catch estimates. For non-charter activity, a sample of licensed anglers receives a post-season mail survey, administered by the ADF&G, for estimating all sport fishery harvests, including halibut. Data on the size of halibut caught are collected through an ADF&G dockside creel sampling program in major ports. Discard mortality data are provided to IPHC for the sport fisheries in some states, including Alaska, and are incorporated into the removals, as are estimates for areas where no discard data were directly available. Overall, the recent levels of recreational harvest remain below the historic highs in 2004-2008. More details on the recreational halibut fishery can be seen in Goen and Erikson (2018)[21] and in the ADF&G reports[22] on recreational fishing submitted to IPHC.

The CAS combines observer and industry information to create estimates of total catch. The CAS procedures have recently changed to complement the sampling procedures established under the restructured observer program, including changes to post-stratification in the CAS and providing catch estimation on vessels retaining halibut. Additional details on the catch reporting and estimation processes can be found in Cahalan et al. 2014, and more information on 2017 halibut catches is in Goen and Erikson (2018).

The removals of Pacific halibut include subsistence and personal use categories as follows: i) ceremonial and subsistence (C&S) removals in the Regulatory Area 2A treaty Indian fishery, ii) the sanctioned First Nations Food, Social, and Ceremonial (FSC) fishery conducted in British Columbia, iii) federal subsistence fishery in Alaska that uses Alaska Subsistence Halibut Registration Certificate (SHARC), and iv) U32 Pacific halibut retained in Regulatory Areas 4D and 4E by the CDQ fishery for personal use. Since 2003, the subsistence halibut fishery off Alaska has been formally recognized, 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. The NMFS regulations defined legal gear, number of hooks, and daily bag limits, and IPHC regulations set the fishing season. Prior to engaging in subsistence fishing, eligible persons register with NMFS Restricted Access Management to obtain a Subsistence Halibut Registration Certificate (SHARC), and permit holders must comply with SHARC registration and reporting processes[23]. The Division of Subsistence at ADF&G was contracted by NMFS to estimate the subsistence harvest in Alaska through a data collection program. Each year, the data collection program includes an annual voluntary survey of fishers conducted by mail or phone, with some onsite visits. Annual reports[24] on the subsistence/personal use catches of halibut are submitted by ADFG to IPHC.

In addition to the SHARC harvest, IPHC regulations allow U32 halibut to be retained in the Area 4D and 4E commercial CDQ fishery as long as the fish are not sold or bartered. The CDQ organizations are required to report to the IPHC the amounts retained during their commercial fishing operations.

[21] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf
[22] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar14.pdf
[23] https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut
[24] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar15.pdf

IPHC relies upon information supplied by observer programs for bycatch estimates of halibut in most fisheries. Research survey information is used to generate estimates of bycatch in the few cases where observer data are not available. The NMFS observer programs off Alaska and the U.S. west coast cover the major groundfish fisheries, and the data collected in those programs are used to estimate bycatch. Trawl fisheries off British Columbia are comprehensively monitored and bycatch information is provided to IPHC by DFO[25]. At its 2018 annual meeting, IPHC discussed a detailed examination of changes in commercial bycatch levels among all gears and sectors by IPHC Regulatory Areas[26].

For the longline pot and salmon troll fisheries assessed in this report, Pacific halibut bycatches are minimal. For the salmon troll fishery in Southeast Alaska, halibut bycatches ranged from 8,300 to 10,800 pounds per year from 2012-2017, which is less than a third of the level in 2006-07 (over 31,000 pounds/yr) (K. Bush, ADFG, pers. comm.). Pacific halibut caught in the salmon troll fishery are required to be reported in the Troll Landing Report in eLandings system[27]. In 2017 it became legal for some IFQ vessels in GOA to retain halibut taken in longline pots directing for sablefish. As reported in NPFMC documentation[28], 277 catcher vessels fished GOA IFQ sablefish in 2017, 245 using only hook and line 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 (approx. 41,000 pounds), or 3% of the sablefish catch weight.

Bycatches in the directed halibut longline fishery are recorded by observers and reported through the CAS. Common bycatches include sharks, skate, P. cod, sculpins, grenadier, and rockfish species. More information on bycatch species is contained in Clause 12.4.

As reported in Stewart and Hicks (2018), known Pacific halibut removals over the period 1918-2017 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. Groundfish trawls took about 82% of the bycatch mortality total in 2017. 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 42.49 million pounds (~19,200 t), up slightly from 41.8 million pounds in 2016 (~18,960 t) – see Table 11 below.

Table 11. 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
O26 Non-FCEY									
Commercial discards*	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	0.2	1.96	4.26
Recreational (+ discards)	NA	NA	1.43	1.86	0.01	0.02	0	0	3.31
Subsistence	NA	0.41	0.44	0.22	0.01	0.01	0	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
O26 FCEY									
Commercial discard	NA	NA	0.08	0.34	NA	NA	NA	NA	0.42
Recreational (+ discards)**	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

[25] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar09.pdf
[26] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-inf03.pdf
[27] https://www.adfg.alaska.gov/static/license/fishing/pdfs/salmon_troll_elanding_bycatch_2016.pdf
[28] http://npfmc.legistar.com/gateway.aspx?M=F&ID=053d586a-3053-434f-b539-e8eaf01a39a2.pdf

Commercial Landings*	0.75	6.26	4.23	7.79	3.09	1.3	1.09	1.64	26.16
Total FCEY	1.3	7.49	5.28	10.23	3.09	1.3	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
U26									
Commercial discards	0	0	0	0.01	0.02	0.01	0	0	0.05
Bycatch	0	0.02	0	0.42	0.44	0.11	0.01	0.79	1.79
Total U26	0	0.03	0	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

*** Includes research catches.**

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

References:

- Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p.
- Goen, J. and L. Erikson. 2018. Fishery Statistics (2017). IPHC-2018-AM094-05 https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf
- Stewart, I. 2018. Final Pacific halibut catch tables for 2018. IPHC-2018-AM094-11 Rev_1. https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-11.pdf
- Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10. https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-10.pdf

Non-Conformance Number (if relevant)	**NA**

7.4.1.1 Clause 4.1.1

Timely, complete and reliable statistics shall be compiled on catch and fishing effort and maintained in accordance with applicable international standards and practices and in sufficient detail to allow sound statistical analysis for stock assessment. Such data shall be updated regularly and verified through an appropriate system. The use of research results as a basis for the setting of management objectives, reference points and performance criteria, as well as for ensuring adequate linkage, between applied research and fisheries management (e.g. adoption of scientific advice) shall be promoted. Results of analysis shall be distributed accordingly as a contribution to fisheries conservation, management and development.

FAO CCRF (1995) 7.4.4, 12.3, 12.13
FAO Eco (2009) 29.1, 29.3
FAO Eco (2011) 36.3, 36.5

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Timely and reliable statistics are compiled on Pacific halibut for all catch and fishing effort, and IPHC and other agencies maintain databases of these catches. The catch data also includes by-catch, sport fishing, personal and subsistence use, and wastage. All databases are updated regularly, verified, and feed into the annual peer-reviewed stock assessments. The catch data are also used for other scientific and management purposes related to halibut conservation and management, are published in annual IPHC reports, and are available on the IPHC website.

Evidence:
As documented in the previous section, landings of halibut from the directed fishery are recorded through the use of commercial fish tickets, reported to IPHC annually, and are fully categorized by gear and regulatory area. Landings from 1935 to 1980 are not currently included in the IPHC's database but various data from these years have been published in technical reports and other IPHC documents (e.g. Goen and Erikson, 2018). Historical landings prior to 1935 were reconstructed within current regulatory areas from summaries by historical statistical areas (Bell et al. 1952). Reported landings of halibut begin in 1888. Several patterns emerge from the extended time series of landings including 4 peaks of exploitation, a period of substantially reduced fishing in the 1970s in all areas, and the sequential exploitation of Areas 2, 3, and 4 over the time series.

In addition to the commercial landings, time series of estimates exist for the other categories of halibut catch/mortality, including by-catch, sport fishing, subsistence/personal use, and discard mortality/wastage. These are updated on a regular basis and all accounted for and reported in the assessment and management of the halibut resource. ADF&G maintains databases on subsistence fishing in state waters. Annual catch reports on halibut are available from the NMFS database, dating back to at least 1995[29].

Extensive research related to stock assessment and management of halibut is conducted by IPHC, and results are published annually in their reports of research and assessment activities (RARA). These annual reports are available on line, for the period 1991-2017[30].

References:

- Bell, F.H., Dunlop, H.A., and Freeman, N.L. 1952. Pacific Coast halibut landings 1888-1950 and catch according to area of origin. Int. Pac. Halibut Comm. Rep. No. 17.
- Goen, J. and L. Erikson. 2018. Fishery Statistics (2017). IPHC-2018-AM094-05 https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf

Non-Conformance Number (if relevant)	

[29] https://alaskafisheries.noaa.gov/fisheries-catch-landings?tid=287
[30] https://iphc.int/library/documents/category/report-of-research-assessment-and-research-activities-rara

7.4.1.2 Clause 4.1.2

In the absence of specific information on the "stock under consideration", generic evidence based on similar stocks can be used for fisheries with low risk to that "stock under consideration". However, the greater the risk of overfishing, the more specific evidence is necessary to ascertain the sustainability of intensive fisheries.

FAO Eco (2009) 30.4
FAO ECO (2011) 37.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: All management decisions are made using stock specific information, and the stock is considered to be one unit along its distribution in Alaskan waters and south.				
Evidence: As reported by Stewart and Hicks 2018, the stock assessment of the Pacific halibut resource covers the northeastern Pacific Ocean, including the waters of the United States and Canada. Consistent with recent assessments, the resource is modeled as a single stock extending from northern California to the Aleutian Islands and Bering Sea, including all inside waters of the Strait of Georgia and Puget Sound. Potential connectivity with the western Pacific Ocean resource is considered slight and is unaccounted for.				
References:	Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10.			
Non-Conformance Number (if relevant)				**NA**

7.4.2 Clause 4.2

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

FAO CCRF (1995) 8.4.3
FAO Eco (2009) 29.2bis

Evidence Rating:	Low ☐	Medium ☑		High ☐
Non-Conformance:	Critical ☐	Major ☐	Minor ☑	None ☐

Summary Evidence:
An extensive industry-funded on-board observer program exists in Alaskan waters to cover various fisheries, including halibut. Amendments to the program were introduced in 2013 to increase the statistical reliability of data collected by the program, address cost inequality among fishery participants, and expand observer coverage to previously unobserved fisheries (e.g. some vessels less than 60 feet). Electronic monitoring has being introduced to the Observer Program. Data from the observer program is used extensively in the stock assessments. Vessels under 40 feet LOA are excluded from observer coverage at present, resulting in a minor non-conformance in this clause, as identified in the 2017 reassessment.

Evidence:
The NC with regards to sub-clause 4.2 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. Addition to the certificate of halibut taken as by-catch in the troll and pot gears does not change this NC.

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 Off 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 plan[31] 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. In 2017, Electronic Monitoring (EM) pre-implementation[32] was included in the NMFS Annual Deployment Plan[33], and EM systems were deployed on small boat longline and pot vessels targeting sablefish, P. 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 P. cod, and 45 sablefish - containing a total of 12,467 hauls. 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%). For additional details, see Clause 12.6 below.

[31] https://alaskafisheries.noaa.gov/sites/default/files/final_2018_adp.pdf
[32] https://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/Final2017EMPre-impPlan.pdf
[33] https://alaskafisheries.noaa.gov/sites/default/files/2017finaladp.pdf

On August 8, 2017, NMFS published a final rule (82 FR 36991) to integrate EM into the North Pacific Observer Program[34]. 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. A fixed gear EM Workgroup (EMWG) provides a forum for all stakeholders, including the commercial fishing industry, agencies, and EM service providers, to cooperatively and collaboratively design, test, and develop EM systems, consistent with NPFMC's goal to integrate EM into the Observer Program. In April 2018, the Council reconstituted membership on the EM Workgroup to reflect a transition from the development and recent implementation of EM for fixed gear, to a new focus on developing EM systems on trawl catcher vessels in the Bering Sea and Gulf of Alaska. At its June 2018 meeting[35], the Council received an update about fixed gear and trawl EM development from the Electronic Monitoring Workgroup (which has now been renamed the EM Committee) and endorsed preliminary monitoring objectives for trawl EM development.

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/NMFS[36], 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 2014-2017[37]. Information provided by NPFMC during the May, 2018 site visit indicated that vessels < 40'LOA take about 18% of the total halibut catch in Alaska.

The lack of observer coverage for vessels less than 40 ft LOA constitutes a minor non-conformance, as there is still observer coverage for a large portion of the fishery. This is unchanged with the addition of halibut bycatch from pots and salmon trolls.

Non-Conformance #1
An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures is established. However, there is a lack of observer coverage on vessels < 40ft LOA, as such the observer scheme does not sufficiently account for the <40ft LOA sector of the commercial Pacific halibut fleet.

References:	
Non-Conformance Number (if relevant)	**#1**

7.4.3 Clause 4.3 (see Re-assessment Report)

7.4.4 Clause 4.4 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

[34] Ibid.
[35] https://www.npfmc.org/electronic-monitoring-3/
[36] https://alaskafisheries.noaa.gov/sites/default/files/2013-2017-observed-catch-tables.xlsx
[37] https://alaskafisheries.noaa.gov/fisheries/observed-catch-tables

7.4.5 Clause 4.5

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

FAO CCRF (1995) 7.4.5, 12.9

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

Economic and social data are collected and analyzed through a number of agencies, such as IPHC, NMFS, NPFMC, and ADF&G. An extensive report from NMFS/AFSC is produced each year which provides data and analysis on a number of socioeconomic factors in Alaskan fisheries, including catch volumes and values, numbers of vessels, employment, and marketing. These data, along with analyses conducted by/for NPFMC and ADF&G, are adequate for ongoing monitoring, analysis and policy formulation for the halibut fisheries.

Evidence:

Socio-economic 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. 2015). 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 flatfish, and relates changes in value, price, and quantity, across species, product and gear types, to changes in the market.

Agencies such as NPFMC are required to consider the impact of their rules (e.g. Fishery Management Plans, Fishing Regulations) on small entities (fishermen communities) and to evaluate alternatives that would accomplish the objectives of the rule(s) without unduly burdening small entities when the rules impose a significant economic impact on them. A recent example is the annotated outline of the Social Impact Assessment (SIA) appendix to the GOA Trawl Bycatch Management Environmental Impact Statement, considered by NPFMC in June 2016[38]. The report, prepared by Northern Economics Inc. of Anchorage, AK, is a template for the development of the SIA, rather than the full analysis itself, and is intended to facilitate timely feedback on the approach to, and direction of, the analysis. It contains considerable information on the economics of the halibut fishery in Alaska.

A report prepared by the McDowell Group in 2015 for ASMI quantifies the regional, state-wide, and national economic impacts of Alaska's seafood industry. This report summarizes overall industry participation, value, and exports. It also highlights the significant impact the industry has on tax revenues and lowering the cost of living in Alaska[39].

Economics of sport fishing in Alaska, including halibut, has also been analyzed, and includes the study by Southwick Associates et al. in 2008[40], as well as the survey and subsequent study by Lew et al. in 2015[41].

References:	Fissel, B., M. Dalton, R. Felthoven, B. Garber-Yonts, A. Haynie, A. Himes-Cornell, S. Kasperski, J. Lee, D. Lew, C. Seung. 2015. Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic Status of the

[38] http://npfmc.legistar.com/gateway.aspx?M=F&ID=1353cf77-082b-4329-832a-e0c7691d4357.pdf
[39] http://ebooks.alaskaseafood.org/ASMI_Seafood_Impacts_Dec2015/#/0/
[40] http://www.ADF&G.alaska.gov/FedAidpdfs/PP08-01.pdf
[41] http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-299.pdf

	Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf Lew, D. K., G. Sampson, A. Himes-Cornell, J. Lee, and B. GarberYonts. 2015. Costs, earnings, and employment in the Alaska saltwater sport fishing charter sector, 2011-2013. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-299, 134 p. McDowell Group. 2015. The economic value of Alaska's seafood industry. 3960 Glacier Hwy. Suite 201. Juneau Ak. Southwick Associates Inc. and W. J. Romberg, A. E. Bingham, G. B. Jennings, and R. A. Clark. 2008. Economic impacts and contributions of sport fishing in Alaska, 2007. Alaska Department of Fish and Game, Professional Paper No. 08-01, Anchorage.
Non-Conformance Number (if relevant)	

7.4.6 Clause 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.

FAO CCRF (1995) 12.12

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: All available halibut data from small and large scale fisheries, including personal use and subsistence, are considered in the stock assessment and management processes.				
Evidence: As noted in Clause 4.1, 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. Through a data collection program, information has been provided for the years 2003-2012, and 2014 (e.g. Fall and Koster 2014). Yearly reports are available from NOAA/NMFS website[42]. Reports[43] on subsistence/personal use harvests of halibut are provided to IPHC by ADFG on an annual basis.				
References:	Fall, J. A. and Koster, D. S. 2014. Subsistence harvests of Pacific halibut in Alaska, 2012. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 388. Anchorage.			
Non-Conformance Number (if relevant)				

7.4.7 Clause 4.7 (see Re-assessment Report)
7.4.8 Clause 4.8 (see Re-assessment Report)
7.4.9 Clause 4.9 (see Re-assessment Report)
7.4.10 Clause 4.10 (see Re-assessment Report)
7.4.11 Clause 4.11 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

[42] https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut
[43] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-ar15.pdf

7.5 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.

FAO CCRF (1995) 7.2.1/12.2/12.3/12.5/12.6/12.7/12.17
FAO Eco (2009) 29-29.3, 31
FAO Eco (2011) 42

7.5.1 Clause 5.1 (see Re-assessment Report)

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

FAO CCRF (1995) 12.2/12.6

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
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 is noteworthy. IPHC staff are involved in a number of collaborative projects with other researchers and institutions.

Evidence:
The International Pacific Halibut Commission (IPHC)[44] originally called the International Fisheries Commission, 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 monies from both the U.S. and Canadian governments to support a director and staff.

The IPHC conducts numerous projects[45] annually to support its major mandates: stock assessment and basic halibut biology. 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. Current projects include standardized stock assessment fishing surveys from northern California to the end of the Aleutian Islands, as well as field sampling in major fishing ports to collect scientific information from the halibut fleet. A number of tagging experiments, along with analyses of existing tag return data are also underway. In conjunction with ongoing programs, the IPHC conducts numerous biological and scientific experiments to further the understanding and information about Pacific halibut. The IPHC staff is involved with various collaborative projects with other agencies to obtain biological and ecosystem information on halibut not otherwise available through IPHC programs, and some of these projects are externally funded (more details in Clause 5.1.2).

The Commission encourages public participation in the management of the resource and regularly seeks advice from its advisory bodies and various State, Provincial, and Federal agencies. The Commission's advisory bodies on the scientific side include the Research Advisory Board, the Management Strategy Advisory Board, and the Scientific Review Board (SRB). The SRB was formed in 2013 to provide an independent scientific review of Commission science products and programs, and to support and strengthen the stock assessment process. In the near term, this review process has focused on the annual stock assessment model and harvest policy prepared by the IPHC staff (Cox et al. 2016).

[44] http://www.iphc.int/about-iphc.html,
[45] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-13.pdf

The IPHC also arranges periodic external reviews of the annual stock assessment. One was done in 1997 after a major change in assessment methods in 1995, and another was done in 2007, after further changes made in the 2003 and 2006 assessments. For the 2007 review, the Commission contracted with the Center for Independent Experts (CIE), which is contracted to supply external reviewers for NMFS assessment reviews[46]. The Center recruited Dr. Chris Francis and Dr. Paul Medley to review the halibut stock assessment. Their reports were submitted and posted in the 2007 RARA[47], along with the IPHC staff's response to the reviewers' comments and recommendations.	
References:	Cox, S.P., J. Ianelli, and M. Mangel. 2016. Reports of the IPHC Scientific Review Board, 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 615-622.
Non-Conformance Number (if relevant)	

7.5.1.1 Clause 5.1.1 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clause presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

[46] https://www.st.nmfs.noaa.gov/science-quality-assurance/cie-peer-reviews/peer-review-reports
[47] https://iphc.int/library/documents/report-of-research-assessment-and-research-activities-rara/2007-report-of-assessment-and-research-activities

7.5.1.2 Clause 5.1.2

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

FAO CCRF (1995) 12.1/7.4.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Appropriate research is conducted into all aspects of fisheries by IPHC and researchers from other agencies. IPHC as both an annual research plan and a 5-year research plan. Biology, ecology, physiology, and environmental science are all covered by these Plans. Economic analyses and social science are conducted by NMFS/AFSC, as well as by other consultants. All results of research is available to the public in readily understandable fashion. Thus the best scientific evidence is made readily available as a contribution to fisheries conservation and management. Research facilities and appropriate training are provided at a number of locations in Alaska.

Evidence:
Research into the biology, ecology, and environmental science is conducted by IPHC staff, along with several other institutions. The IPHC has an Annual Research Plan (ARP), as well as a 5-year Research Plan (IPHC 2018). Each of the recommended studies in the ARP supports one or more of the four areas of study identified as primary research objectives in the IPHC Five-Year Research Plan: 1) Reproduction, 2) Growth and Physiological Condition, 3) Discard Mortality and Survival, 4) Distribution and Migration, 5) Genetics and Genomics. All research and stock assessment activities, including planned research projects, management advice, and reports from the various Boards in IPHC, are fully documented in timely fashion in its annual Reports of Research and Assessment Activities (RARA)[48].

The IPHC staff is involved with various collaborative projects with other agencies to obtain biological and ecosystem information on halibut not otherwise available through IPHC programs, and some of these projects are externally funded. For example, in 2013 the IPHC embarked on an extensive set of studies to examine the recent decline in halibut size at age. The work encompasses several focused pieces of research, including those being conducted by IPHC staff and others in a collaborative study with NMFS, the University of Washington, and the University of Alaska, and which is supported by the North Pacific Research Board (NPRB)[49].

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 program[50]. 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.

[48] https://iphc.int/library/documents/category/report-of-research-assessment-and-research-activities-rara
[49] http://project.nprb.org/view.jsp?id=c17f5c29-a9bd-4619-a239-b02b0464a23c
[50] http://www.nprb.org/assets/images/uploads/01.10_bsag_web.pdf

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 and is likely attributable to the lower fat content in halibut compared to these other species.

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.

Various studies have been conducted on the economic value of sport fishing in Alaska, including for halibut[51]. The Alaska Seafood Marketing Institute has contracted studies to determine the value of Alaska's seafood industry, and the University of Alaska Institute of Social and Economic Research conducts research on the economics of various Alaskan fisheries.

The University of Alaska Fairbanks Kodiak Seafood and Marine Science Center promotes the sustainable use of Alaska fisheries through collaborative research, application, education and information transfer. The areas of focus include seafood safety and quality, product markets and development, and bycatch reduction and environmental concerns[52].

The University of Alaska[53] provides bachelor, masters and doctoral programs in fisheries science, associate degrees and certificates in fisheries technology. University faculty supervise graduate student research on a broad array of biological topics including quantitative stock assessment, biology and ecology of marine and freshwater species, molecular genetics, and behavioural ecology. Facilities are located in Juneau, Seward, Kodiak and Fairbanks.

The Oil Spill Recovery Institute (OSRI) was established by US Congress in response to the 1989 Exxon Valdez oil spill. OSRI is administered through and housed at the Prince William Sound Science Center, a non-profit research and education organization located in Cordova, AK. The PWS Science Center facilitates and encourages ecosystem studies in the Greater Prince William Sound region. OSRI produces an annual report[54], among other publications. The 2017 report contains details on their activities, including ongoing research projects, an update of field guide for oil spill response in arctic waters, and shore-zone mapping of the eastern Aleutian Islands.

References:	Dykstra, C.L. 2018. Contaminant and parasite monitoring of Pacific halibut. IPHC Report of Assessment and Research Activites: 2017, p 104-105. https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p.

Non-Conformance Number (if relevant)	**NA**

[51] https://www.adfg.alaska.gov/static/home/library/pdfs/sportfish/2007economic_impacts_of_fishing.pdf
[52] http://www.uaf.edu/sfos/about-us/locations/kodiak/about-ksmsc/
[53] https://www.uaf.edu/sfos/research/fisheries/
[54] http://www.pws-osri.org/wp-content/uploads/2018/03/FY17-Annual-report.pdf

7.5.2 Clause 5.2

There shall be established research capacity necessary to assess and monitor 1) the effects of climate or environment change on fish stocks and aquatic ecosystems, 2) the state of the stock under State jurisdiction, and for 3) the impacts of ecosystem changes resulting from fishing pressure, pollution or habitat alteration.

FAO CCRF (1995) 12.5
FAO Eco (2009) 31

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The IPHC, Alaska Department of Fish and Game, University of Alaska, and National Marine Fisheries Service maintain strong research programs to monitor the state of the stocks and effects of fishing, pollution, habitat alteration and climate change.

Evidence:
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)[55], 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.

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)[56].

As part of IPHC's annual setline survey, which provides data for the halibut 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 available[57].

[55] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-10.pdf
[56] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf
[57] https://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCData.shtml

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 reports[58]are produced annually to compile and summarize information about the status of the Alaska marine ecosystems for the NNPFMC, 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. For a recent example, see Zador and Yasumiishi (eds.) 2017[59].

The North Pacific Research Board (NPRB) has developed two special projects that seek to understand the integrated ecosystems of the BSAI and GOA. For example, in the Gulf of Alaska Integrated Ecosystem Research Program, more than 40 scientists from 11 institutions are taking part in the $17.6 million GOA ecosystem study that looks at the physical and biological mechanisms that determine the survival of juvenile groundfish in the eastern and western Gulf of Alaska[60].

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.

References:	Goen, J., T. Geernaert, E. Henry, E. Soderlund, A.M. Ranta, T.M. Kong, and J. Forsberg. 2018. Fishery-independent setline survey (FISS) design and implementation in 2017, including current and future expansions. IPHC-2018-AM094-06 Rev1. https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf Geernaert, T.O. 2018. Trends in seabird counts from the IPHC fishery independent setline surveys (2002-17). IPHC Report of Assessment and Research Activites: 2017, p 106-115. https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10. Wong, N. 2016. Marine mammal depredation on IPHC standardized setline surveys: a look at killer whales and sperm whales as major depredators in Alaska waters. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 418-441. Zador, S. and E. Yasumiishi (eds). 2017. Status of the Gulf of Alaska Marine Ecosystem. North Pacific Fishery Management Council 605 W. 4th Avenue, Suite 306 Anchorage, AK 99301. https://www.afsc.noaa.gov/REFM/Docs/2017/ecosysGOA.pdf

Non-Conformance Number (if relevant)	**NA**

[58] https://access.afsc.noaa.gov/reem/ecoweb/
[59] https://www.afsc.noaa.gov/REFM/Docs/2017/ecosysGOA.pdf
[60] http://www.nprb.org/gulf-of-alaska-project

7.5.3 Clause 5.3 (see Re-assessment Report)

7.5.4 Clause 5.4 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.5.5 Clause 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.

FAO CCRF (1995) 12.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Scientific data from various sources are analysed and presented in peer reviewed meetings and/or in primary literature, following scientific protocols. Results of these analyses are disseminated in a timely fashion through numerous methods, including scientific publications, and as information on websites of various agencies, in order to contribute to halibut fisheries conservation and management. Confidentially is required by Alaska statute and data is redacted in reports when necessary. The nature of the confidentiality is sometimes determined by the number of individuals or entities contained in the dataset.

Evidence:
Data collected by scientists from the many surveys and halibut fisheries are analysed 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, ADF&G, and NPFMC websites, in order to contribute to fisheries conservation and management. The core of halibut specific information for 2017 is available at the IPHC 2018 annual meeting website page[61].

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)[62], 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.

References:	
Non-Conformance Number (if relevant)	**NA**

[61] https://iphc.int/venues/details/94th-session-of-the-iphc-annual-meeting-am094
[62] http://touchngo.com/lglcntr/akstats/Statutes/Title16/Chapter05/Section815.htm

Section C: The Precautionary Approach

7.6 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.

FAO CCRF (1995) 7.5.3, 7.6.1
FAO Eco (2009) 29.2-29.2bis, 29.6, 30-30.2
FAO Eco (2011) 36.2, 36.3, 37, 37.1, 37.2

7.6.1 Clause 6.1

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

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Target reference points for biomass and fishing mortality (harvest rate) have been developed based on sound scientific analyses. Exploitation rates for the individual management areas are established separately to ensure that localized overfishing does not occur.

Evidence:
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.

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 (management strategy) currently underway for a modern harvest strategy for Pacific halibut[63]. 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 Spawning Potential Ratio (SPR) of F46%, 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 biomass[64].

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). IPHC defines Total CEY (TCEY) as the amount of yield of Pacific halibut greater than 26 inches (66 cm) in length, and Fishery CEY (FCEY), as the amount of yield for the directed Pacific halibut fisheries dependent

[63] https://iphc.int/the-commission/harvest-strategy-policy
[64] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf

upon allocation agreements by IPHC Regulatory Area[65]. The rationale for the revision is that it 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 TCEY[66]. The B20 and B30 reference points are provided in the most recent stock assessment (Stewart and Hicks 2018), along with the probabilities of exceeding these reference points at present, and in short term projections.	
References:	Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10.
Non-Conformance Number (if relevant)	**NA**

[65] https://iphc.int/the-commission/glossary-of-terms-and-abbreviations
[66] https://iphc.int/library/documents/news-releases/iphc-news-release-2017-32-br-outcomes-of-interim-meeting-im093

7.6.2 Clause 6.2

States shall establish safe limit reference point(s) for exploitation (i.e. consistent with avoiding recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible). When a limit reference point is approached, measures shall be taken to ensure that it will not be exceeded. For instance, if fishing mortality (or its proxy) is above the associated limit reference point, actions should be taken to decrease the fishing mortality (or its proxy) below that limit reference point.

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
IPHC has established safe limit reference point(s) for exploitation, consistent with the Precautionary Approach. Based on previous policy, when a limit reference point is approached, the harvest rate is decreased linearly by a harvest control rule towards zero as the spawning biomass approaches 20% of the estimated unfished level. If the stock is below 20% of the unfished biomass, fishing ceases completely. In 2017 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 biomass. An extensive management strategy evaluation is underway within IPHC, which includes evaluation of the current harvest strategy.

Evidence:
As stated in the 2017 IPHC Annual Report[67], harvest strategy policy has a long history at the IPHC and many analyses and simulation studies have informed the development of past policies. The IPHC harvest strategy policy is the procedure that uses scientific and management procedures to determine the coastwide Total Constant Exploitation Yield (TCEY) across all Areas, as well as the TCEY and Fishery Constant Exploitation Yield (FCEY) for each Area. At the 2017 Annual Meeting the Commission agreed to modify the policy by separating the scale (coastwide fishing intensity) and the distribution of fishing mortality. The first step in the modified sequence would be to set the coastwide fishing intensity (scale) on the coastwide stock by defining an acceptable level of fishing mortality based on Spawning Potential Ratio (SPR). Once the scale is determined, the coastwide TCEY can be determined and split into a TCEY for each Area. This second step is the distribution of catch. This separation of scale and distribution accounts for all mortality from all sources, and allows Commissioners to separate the decision of coastwide fishing intensity from distributing the TCEY.

The interim harvest strategy policy (also referred to as the SPR-based harvest strategy) centers around a fishing mortality rate that corresponds to a SPR of 46 percent (i.e. 54 percent reduction in the spawning potential). The SPR can be thought of as the percentage of spawning potential for a fish over its lifetime given a constant level of fishing. For example, a fish may have many chances to spawn without fishing, but that potential will be reduced with fishing. The interim SPR of 46 percent was based on status quo over the years 2014-2016, and is also called the reference SPR. 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[68].

[67] https://iphc.int/uploads/pdf/ar/iphc-2017-annual-report.pdf
[68] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf

IPHC's previous 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. As noted in the IPHC Annual Report[69] for 2017, the MSAB made progress on the investigation of the current harvest strategy policy, an examination of the realized decisions made over the last three years, and development of a revised harvest strategy policy to account for mortality of all sizes and from all sources (described as a Spawning Potential Ratio SPR-based harvest policy). Work in 2018 will involve evaluating various fishing intensities to determine one that best meets the objectives defined by the MSAB.	
References:	IPHC Annual Report for 2017 . https://iphc.int/uploads/pdf/ar/iphc-2017-annual-report.pdf
Non-Conformance Number (if relevant)	**NA**

[69] https://iphc.int/uploads/pdf/ar/iphc-2017-annual-report.pdf

7.6.3 Clause 6.3

Data and assessment procedures shall be installed measuring the position of the fishery in relation to the reference points. Accordingly, the stock under consideration shall not be overfished (i.e. above limit reference point or proxy) and the level of fishing permitted shall be commensurate with the current state of the fishery resources, maintaining its future availability, taking into account that long term changes in productivity can occur due to natural variability and/or impacts other than fishing.

FAO CCRF (1995) 7.5.3, 7.6.1
FAO Eco (2009) 29.2-29.2bis, 29.6, 30-30.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
IPHC has an extensive stock assessment program, which is necessary to monitor and measure the status of the halibut stocks relative to target and limit levels of exploitation and biomass. Extensive oceanographic monitoring is done in Alaskan waters as part of a number of projects, in order to monitor and predict changes of stock productivity.

Evidence:
IPHC has a large and ongoing stock assessment program to obtain the extensive scientific information necessary to monitor and measure the status of the stocks being fished in relation to target levels of exploitation and biomass (see Clauses in Sections 4 and 5). The following two 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 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.

Considerable oceanographic and environmental monitoring is carried out (see Clause 5 above). Monitoring of the Pacific Decadal Oscillation (PDO) regimes, a standard indicator of productivity in the north Pacific, is conducted, along with analyses of its potential impacts on productivity of North Pacific stocks, including halibut. As well, comprehensive Ecosystem Reports for BSAI and GOA are compiled annually for NPFMC (e.g. Zador and Yasumiishi (eds.). 2017), which look at a broad range of elements and indicators of the Alaskan Ecosystems[70].	
References:	Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10. Zador, S. and E. Yasumiishi (eds.). 2017. Status of the Gulf of Alaska Marine Ecosystem. North Pacific Fishery Management Council 605 W. 4th Avenue, Suite 306 Anchorage, AK 99301. https://www.afsc.noaa.gov/REFM/Docs/2017/ecosysGOA.pdf
Non-Conformance Number (if relevant)	**NA**

[70] http://www.afsc.noaa.gov/REFM/docs/2015/ecosystem.pdf

7.6.4 Clause 6.4

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

FAO CCRF (1995) 7.5.3
FAO Eco (2009) 29.6, 30.2
FAO Eco (2011) 36.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
IPHC has developed an interim harvest strategy policy based on Spawning Potential Ratio which corresponds to fishing intensities that have resulted in a stable or slightly increasing stock. There is a low probability that the stock is below or is projected to be below the Spawner Biomass reference points (SB30 and SB20). An extensive management strategy evaluation is underway within IPHC which is analyzing harvest strategies.

Evidence:
The interim SPR-based harvest strategy is centred around a fishing mortality rate that corresponds to a SPR of 46 percent (i.e. 54 percent reduction in the spawning potential). 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[71].

In an IPHC report dated April 2018 (Hicks 2018)[72], seeking recommendations from the Management Strategy Advisory Board (MSAB) on the ongoing MSE work, it was noted that one portion of the management procedure being evaluated is a harvest control rule that is responsive to stock status. It consists of an SPR determining fishing intensity, a trigger level of stock status that determines when the fishing intensity begins to be linearly reduced, and a limit that determines when there is theoretically no fishing intensity (SPR=100%). A schematic was provided to illustrate the control rule being examined. Simulations have been used to evaluate a range of SPR values from 25% to 60% and trigger values of SB of 30% and 40%.

The previous IPHC harvest strategy included an HCR based on the SB reference points described in the clauses above. This HCR would trigger management actions to reduce catches, if the SB was below the SB30 and SB20 biomass reference points. At present, the stock is above the values that would trigger the management actions outlined by these reference points. Based on the current stock assessment, 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 (Stewart and Hicks 2018).

References:	Hicks, A. 2018. IPHC Management Strategy Evaluation to Investigate Fishing Intensity. IPHC-2018-MSAB011-08. https://iphc.int/uploads/pdf/msab/msab11/iphc-2018-msab011-08.pdf Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10.

Non-Conformance Number (if relevant)	**NA**

[71] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf
[72] https://iphc.int/uploads/pdf/msab/msab11/iphc-2018-msab011-08.pdf

7.7 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.

FAO CCRF (1995) 7.5.1/7.5.4/7.5.5/12.3
FAO ECO (2009) 29.6/32
FAO Eco (2011) 36.7

7.7.1 Clause 7.1 (see Re-assessment Report)

7.7.1.1 Clause 7.1.1

In implementing the precautionary approach, States shall take into account, inter alia, of uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities, including discards, on non-target and associated or dependent species as well as environmental and socio-economic conditions.

FAO CCRF (1995) 7.5.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The halibut stock assessment addresses uncertainty associated with estimation of model parameters, treatment of the data sources, natural mortality, and other differences among the models included in the ensemble. Sensitivity analyses are conducted regularly to determine the most important contributors to estimates of both population trend and scale. Retrospective analyses were performed for each of the individual models contributing to the 2017 assessment, and showed little pattern in the most recent years. To allow evaluation of various catch levels in stock and fishery projections based on the 2017 assessment, a decision table was provided which showed a comparison of the relative risk, using various stock and fishery metrics (including reference points), for a range of alternative harvest levels for 2018-20.

Evidence:
This stock assessment includes significant uncertainty associated with estimation of model parameters, treatment of the data sources (e.g., short and long time-series), natural mortality, approach to spatial structure in the data, and other differences among the models included in the ensemble (Stewart and Hicks 2018). A wide range of sensitivity analyses were conducted during the development of the 2015 stock assessment (Stewart et al. 2016). The most important contributors to estimates of both population trend and scale were: the sex-ratio of the commercial catch, the treatment of historical selectivity in the long time-series models, and natural mortality. A retrospective analysis was performed for each of the individual models contributing to the 2017 assessment, and showed little pattern in the most recent years.

Two uncertainties identified in the current stock assessment are 1) the sex-ratio of the commercial catch (not sampled due to the dressing of fish at sea), which serves to set the scale of the estimated female abundance in tandem with assumptions regarding natural mortality, and 2) treatment of spatial dynamics and movement rates among Regulatory Areas, and have large implications for the current stock trend. Also, the link between halibut recruitment and environmental conditions is not well understood, and there is no guarantee that any observed correlations will continue in the future. Therefore recruitment variability remains a significant source of uncertainty in current stock estimates due to the substantial lag between birth year and direct observation in the fishery and survey (6- 10 years). Reduced size-at-age relative to levels observed in the 1970s is also major contributor to recent stock trends, but is also poorly understood. For further details on these factors, see Stewart and Hicks (2018).

Use of the ensemble approach in the stock assessment is a substantial improvement over the use of a single assessment model. Uncertainty in natural mortality is incorporated into the ensemble results by including fixed and estimated values in various models.

To allow evaluation of various catch levels in stock and fishery projections based on the 2017 assessment, a decision table was provided which showed a comparison of the relative risk, using various stock and fishery metrics (including fishing intensity reference points), for a range of alternative harvest levels for 2018 – 2021 (Source: Table 3, Stewart and Hicks 2018).

		2018 Alternative	No removals							*Reference: SPR=46%*								
		Total removals (M lb)	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	
		TCEY (M lb)	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	
		Fishing Intensity	$F_{100\%}$	$F_{73\%}$	$F_{58\%}$	$F_{50\%}$	$F_{49\%}$	$F_{48\%}$	$F_{47\%}$	$F_{46\%}$	$F_{45\%}$	$F_{44\%}$	$F_{43\%}$	$F_{42\%}$	$F_{39\%}$	$F_{32\%}$	$F_{27\%}$	
		Fishing Intensity Interval	–	61-64%	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	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

References:	Stewart, I. and A. Hicks. 2018. Assessment of the Pacific halibut (Hippoglossus stenolepis) stock at the end of 2017. IPHC-2018-AM094-10. Stewart, I.J., Monnahan, C., and Martell, S.J.D. 2016. Assessment of the Pacific halibut stock at the end of 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 188-209.
Non-Conformance Number (if relevant)	**NA**

7.7.1.2 Clause 7.1.2

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

FAO CCRF (1995) 7.5.1, 12.3
FAO Eco (2009) 29.6/32

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The scientific information available for this resource is of a very high standard. There are long time series of catch and fishery data, as well as fishery independent data which provide indices of abundance for the stock area, as well as biological data. The annual IPHC stock assessments are of excellent quality, and are externally reviewed on a regular basis**.** Where data gaps have been identified, the IPHC has ongoing research programs capable of addressing these needs, and these are linked to ongoing Annual and 5-year Research Plans.

Evidence:
The scientific information available for this resource is of a very high standard. There are extremely long time series of catch and fishery data, as well as fishery independent data, primarily surveys, which provide thorough coverage of the stock area and a wealth of biological data. The annual IPHC stock assessments are of excellent quality, and are externally reviewed on a regular basis. The details of the data and assessment are found in Clauses 4 and 5.

Appropriate research is conducted into all aspects of fisheries by IPHC and researchers from other agencies. IPHC has both an annual research plan and a 5-year research plan, as described in Clause 5.1.2 above. Where data gaps, or recommendations for improvements have been identified, the IPHC has ongoing research programs capable of addressing these needs. Several studies will contribute towards greater understanding of important issues currently facing the Commission and industry stakeholders, notably the decline in size at age, understanding the sex ratio of the catch, the accurate characterization of the spawning biomass, and improving understanding of the scope and timing of migration.

The Annual Research Plan does not describe all research activities conducted by IPHC. Various other studies are conducted, some in collaboration with other agencies, as described in Clauses 4 and 5. The research recommendations included in the Plan are based on identified research gaps, to supplement research already underway and advance the IPHC mission.

References:	
Non-Conformance Number (if relevant)	**NA**

7.7.2 Clause 7.2 (see Re-assessment Report)

7.7.3 Clause 7.2.1 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

Section D: Management Measures

7.8 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.

FAO CCRF (1995) 7.1.1/7.1.2/7.1.6/7.4.1/7.6.1/7.6.9/12.3
FAO Eco (2009) 29.2/29.4/30
FAO Eco (2011) 36.2, 36.3

7.8.1 Clause 8.1

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

FAO CCRF (1995) 7.1.1 Others 7.4.1/7.6.7
FAO Eco (2009) 29.2/29.4
FAO Eco (2011)36.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Conservation and management measures in place ensure the long-term sustainability of the resources. Conservation and management of the fishery is based on an average coastwide fishing intensity SPR of F46. 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 2017, in recognition of the substantial development process (management strategy evaluation) currently underway within IPHC. In previous years, the harvest policy was 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (B30 threshold level) of the level defined as unfished. NPFMC determines the regulations for halibut taken as (prohibited species) by-catch in the Alaskan fisheries under its management, and measures have been introduced to reduce the halibut bycatch in the Gulf of Alaska groundfish fisheries.

Evidence:
At the 93rd Annual Meeting of IPHC 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 halibut[73]. 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 biomass[74].

[73] https://iphc.int/the-commission/harvest-strategy-policy
[74] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf

The previous IPHC harvest policy was developed during the mid-2000's and is described in detail in several documents (e.g., Clark and Hare 2006, Hare and Clark 2008). This harvest policy is based on a sloping harvest control rule, designed to maintain a constant harvest rate on exploitable biomass when the stock is above the threshold reference point of 30% (B30) of unfished biomass. If the stock falls below this threshold, the harvest rate is reduced as the stock approaches the limit reference point of 20% (B20) of the unfished biomass, with the harvest rate reaching zero at or below that point. The objective is to keep the stock above 30% of its unfished level 80% of the time. The harvest control rule reference points (B30, B20) have been reviewed by IPHC at various times (see Hare 2001; Stewart et al. 2015), and are aimed at producing a yield that is slightly less than MSY, but with greater stability (Martell et al. 2016b). Further detail and discussion on the IPHC harvest policy can be found in Martell et al. 2016a.

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. The Board has identified overarching fishery management objectives for the MSE (total mortality, size limit, harvest control rule, allocation by area, and reduction in bycatch) as well as a number of specific stock and fishery objectives. In an IPHC report dated April 2018 (Hicks 2018)[75], as documented in Clause 6 above, it was noted that the portion of the management procedure being evaluated is a harvest control rule that is responsive to stock status. It consists of an SPR determining fishing intensity, a trigger level of stock status that determines when the fishing intensity begins to be linearly reduced, and a limit that determines when there is theoretically no fishing intensity (SPR=100%). A schematic was provided to illustrate the control rule being examined. Simulations have been used to evaluate a range of SPR values from 25% to 60% and trigger values of SB of 30% and 40%. Progress and results of the Board's meetings are posted on the IPHC/MSAB website[76] and can also be found in Martell et al. (2016b).

IPHC determines the regulations for the directed halibut fisheries in Alaska, both commercial and sport. These extensive regulations cover all aspects of the directed fisheries, including areas, seasons, catch and size limits, fishing gear, logbooks, and fisheries by aboriginal and treaty Indian Tribes. The regulations for each year are published on the IPHC website[77].

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.

A fishery management plan amendment, "Amendment 95," came into effect in 2014 and is intended to minimize halibut bycatch in the NPFMC-managed groundfish fisheries in the GOA. If a sector reaches its halibut bycatch limit before it catches the amount of groundfish available for it to harvest, vessels participating in that sector must stop fishing for groundfish. There are two broad sectors that harvest groundfish in the Gulf of Alaska that are affected by the amendment — vessels using hook-and-line gear and vessels using trawl gear. Under the amendment, the bycatch limit reductions for each sector are either 7 or 15%, and some were introduced in 2014, while others were phased in by 2016.

[75] https://iphc.int/uploads/pdf/msab/msab11/iphc-2018-msab011-08.pdf
[76] http://www.iphc.info/msab
[77] http://www.iphc.int/library/regulations.html

Based on discussions during site visits, and available data, it appears that the targeted reductions are being met. Further details on halibut bycatch in groundfish fisheries under NPFMC management, including recent initiatives to reduce this bycatch, can be found on the NPFMC website[78].

The halibut fleet is managed under an IFQ system, 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 Program[79]. 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.

References:

- Clark, W.G. and Hare, S.R. 2006. Assessment and management of Pacific halibut: data, methods, and policy. Int. Pac. Halibut Comm. Sci. Rep. 83: 104 p.
- Hare, S.R. and Clark, W.G. 2008. 2007 IPHC harvest policy analysis: past, present, and future considerations. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2007: 275-295.
- Hare, S.R. 2011. Potential modifications to the IPHC harvest policy. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2010. p. 177-200.
- Hicks, A. 2018. IPHC Management Strategy Evaluation to Investigate Fishing Intensity. IPHC-2018-MSAB011-08. https://iphc.int/uploads/pdf/msab/msab11/iphc-2018-msab011-08.pdf
- Martell S. J. D., I. Stewart, and C. Wor. 2016a. Exploring index-based PSC limits for Pacific halibut. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 238-285.
- Martell, S. J. D., Leaman, B. M., Stewart, I. J., Keith, S. W., Joseph, C., Keizer, A., Culver, M. 2016b. Developments in Management Strategy Evaluation / Management Strategy Evaluation Board. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 286-312.
- Stewart, I.J., B.M. Leaman, and S.J.D. Martel. 2015. Accounting for and managing all Pacific halibut removals. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2014: 221-266.

Non-Conformance Number (if relevant)	**NA**

[78] http://www.npfmc.org/halibut-bycatch-overview/
[79] https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

7.8.1.1 Clause 8.1.1

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

FAO Eco (2009) 29.2
FAO Eco (2011) 36.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: The current harvest reference points have been reviewed by IPHC, and have been set at 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. Uncertainties in the dynamics of the stock were considered in determining the harvest rate. A management strategy evaluation is under way for the development and evaluation of candidate objectives and strategies for managing the fishery.				
Evidence: As documented in the previous clause and Clause 6.4, 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 biomass[80]. A management strategy evaluation is underway in IPHC, and one portion of the management procedure being evaluated is a harvest control rule that is responsive to stock status, at varying levels of an SPR reference point. The biomass reference points (B30, B20) have been reviewed by IPHC at various times and are aimed at producing a yield that is slightly less than MSY, but with greater stability.				
References:	See references in Clause 8.1, as well as in Clause 6.4.			
Non-Conformance Number (if relevant)				**NA**

[80] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-12.pdf

7.8.1.2 Clause 8.1.2

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

FAO CCRF (1995) 7.6.7

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: NPFMC FMPs for Alaskan groundfish recognize the need to balance many competing uses of marine resources and different social and economic goals for sustainable fishery management, including protection of the long-term health of the resource and the optimization of yield. The 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 are based on the best biological, ecological, and socioeconomic information available.				
Evidence: NPFMC acknowledges in its FMPs for Alaskan groundfish that its management approach recognizes the need to balance many competing uses of marine resources and different social and economic goals for sustainable fishery management, including protection of the long-term health of the resource and the optimization of yield. Their 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 the Council for a new fishing year are based on the best biological, ecological, and socioeconomic information available[81]. In determining its annual catch limits for commercial and sport fishing, IPHC receives and considers proposals which reference the socioeconomic importance of these catch levels and associated management measures. These also include the importance of allocating (apportionment of) the halibut resources among the various management areas, impacts of changing catch limits and fish sizes in the sport fishery, and determining PSC limits for Alaskan trawl fisheries. Regulations for halibut taken as bycatch in the commercial salmon troll fishery are determined by ADFG in its salmon troll management plans[82], which are published on a seasonal basis for Southeast Alaska.				
References:				
Non-Conformance Number (if relevant)				**NA**

[81] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf
[82] http://www.adfg.alaska.gov/FedAidPDFs/RIR.1J.2018.11.pdf

7.8.1.3 Clause 8.1.3

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

FAO CCRF (1995) 7.4.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Studies have been done demonstrating the impact on fishing capacity of introducing the IFQ program in 1995, which was a major change in the way the halibut fishery operates. An MSE for Pacific halibut is currently underway within IPHC, as outlined in Clause 8.1. This will allow evaluation of candidate objectives and strategies for managing the fishery, including factors influenced by fishing capacity.

Evidence:
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.

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.

In 2016 the NPFMC released the Twenty-Year Review of the Pacific halibut and Sablefish IFQ Management Program[83] . 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 Halibut and Sablefish IFQ program is one of only two North Pacific groundfish catch share fisheries that include a cost recovery provision in which the fishers pay a fee based on the cost to the government to manage the program. Recoverable costs cannot exceed 3% of the total ex-vessel value of the fishery and include the costs related to management, data collection, and enforcement of a certain programs such as the Community Development Quota Program. Cost recovery began in 2000 for the halibut IFQ program.

A Management Strategy Evaluation for Pacific halibut is currently underway within IPHC, as outlined in Clause 8.1. The MSAB has been working to develop candidate management objectives, as well as a number of specific stock and fishery objectives. This process will allow evaluation of candidate objectives and strategies for managing the fishery, including factors influenced by fishing capacity such as total mortality, allocations by area, and bycatch reduction.

[83] https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p. https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf
Non-Conformance Number (if relevant)	**NA**

7.8.2 Clause 8.2

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

FAO CCRF (1995) 8.4.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: Destructive fishing practices are not permitted in Alaskan waters, and there is no evidence to suggest they are occurring for Pacific halibut.				
Evidence: By IPHC regulation, Pacific halibut are permitted to be taken only by hook and line gear, or in sablefish pots or traps in specified areas and under certain conditions[84]. Incidental catch of halibut in trawl fisheries regulated by NPFMC must be discarded, regardless of whether the fish are alive or dead[85]. Halibut incidentally taken during an open commercial halibut season by power and hand troll gear being operated for salmon consistent with applicable state laws and regulations [5AAC 28.133 (c)][86] are considered to be legally taken and possessed. Commercial halibut may be legally retained only by IFQ permit holders during the open season for halibut, as outlined in the current ADFG salmon troll management plan[87]. There is no evidence that destructive fishing practices are occurring for Pacific halibut.				
References:				
Non-Conformance Number (if relevant)				**NA**

[84] http://www.iphc.int/publications/regs/2016iphcregs.pdf
[85] http://www.npfmc.org/halibut-bycatch-overview/
[86] http://www.touchngo.com/lglcntr/akstats/aac/title05/chapter028/section133.htm
[87] http://www.adfg.alaska.gov/FedAidPDFs/RIR.1J.2018.11.pdf

7.8.3 Clause 8.3

States shall seek to identify domestic parties having a legitimate interest in the use and management of the fishery. When deciding on use, conservation and management of the resource, due recognition shall be given, where relevant, in accordance with national laws and regulations, to the traditional practices, needs and interests of indigenous people and local fishing communities which are highly dependent on these resources for their livelihood. Arrangements shall be made to consult all the interested parties and gain their collaboration in achieving responsible fisheries.

FAO CCRF (1995) 7.1.2, 7.1.6, 7.6.6

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
NPFMC established a Rural Outreach Committee in 2009 to improve outreach and communications with rural communities and Alaska Native entities and develop a method for systematic documentation of Alaska Native and community participation in the development of fishery management actions. The Western Alaska 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. Various other mechanisms exist to consult interested parties and gain their collaboration in achieving responsible fisheries.

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. In addition, the Alaskan Board of Fisheries (BOF) public meetings process provides a regularly scheduled public forum for all interested individuals, fishermen, fishing organizations, environmental organizations, Alaskan Native organizations and other governmental and non-governmental entities that catch halibut off Alaska to participate in the development of legal regulations for the commercial and sport fisheries.

With regard to salmon troll fisheries, the following section is from the Alaska RFM Certification Report[88] of the US Alaska Commercial Salmon Fisheries, published in March 2017: The NPFMC has developed a management plan[89] for salmon caught in waters from 3 to 200 miles offshore of Alaska, and the NMFS has delegated authority to manage salmon fisheries in this area to the State of Alaska. The NPFMC is kept informed of the state of these fisheries and can amend the FMP for salmon when necessary. The NPFMC has deferred regulation of the commercial troll and recreational salmon fisheries in the Exclusive Economic Zone (EEZ) to ADFG since almost all fishing takes place in state managed waters. The Council reserves the right to specify management measures applicable to the EEZ that differ from those of the State, if it deems State actions to be inconsistent with this FMP or the MSA. However, ADFG remains the principal management organization for Alaska salmon fisheries.

Additional information on the bycatch regulations for halibut taken in the salmon troll fishery in Southeast Alaska is available in the ADFG seasonal troll fishery management plans (e.g. summer 2018 plan[90]).

The NPFMC established a Rural Outreach Committee in 2009 to improve outreach and communications with rural communities and Alaska Native entities and develop a method for systematic documentation of Alaska Native and community participation in the development of fishery management actions. The Committee is to advise the Council on how to provide opportunities for better understanding and participation from Alaska Native and rural communities; to provide feedback on community impacts sections of specific analyses, if requested; and to provide recommendations regarding

[88] https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf
[89] https://www.npfmc.org/wp-content/PDFdocuments/fmp/Salmon/SalmonFMP114.pdf
[90] http://www.adfg.alaska.gov/FedAidPDFs/RIR.1J.2018.11.pdf

which proposed Council actions need a specific outreach plan and prioritize multiple actions when necessary. Initial priorities of the Committee included salmon PSC reduction[91]. 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 actions[92].

In June, 2018 NPFMC established its Community Engagement Committee[93]. This was is 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 program[94].

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 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 Session[95] 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.

[91] http://www.npfmc.org/committees/rural-outreach-committee/
[92] https://www.npfmc.org/committees/rural-outreach-committee/
[93] https://www.npfmc.org/community-engagement/
[94] http://www.npfmc.org/community-development-program/
[95] https://iphc.int/uploads/pdf/cb/cb088/iphc-2018-cb088-r.pdf

Advisory Committees (AC) are local "grass roots" citizen groups intended to provide a local voice for the collection and expression of public opinions and recommendations on matters relating to the management of fish and wildlife resources in Alaska. ADF&G staff regularly attends the AC meetings in their respective geographic areas to provide information to the public and hear local opinions on fisheries related activities. The enabling statute for the AC system is AS 16.05.260, and regulations governing the ACs are found in the Alaska Administrative Code (AAC) Title 5, Chapters 96 – 97[96]	
References:	ALASKA RESPONSIBLE FISHERIES MANAGEMENT CERTIFICATION 2017. Full Assessment and Certification Report For The US Alaska Salmon Commercial Fisheries. 2017. Report Code: AK/SAL/002/2016. https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf
Non-Conformance Number (if relevant)	**NA**

[96] http://www.boards.ADF&G.state.ak.us/bbs/what/prps.php

7.8.4 Clause 8.4

Mechanisms shall be established where excess capacity exists, to reduce capacity to levels commensurate with sustainable use of the resource. Fleet capacity operating in the fishery shall be measured and monitored. States shall maintain, in accordance with recognized international standards and practices, statistical data, updated at regular intervals, on all fishing operations and a record of all authorizations to fish allowed by them.

FAO CCRF (1995) 7.1.8, 7.6.3, 8.1.2, 8.1.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Under the individual fishing quota (IFQ) share program in the Alaskan fishery for Pacific halibut introduced in 1995, fishing capacity has been significantly reduced. The number and size of fishing vessels involved in Alaskan fisheries is recorded and reported annually by NMFS/AFSC.

Evidence:
The Pacific Halibut and Sablefish Individual Fishing Quota (IFQ) Program was adopted by the NPFMC under Amendment 15 to the Bering Sea and Aleutian Islands FMP and Amendment 20 to the Gulf of Alaska FMP. 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 is a complex management program authorized by federal regulations, which, along with the various definitions required can be viewed on a NOAA website[97].

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.

Troll-caught halibut may be retained by fishers who hold a valid IFQ for halibut.

References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p. https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf

Non-Conformance Number (if relevant)	**NA**

[97] https://alaskafisheries.noaa.gov/fisheries-679regs

7.8.5 Clause 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

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence: IPHC regulations cover the directed halibut fisheries and deal with seasons, closed areas, allowed fishing gears, subsistence fisheries, and size limits. NPFMC regulations cover bycatch of halibut in Alaskan groundfish trawl fisheries, and require that all halibut be returned to the sea.

Evidence:

IPHC regulations covering the directed halibut fisheries (commercial and sport) can be found on the IPHC website[98]. The full suite of NMFS fishery regulations for Alaskan waters can be found on their website[99]. 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 sablefish 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. In recent years, the season dates for the commercial fishery in most Areas have run from mid-March to November 7[100]. Separate dates, seasons, bag limits, etc. 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[101] .

Size limits for halibut in the commercial fishery are as follows, from the IPHC regulations[102]: 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, and salmon troll gear (allowable retention of 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.

[98] https://iphc.int/the-commission/fishery-regulations
[99] https://alaskafisheries.noaa.gov/fisheries-679regs
[100] https://alaskafisheries.noaa.gov/sites/default/files/ifq_cdq_seasons.pdf
[101] https://alaskafisheries.noaa.gov/sites/default/files/679b22.pdf
[102] https://iphc.int/uploads/pdf/regs/iphc-2018-regs.pdf

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).		
References:	Goen, J. and L. Erikson. 2018. Fishery Statistics (2017). IPHC-2018-AM094-05 https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf	
Non-Conformance Number (if relevant)		**NA**

7.8.6 Clause 8.6

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

FAO CCRF (1995) 8.2.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Fishing gear for halibut is marked in accordance with national legislation in order that the owner of the gear can be identified.

Evidence:
Fishing gear is marked. Details can be found in the IPHC regulations for Pacific halibut fishing, Section 20, of the 2018 Fishery Regulations[103]:

(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.

As reported in the Alaskan salmon fishery certification report[104], all Alaska salmon fishing except for a very small troll fishery in Southeast Alaska, is conducted in state waters. By law (AS16.05.510), all Alaska salmon fishing vessels are required to be licensed by the State of Alaska, and to display their permanent vessel license plates (AS 16.05.520), which are specific to each fishing region. Also, as contained in the ADFG Regulations for groundfish and halibut bycatch in the current salmon troll management plan[105]: A person aboard a vessel may not fish for groundfish with dinglebar troll or mechanical jig gear if salmon are on board. A vessel fishing for groundfish with dinglebar troll gear must display the letter "D" and a vessel fishing for groundfish with mechanical jigging machines must display the letter "M" at all times when fishing with or transporting fish taken with dinglebar troll gear or mechanical jigging machines [5 AAC 28.135 (a)(4)]. A person may not operate a vessel that is displaying one of these letters when the vessel is being used to fish for salmon [5 AAC 28.135 (c)].

References:	ALASKA RESPONSIBLE FISHERIES MANAGEMENT CERTIFICATION 2017. Full Assessment and Certification Report For The US Alaska Salmon Commercial Fisheries. 2017. Report Code: AK/SAL/002/2016. https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf

Non-Conformance Number (if relevant)	**NA**

[103] https://iphc.int/uploads/pdf/regs/iphc-2018-regs.pdf
[104] https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf
[105] http://www.adfg.alaska.gov/FedAidPDFs/RIR.1J.2018.11.pdf

7.8.7 Clause 8.7

Measures shall be introduced to identify and protect depleted resources and those resources threatened with depletion, and to facilitate the sustained recovery/restoration of such stocks. Also, efforts shall be made to ensure that resources and habitats critical to the well-being of such resources which have been adversely affected by fishing or other human activities are restored.

FAO CCRF (1995) 7.6.10
FAO Eco (2009) 30

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The US laws governing the halibut fishery under IPHC 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. IPHC uses a precautionary harvest control rule in its management approach which is aimed at preventing overfishing of the resource and allowing stock rebuilding when necessary. The main fishing gear used to capture halibut is longline, which has minimal impact on seabed habitat.

Evidence:
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 – IPHC[106]). 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.

NPFMC[107] 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. 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. Bycatch of halibut by sablefish pots and salmon trolls is minimal, as is impact of these gears.

References:	
Non-Conformance Number (if relevant)	**NA**

[106] http://www.nmfs.noaa.gov/ia/agreements/regional_agreements/pacific/iphc.pdf
[107] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

7.8.8 Clause 8.8

States and relevant groups from the fishing industry shall measure performance and encourage the development, implementation and use of selective, environmentally safe and cost effective gear, technologies and techniques that sufficiently selective as to minimize catch, waste and discards of non-target species - both fish and non-fish species and impacts on associated or dependent species. The use of fishing gear and practices that lead to the discarding of catch shall be discouraged and the use of fishing gear and practices that increase survival rates of escaping fish shall be promoted. Inconsistent methods, practices and gears shall be phased out accordingly.

FAO CCRF (1995) 7.2.2, 7.6.4, 7.6.9, 8.4.5, 8.5.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

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, through careful handling. A WG on bycatch reviews and advises IPHC on selectivity studies and fishing practices intended to reduce waste and bycatch. The groundfish trawl industry in Alaska deploy halibut excluder devices in their gear to eliminate or reduce halibut bycatch. Exempted Fishing Permits have been granted by NMFS to some trawler fleets in Alaskan waters to allow halibut deck sorting experiments, with the aim of reducing halibut mortality. Vessels fishing halibut longline gear in Alaska are required by NMFS regulation to use streamer lines to avoid seabird bycatch.

Evidence:

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, bait, etc. can be found on the IPHC website[108].

The groundfish trawl industry in Alaska has 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 bycatch[109]. The results showed that halibut bycatch was reduced numerically by 57% and by 62% by weight. Target species loss ranged from 9% to 22%. In certain trawl fisheries in the Bering Sea and the central Gulf of Alaska that take halibut as by-catch (e.g. some flatfish fisheries), a trawl sweep gear modification has been required by NPFMC[110]. Elevating devices (e.g., discs or bobbins) are required in both the BSAI and the GOA to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. 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 put in the water, and the use of streamer lines[111].

Exempted Fishing Permits (EFPs) have been granted by NMFS to some trawler fleets in Alaskan waters in recent years to allow halibut deck sorting experiments (Gauvin 2013), with the aim of reducing halibut mortality on fish required under PSC limits to be returned to the sea. 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 website[112].

[108] http://www.iphc.int/research/biology/hook.html
[109] http://marineconservationalliance.org/seafacts-the-development-of-halibut-excluders/
[110] http://www.npfmc.org/habitat-protections/gear-modifications/
[111] https://wsg.washington.edu/wordpress/wp-content/uploads/publications/Streamer-Lines-Reduce-Seabird-Bycatch-Longliners.pdf
[112] https://alaskafisheries.noaa.gov/sites/default/files/efp2016-01-050616permit.pdf

NMFS regulations[113] specify that pots used for sablefish (which are allowed to retain halibut in the GOA IFQ fishery) must comply with the following:

(i) *Biodegradable panel*. Each pot must be equipped with a biodegradable panel at least 18 inches (45.72 cm) in length that is parallel to, and within 6 inches (15.24 cm) of, the bottom of the pot, and that is sewn up with untreated cotton thread of no larger size than No. 30.

(ii) *Tunnel opening*. Each pot must be equipped with rigid tunnel openings that are no wider than 9 inches (22.86 cm) and no higher than 9 inches (22.86 cm), or soft tunnel openings with dimensions that are no wider than 9 inches (22.86 cm).

In all fisheries, as per ADFG regulation (see RFM certification report for Alaska salmon[114]), operators of all salmon fishing gear are required to minimize incidental harvest of non-target species. Restrictions are also imposed by regulation on all types of fishing gear (e.g., mesh size restrictions and length of nets for gillnets and purse seines, and number of fishing lines, rods, and gurdies for salmon troll gear.

NOAA/NMFS has a National Bycatch Reduction Strategy[115], 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.

References:	Gauvin. J. 2013. Final Report on EFP 12-01: Halibut deck sorting experiment to reduce halibut mortality on Amendment 80 Catcher Processors. Alaska Seafood Cooperative. https://alaskafisheries.noaa.gov/sites/default/files/efp12-01halibut_a80.pdf

Non-Conformance Number (if relevant)	**NA**

[113] https://alaskafisheries.noaa.gov/fisheries/pot-tag-faq
[114] https://www.alaskaseafood.org/wp-content/uploads/2017/03/ALASKA-RFM-SALMON-REASSESSMENT-Final-Report-March-2017.pdf
[115] https://www.fisheries.noaa.gov/national/bycatch/national-bycatch-reduction-strategy

7.8.9 Clause 8.9

Technologies, materials and operational methods or measures including, to the extent practicable, the development and use of selective, environmentally safe and cost effective fishing gear and techniques shall be applied to minimize the loss of fishing gear, the ghost fishing effects of lost or abandoned fishing gear, pollution and waste.

FAO CCRF (1995) 7.2.2, 8.4.6, 8.4.1

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Use of longline gear in the halibut fisheries substantially reduces the impact on bottom habitats and bycatch of many species. Longline and trolling is not associated with as much ghost fishing as some other fishing gears.

Evidence:
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 2012[116]. 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.

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[117] (NOAA 2015). The potential for lost or abandoned fishing gear and subsequent effects of ghost fishing due to this lost gear, would also seem to be quite low for salmon troll gear, which takes a relatively small amount of halibut as bycatch. Groundfish pots (including longline pots) used to catch sablefish and other species in Alaskan waters are required to comply with a number of specifications, including use of a biodegradable panel, and tunnel openings (rigid or soft) which must not exceed maximum dimensions. These gear constructions minimize impacts of ghost fishing and of catch of certain non-target species and sizes. Clause 12.4 contains more information on the main bycatch species taken in the halibut fisheries. The previous clause (8.7) contains information on several measures aimed at reducing bycatch/waste and improving the selectivity of fisheries for halibut.

References:	NOAA Marine Debris Program. 2015. Report on the impacts of "ghost fishing" via derelict fishing gear. Silver Spring, MD. 25 pp https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

Non-Conformance Number (if relevant)	**NA**

[116] https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf
[117] https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

7.8.10 Clause 8.10 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clause presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.8.11 Clause 8.11

Assessment and scientific evaluation shall be carried out on the implications of habitat disturbance impact on the fisheries and ecosystems prior to the introduction on a commercial scale of new fishing gear, methods and operations. Accordingly, the effects of such introductions shall be monitored.

FAO CCRF (1995) 8.4.7, 12.11

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
New fishing gears are seldom introduced into this fishery. A recent example (retention of halibut in sablefish pots and traps) was extensively reviewed by IPHC and NPFMC, and will be reviewed 3 years after implementation.

Evidence:
New fishing gears have seldom been allowed for halibut fishing, where longline is the preferred method of catching halibut. Before Amendment 101 and the regulation change[118] allowing a small number of IFQ fishers using sablefish pots and traps to retain halibut, a comprehensive review was conducted within NPFMC, which included extensive dialogue between NPFMC and IPHC[119]. 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 documentation[120], of the 22 vessels which used pot gear in their reported harvest of sablefish in 2017, 14 retained halibut, totaling 18.6 mt of halibut, or 3% of the sablefish catch weight.

The NPFMC is currently reviewing/considering allowing retention of halibut in pots in the BSAI[121]. As quoted from the June 2018 NPFMC Newsletter[122], 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."

References:	
Non-Conformance Number (if relevant)	**NA**

[118] https://www.ecfr.gov/cgi-bin/text-idx?SID=a13a7cc603cc312a844e7c5d545c2cc6&mc=true&tpl=/ecfrbrowse/Title50/50cfr679_main_02.tpl
[119] http://npfmc.legistar.com/gateway.aspx?M=F&ID=7d531a12-e2df-4f1c-b22f-29df93f5422a.pdf
[120] http://npfmc.legistar.com/gateway.aspx?M=F&ID=053d586a-3053-434f-b539-e8eaf01a39a2.pdf
[121] https://www.npfmc.org/halibut-retention-in-pots/
[122] https://www.npfmc.org/bsai-halibut-in-pots/

7.8.12 Clause 8.12 (see Re-assessment Report)
7.8.13 Clause 8.13 (see Re-assessment Report)
7.8.14 Clause 8.14 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.9 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.

FAO CCRF (1995) 8.1.7/8.1.10/8.2.4/8.4.5

7.9.1 Clause 9.1

States shall enhance through education and training programs the education and skills of fishers and, where appropriate, their professional qualifications. Such programs shall take into account agreed international standards and guidelines.

FAO CCRF (1995) 8.1.7/8.4.1

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Fishers applying for halibut IFQ must have 150 days experience fishing halibut. There are a number of training facilities in Alaska which offer various training programs to fishers, including courses on safety and navigation. University of Alaska provides training in the form of seminars and workshops, and conducts sessions of their Alaska Young Fishermen's Summit at regular intervals.

Evidence:
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 industry[123]. 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 workshops80. 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 Process[124].

[123] http://www.avtec.edu/
[124] https://docs.google.com/document/d/1lAh1pe9LSVahEAoE4farU02keWb-UGD65kbY_8dioRM/edit#heading=h.j4xp17zdb26f

The Alaska Marine Safety Education Association (AMSEA)[125] provides courses on small boating safety, drill conductor training, stability and damage control, ergonomics and survival at sea training. 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)[126]. Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska's CFEC website[127].	
References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p. https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf
Non-Conformance Number (if relevant)	**NA**

7.9.2 Clause 9.2 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clause presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

[125] http://www.amsea.org/
[126] http://www.akfin.org/home/
[127] https://www.cfec.state.ak.us/fishery_statistics/earnings.htm

7.9.3 Clause 9.3

States shall, as appropriate, maintain records of fishers which shall, whenever possible, contain information on their service and qualifications, including certificates of competency, in accordance with their national laws.

FAO CCRF (1995) 8.1.8

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: Data on fishers is held in a number of agencies, including AKFIN and CFEC. Some of the information is confidential, while a substantial amount is published in summary form annually.				
Evidence: Any aspirant halibut fisherman must have demonstrated 150 days of halibut fishing experience before being able to purchase halibut IFQs. Competence and professionalism is typically a learned experience, with the entrants into the fishery usually starting at deck hand level working their way up[128]. Data on the number and location of Alaskan of fishers, vessels, 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)[129]. Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska's CFEC website[130].				
References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p. https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf			
Non-Conformance Number (if relevant)				**NA**

[128] https://alaskafisheries.noaa.gov/sites/default/files/reports/halibut-transferfrpt2015.pdf
[129] http://www.akfin.org/home/
[130] https://www.cfec.state.ak.us/fishery_statistics/earnings.htm

Section E: Implementation, Monitoring and Control

7.10 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.

FAO CCRF (1995) 7.1.7/7.7.3/7.6.2/8.1.1/8.1.4/8.2.1
FAO ECO (2009) 29.5
FAO Eco (2011) 36.6

7.10.1 Clause 10.1

Effective mechanisms shall be established for fisheries monitoring, surveillance, control and enforcement measures including, where appropriate, observer programs, inspection schemes and vessel monitoring systems, to ensure compliance with the conservation and management measures for the fishery in question. This could include relevant traditional, fisher or community approaches, provided their performance could be objectively verified.

FAO CCRF (1995) 7.1.7 Others 7.7.3/8.1.1
FAO Eco (2009) 29.5
FAO Eco (2011) 36.6

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
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. 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).

Evidence:
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 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.

The U.S. Coast Guard (USCG)[131] and NMFS Office of Law Enforcement (OLE)[132] enforce Alaska fisheries laws and regulations, especially 50CFR679[133]. All landings of halibut must be reported to NMFS via its mandatory "e-landings" reporting system. Commercial harvests of pollock, halibut and sablefish are the primary enforcement responsibilities of OLE. The Individual Fishing Quota (IFQ), Observer and Record Keeping/Reporting programs are the foundations of the Alaska Division program responsibilities. Endangered Species Act and Marine Mammal Protection Act priorities include the Steller sea lion and Cook Inlet beluga populations in addition to many other protected resources. Vessel Monitoring is used extensively in Alaska to manage both commercial fishing and the potential jeopardy it may pose to Steller sea lion habitat areas.

In recent years, the OLE has also stepped up its presence in the international scene as more and more fish are imported and exported into and out of the United States. While catches are usually seized at the onset of an investigation, violators can also be assessed both civil penalties and criminal fines; and on occasion boats are seized and individuals are sent to Federal prison.

In addition to enforcing legislation for the commercial halibut fishery, OLE has responsibility for enforcement of, subsistence halibut fishing and charter halibut fishing. In addition, OLE's officers inspect and cross check at landings and processors records for reconciliation, and closely monitor Prohibited Species
Catch in non-halibut fisheries.

Furthermore, the Alaska Wildlife Troopers conduct undercover operations in the sport charter fleet. Fines are high ($10,000) and revocation of sport fishing license as well as sport guide licence for several years (3 years) are occurring penalties[134] in this program.

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

A. 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
- 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

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

[131] https://www.uscg.mil/d11/cgchalibut/default.asp#cgskipnav
[132] http://www.nmfs.noaa.gov/ole/compliance_assistance/regions/alaska.html
[133] https://alaskafisheries.noaa.gov/fisheries/regs-amds
[134] http://deckboss-thebrig.blogspot.com/2010_04_01_archive.html

- 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

C. 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

D. 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.

References:	

Non-Conformance Number (if relevant)	**NA**

7.10.2 Clause 10.2 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clause presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.10.3 Clause 10.3

States involved in the fishery shall, in accordance with international law, within the framework of sub-regional or regional fisheries management organizations or arrangements, cooperate to establish systems for monitoring, control, surveillance and enforcement of applicable measures with respect to fishing operations and related activities in waters outside their national jurisdiction.
FAO CCRF (1995) 8.1.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: There is no legal harvesting of halibut in the Eastern North Pacific waters outside the national jurisdiction of the USA or Canada. Similarly, there is no halibut harvesting by American vessels in Canadian waters, or by Canadian vessels in American waters. Within the American EEZ off Alaska, halibut harvesting is monitored and enforced by NMFS OLE, and USCG.				
Evidence: There is no legal harvesting of halibut in the Eastern North Pacific waters outside the national jurisdiction of the USA or Canada[135]. Similarly, there is no halibut harvesting by American vessels in Canadian waters, or by Canadian vessels in American waters. Within the American EEZ off Alaska, halibut harvesting is monitored and enforced by NMFS OLE[136], and USCG[137]. In any given year, OLE Agents and Officers spend an average 10,000-11,000 hours conducting patrols and investigations, and an additional 10,000 – 11,000 hours on outreach activities. The OLE maintains 19 patrol boats around the country to conduct a variety of patrols including Protected Resources Enforcement Team (PRET) boardings, protection of National Marine Sanctuaries and various undercover operations. These patrol vessels range in size from a 17' Zodiac to the largest 39' Chris Craft. Working with federally-deputized state marine enforcement agents and the U.S. Coast Guard, the OLE is able to garner even more patrol hours. Although the OLE continues to expand our cooperation with a variety of other agencies, the U.S. Coast Guard remains the OLE's closest partner in the protection of Federal fisheries.				
References:				
Non-Conformance Number (if relevant)				**NA**

[135] https://alaskafisheries.noaa.gov/fisheries-679regs
[136] www.nmfs.noaa.gov/ole/compliance_assistance/regions/alaska.html
[137] https://www.uscg.mil/d11/cgchalibut/default.asp#cgskipnav

7.10.3.1 Clause 10.3.1

States which are members of or participants in sub-regional or regional fisheries management organizations or arrangements shall implement internationally agreed measures adopted in the framework of such organizations or arrangements and consistent with international law to deter the activities of vessels flying the flag of non-members or non-participants which engage in activities which undermine the effectiveness of conservation and management measures established by such organizations or arrangements. In that respect, Port States shall also proceed, as necessary, to assist other States in achieving the objectives of the FAO CCRF (1995), and should make known to other States details of regulations and measures they have established for this purpose without discrimination for any vessel of any other State.

FAO CCRF (1995) 7.7.5/8.3.1

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

Under the auspices of the Food and Agriculture Organization of the United Nations (FAO), a concerted effort was undertaken to develop a comprehensive "toolbox" of measures that States could take, both individually and collectively, to address the problems of IUU fishing. This effort culminated with the adoption in 2001 of the FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA).

As its title suggests, the objective of the IPOA is to prevent, deter and eliminate IUU fishing. The principles to guide the pursuit of this objective include: (1) broad participation and coordination among States, as well as representatives from industry, fishing communities and non-governmental organizations; (2) the phasing in of action to implement the IPOA on the earliest possible timetable; (3) the use of a comprehensive and integrated approach, so as to address all impacts of IUU fishing; (4) the maintenance of consistency with the conservation and long-term sustainable use of fish stocks and the protection of the environment; (5) transparency; and (6) non-discrimination in form or in fact against any State or its fishing vessels.

The IPOA is voluntary. However, like the FAO Code of Conduct For Responsible Fisheries, certain parts of the IPOA are based on relevant rules of international law, as reflected in the 1982 UN Convention on the Law of the Sea and other pertinent instruments. The IPOA also contains provisions that may be, or have already been, given binding effect by means of other legal instruments, including certain global, regional and sub-regional instruments. The IPOA calls upon all States to develop and adopt national plans of action to achieve the objectives of the IPOA and to give full effect to its provisions as an integral part of their fisheries management programs and budgets.

The U.S. National Plan of Action is organized along the same lines as the IPOA, including sections on All State Responsibilities, Flag State Responsibilities, Coastal State Measures, Port State Measures, Internationally Agreed Market State Measures, Measures to be Implemented Through Regional Fisheries Management Organizations and Special Requirements of Developing States.

Evidence:

Under the auspices of the Food and Agriculture Organization of the United Nations (FAO), a concerted effort was undertaken to develop a comprehensive "toolbox" of measures that States could take, both individually and collectively, to address the problems of IUU fishing. This effort culminated with the adoption in 2001 of the FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA)[138].

[138] http://www.nmfs.noaa.gov/ia/iuu/iuu_nationalplan.pdf

As its title suggests, the objective of the IPOA is to prevent, deter and eliminate IUU fishing. The principles to guide the pursuit of this objective include: (1) broad participation and coordination among States, as well as representatives from industry, fishing communities and non-governmental organizations; (2) the phasing in of action to implement the IPOA on the earliest possible timetable; (3) the use of a comprehensive and integrated approach, so as to address all impacts of IUU fishing; (4) the maintenance of consistency with the conservation and long-term sustainable use of fish stocks and the protection of the environment; (5) transparency; and (6) non-discrimination in form or in fact against any State or its fishing vessels.

The IPOA is voluntary. However, like the FAO Code of Conduct For Responsible Fisheries, certain parts of the IPOA are based on relevant rules of international law, as reflected in the 1982 UN Convention on the Law of the Sea and other pertinent instruments. The IPOA also contains provisions that may be, or have already been, given binding effect by means of other legal instruments, including certain global, regional and sub-regional instruments.

The IPOA calls upon all States to develop and adopt national plans of action to achieve the objectives of the IPOA and to give full effect to its provisions as an integral part of their fisheries management programs and budgets.

The U.S. National Plan of Action is organized along the same lines as the IPOA, including sections on All State Responsibilities, Flag State Responsibilities, Coastal State Measures, Port State Measures, Internationally Agreed Market State Measures, Measures to be Implemented Through Regional Fisheries Management Organizations and Special Requirements of Developing States.

The United States is generally in compliance with relevant international rules and standards regarding the conservation and management of living marine resources. Although the United States is not a party to the 1982 United Nations Convention on the Law of the Sea, we regard its provisions relating to the conservation and management of living marine resources as reflecting customary international law.

The United States is party to most of the significant international agreements in this field. The United States was among the first to ratify the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (the UN Fish Stocks Agreement), which entered into force on December 11, 2001. In addition, the United States is party to many of the international agreements that have created RFMOs and, accordingly, is a member of many RFMOs.2 In addition, the United States has made significant contributions to the development and implementation of many of the non-binding instruments in this field, including the FAO Code of Conduct for Responsible Fisheries, the FAO International Plans of Action on fisheries and UN General Assembly Resolution 46/215, which created a moratorium on the use of large-scale driftnets on the high seas.

The United States has various bilateral cooperative enforcement agreements. In addition to more general arrangements such as mutual legal assistance treaties, which can be useful in fisheries cases, the United States maintains several fisheries-specific agreements.

Another initiative to promote cooperation in the North Pacific began in 2000. The North Pacific Heads of Coast Guard Agencies consists of heads of the Coast Guards or equivalent agencies from the United States, Russia, Japan, Canada, Korea, and the People's Republic of China. In less than three years, this has grown into a key forum to discuss issues of mutual interest, including maritime security, maritime smuggling, combined operations, and fisheries enforcement. In 2002, a fisheries working group was created. The group will develop best-practice guidelines for international fisheries enforcement and focus on operational partnering.

References:	

Non-Conformance Number (if relevant)	**NA**

7.10.4 Clause 10.4 (see Re-assessment Report)

7.10.4.1 Clause 10.4.1 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.11 Fundamental Clause 11

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

FAO CCRF (1995) 7.7.2/8.2.7

7.11.1 Clause 11.1 (see Re-assessment Report)

7.11.2 Clause 11.2 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.11.3 Clause 11.3

Flag States shall take enforcement measures in respect of fishing vessels entitled to fly their flag which have been found by them to have contravened applicable conservation and management measures, including, where appropriate, making the contravention of such measures an offence under national legislation.

FAO CCRF (1995) 8.2.7

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The U.S. Coast Guard and NMFS's OLE enforce the regulations that govern fishing under the IFQ Program. The Alaska Division patrols provide compliance inspections, a visible deterrent to would-be violators, and availability to stakeholders to receive information and guidance. NOAA OLE works closely with the State of Alaska Wildlife Troopers (AWT) and the US Coast Guard to maximize compliance by sharing information, intelligence, knowledge, and resources. The formalized Cooperative Enforcement Agreement and Joint Enforcement Agreement with the Alaska Wildlife Troopers provide the state with federal funding for personnel, equipment, operations, and authorization for State Troopers to enforce federal fishing regulations while engaged in their regular duties.

Evidence:
The U.S. Coast Guard and NMFS's OLE enforce the regulations that govern fishing under the IFQ Program. The Alaska Division patrols provide compliance inspections, a visible deterrent to would-be violators, and availability to stakeholders to receive information and guidance. NOAA OLE works closely with the State of Alaska Wildlife Troopers (AWT) and the US Coast Guard to maximize compliance by sharing information, intelligence, knowledge, and resources. The formalized Cooperative Enforcement Agreement and Joint Enforcement Agreement with the Alaska Wildlife Troopers provide the state with federal funding for personnel, equipment, operations, and authorization for State Troopers to enforce federal fishing regulations while engaged in their regular duties.

USCG
The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The U.S. Coast Guard (USCG) is the lead federal maritime law enforcement agency for enforcing national and international law on the high-seas, outer continental shelf and inward from the U.S. Exclusive Economic Zone (EEZ) to inland waters. The USCG also patrols US waters to reduce foreign poaching, and inspects fishing vessels for

compliance with safety requirements. The U.S. Coast Guard now focuses its efforts at sea. Since 2006 NMFS'OLE Alaska Division (AKD) has monitored offloads and provided after-hours surveillance.
IFQ/CDQ halibut is only permitted to be harvested with hook and line gear. In general, this means longline gear, although it is permissible for salmon trollers with IFQ halibut permits to retain troll caught halibut, and jig vessels with IFQ can also retain halibut if they hold IFQs as these are all considered hook and line gear. The active fleet size is a difficult number to quantify as IFQ permits are not allocated to a vessel but to an individual, and those individuals may fish on any boat that meets their specific permit size or lower. The USCG works with the NOAA Alaska Region Restricted Access Management (RAM) division to determine the number of vessels that landed IFQ halibut in the previous year to determine the active fleet size.

IFQ At-Sea and Dockside Effort The USCG eliminated shoreside enforcement in 2006, protecting resources through at-sea boardings. This focus was possible because of OLE AKD's increased capacity to monitor offloads with their personnel and with the State of Alaska. Historically, shoreside violations detected by the USCG have consistently been minor and generally administrative. Consequently, the USCG determined that more significant resource protection was possible by at-sea boardings conducted jointly with NOAA.

NMFS OLE
NOAA Office of Law Enforcement Special Agents and Enforcement Officers perform a variety of tasks associated with the protection and conservation of Alaska's living marine resources. In order to enforce these laws, OLE special agents and enforcement officers use OLE patrol vessels to board vessels fishing at sea, and conduct additional patrols on land, in the air and at sea in conjunction with other local, state and Federal agencies.

In any given year, OLE Agents and Officers spend an average 10,000-11,000 hours conducting patrols and investigations, and an additional 10,000-11,000 hours on outreach activities. The OLE maintains 19 patrol boats around the country to conduct a variety of patrols including Protected Resources Enforcement Team (PRET) boardings, protection of National Marine Sanctuaries and various undercover operations.
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).

GCEL can then assess a civil penalty in the form of a Notice of Permit Sanctions (NOPs) or Notice of Violation and Assessment (NOVAs), or they can refer the case to the U.S. Attorney's Office for criminal proceedings. For perpetual violators or those whose actions have severe impacts upon the resource criminal charges may range from severe monetary fines, boat seizures and/or imprisonment levied by the United States Attorney's Office.
All landings of halibut must be reported to NMFS via its mandatory "e-landings" reporting system.

Commercial harvests of halibut are the primary enforcement responsibilities of OLE. The Individual Fishing Quota (IFQ) Observer and Record Keeping/Reporting programs are the foundations of the Alaska Division program responsibilities.

AWT
The Department of Public Safety, Division of Alaska Wildlife Troopers (AWT) is the primary state fish and wildlife resource enforcement agency in the state of Alaska. AWT is the only state enforcement agency with jurisdiction of state and federal lands as well as state waters. AWT also has a Joint Enforcement Agreement (JEA) with NOAA Fisheries Office of Law Enforcement (NOAA/OLE).

AWT has 97 sworn positions stationed throughout Alaska broken into 4 regions. The south-eastern panhandle region is headquartered in Juneau; south central Alaska, including the Kenai Peninsula, Prince William Sound and the north-eastern and the north-western Gulf of Alaska coast is headquartered in Palmer; western Alaska, including the Aleutian chain, Bering Sea and Bristol Bay is headquartered in Kodiak. Interior Alaska is managed from Fairbanks.

Over the last two years the JEA with NOAA/OLE went under some significant changes. Historically, AWT supplemented commissioned trooper patrols with 14 civilian Public Safety Technicians (PST). These positions were primarily funded by the JEA. Currently the JEA now only funds 3 PST positions. The primary function of these PSTs is still conducting dockside monitoring and inspection of commercial fish off-loads. PSTs monitor for both state and federal regulatory requirements, but are not commissioned to take any law enforcement action; they simply report the documented violations to the appropriate agency. The PSTs focus is not limited to IFQ halibut; they also monitor other fisheries including rockfish, sablefish, pollock, cod and crab fisheries AWT actively enforces commercial, sport and subsistence halibut fisheries through vessel patrols, dockside monitoring and other investigative processes. AWT conducts boardings at sea for all three halibut fisheries; mostly checking for proper licenses, registrations, logbooks, size and limit restrictions. Dockside monitoring focuses on license and registration verification, size requirements, logbooks and accuracy of catch reports. PSTs are the primary resource used to monitor commercial fish off-loads. With the restructuring of the JEA an increased effort was made to monitor sport fish off-loads.	
References:	
Non-Conformance Number (if relevant)	**NA**

Section F: Serious Impacts of the Fishery on the Ecosystem

7.12 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 of the fishery on the ecosystem shall be appropriately assessed and effectively addressed.

FAO CCRF (1995) 7.2.3/8.4.7/8.4.8/12.11
FAO ECO (2009) 29.3/31
FAO Eco (2011) 41-41.4

7.12.1 Clause 12.1

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

FAO CCRF (1995) 7.2.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Both policy and management explicitly recognize the influence of variable environmental conditions on Halibut stocks in Alaska. The influences of climatic, oceanographic and ecological factors on Halibut growth and survivorship are considered by IPHC during development of management fisheries plans. Numerous research projects have been designed and are in place to study Alaskan marine ecosystems, and their impact on a variety of fish species, including Pacific halibut.

Evidence:
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. 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[139]. IPHC scientists found that environmental variability—both inter-decadal 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 their annual setline survey, 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 available[140].

[139] http://www.iphc.int/papers/clim.pdf
[140] https://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCData.shtml

Another major ecosystem research report is the AFSC Ecosystem Consideration Report series[141]. 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 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 Sea[142]. 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)[143]

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 Program[144] 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)[145] 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) project[146] 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 FUTURE[147] (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine

[141] https://access.afsc.noaa.gov/reem/ecoweb/
[142] https://www.afsc.noaa.gov/Publications/ProcRpt/PR2008-07.pdf
[143] http://www.nprb.org/
[144] http://www.nprb.org/bering-sea-project
[145] http://gulfofalaska.nprb.org/
[146] https://www.afsc.noaa.gov/REFM/REEM/ACLIM.htm
[147] http://meetings.pices.int/Members/Scientific-Programs/FUTURE

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 Plan[148], and the Council plans to review the preliminary draft FEP in October, 2018. At its June 2018 meeting, NPFMC received a summary report[149] 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 Commission[150] coordinates research activities, monitors fishing activities, collects and maintains databases on marine fish occurring off the California, Oregon, Washington, and Alaska coast.	
References:	Martell, S., B. Leaman, G. Kruse, K. Aydin, and K. Holsman. 2015. Fishery, Climate, and Ecological Effects on Pacific Halibut Size-at-age (SAA). North Pacific Research Board, Semi-annual Progress Report, July 2015. Sadorus, L. L. and Walker, J. 2018. IPHC Oceanographic monitoring program 2017. IPHC Report of Assessment and Research Activities 2017, p. 95-103. https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf
Non-Conformance Number (if relevant)	**NA**

[148] https://www.npfmc.org/bsfepfeb2018/
[149] http://npfmc.legistar.com/gateway.aspx?M=F&ID=68e1afcc-0265-4e96-87e6-b1f5551c53a6.pdf
[150] http://psmfc.org

7.12.2 Clause 12.2

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

FAO CCRF (1995) 7.2.2

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
The IPHC, NPFMC, ADFG, and NOAA/NMFS conduct assessments and research related to fishery impacts 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.

Evidence:

Impacts of fishing gear on the habitat

The IPHC, NPFMC, ADFG, and NOAA/NMFS conduct assessments and research related to fishery impacts 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 various other research reports.

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. A number of measures have also been implemented to reduce bycatch and ghost fishing by pots. Halibut bycatch by pots and by salmon trolls is minimal in Alaskan waters, and minimal impacts on habitat would be expected from these gears. As noted in Clause 4.1, from NPFMC documentation[151], of those 22 vessels which used pot gear in their reported harvest of sablefish in GOA during 2017, 14 retained halibut, totaling only 18.6 mt of halibut, or 3% of the sablefish catch weight. By-catches in the directed halibut fishery are recorded by observers and reported through the NMFS CAS. Main bycatches include sharks, skate, sculpins, P. cod, grenadier, and rockfish species, but the fishery does not pose a threat to bycatch species. More detailed information on bycatch is presented in Clauses 12.3, 12.6, and 12.11.

The effects of lost/abandoned gear on legal O32 halibut have been considered by IPHC and NPFMC, and catch estimates have declined substantially following the implementation of the IFQ program from over 2 million pounds annually from 1986-91, to less than 100 thousand pounds annually after 2010[152]. 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)[153].

Impact of fishing gear on seabirds

The short-tailed albatross is a listed species under the Endangered Species Act (ESA). As such, incidental takes in the longline fishery are regulated and limits are set. If that level is exceeded, it automatically initiates an ESA Section 7 Consultation, which involves a consultation between the US Fish and Wildlife Service and the National Marine Fisheries Service. New regulations and further avoidance measures can be placed on the fishery by NMFS. Further detail on seabirds is presented in Clauses 12.3 and 12.6.

References:	
Non-Conformance Number (if relevant)	**NA**

[151] http://npfmc.legistar.com/gateway.aspx?M=F&ID=053d586a-3053-434f-b539-e8eaf01a39a2.pdf
[152] https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf
[153] https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

7.12.3 Clause 12.3

The most probable adverse impacts of the fishery on the ecosystem/environment shall be considered, taking into account available scientific information, and local knowledge. In the absence of specific information on the ecosystem impacts of fishing for the unit of certification, generic evidence based on similar fishery situations can be used for fisheries with low risk of severe adverse impact. However, the greater the risk the more specific evidence shall be necessary to ascertain the adequacy of mitigation measures.

FAO Eco (2009) 30.4, 31, 31.4
FAO Eco (2011) 41.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non-target species catch in the unobserved halibut IFQ fleet and restructuring the observer program for inclusion of the halibut fleet).

Benthic longline gear is not considered to have serious nor irreversible impacts on marine habitats. Bycatch of seabirds has been addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), as well as other seabird species No short tailed albatross have been taken in the commercial halibut fishery since 1987. Bird avoidance measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, to reduce seabird interactions when setting or retrieving gear.

The IPHC receives 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. Discards of FMP groundfish species by the halibut IFQ fleet have historically not been estimated, and NPFMC has discussed estimating FMP groundfish, non-target species, and prohibited species catch discards for the halibut IFQ fleet using observer data from the restructured Observer Program.

Evidence:
Benthic longline gear is not considered to have serious nor irreversible impacts on marine habitats (Pham et al. 2014). Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non-target species catch in the unobserved halibut IFQ fleet and restructuring the observer program for inclusion of the halibut fleet).

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.

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 IPHC provides ADFG and NMFS with detailed catch data for halibut and other species from the IPHC stock assessment setline survey[154], 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 2017 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.

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 groundfish fisheries to maximize their groundfish catch within specified limits.

The short-tailed albatross (STA) 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 NMFS to set bycatch limits for the STA and implement seabird deterrent measures and requirements to reduce incidental take of seabirds. The commercial Pacific halibut fishery off Alaska has a documented take of one STA in 1987 (NMFS 2017). 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. Further details on short-tailed albatross including recent biological opinions from USFWS (2015, 2018) can be found in Clause 12.12 below.

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).

Table 12. Estimated seabird catch in the commercial hook and line fishery for halibut, for 2013 – 2016 (Source: Table 12 from document prepared by NMFS Alaska Region, Sustainable Fisheries Division[155]).

	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

[154] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf
[155] https://alaskafisheries.noaa.gov/sites/default/files/analyses/ak_halibut_seabird_ba_august-2017.pdf

Although marine mammals are known to interact with halibut longline gear, bycatch is non-significant. U.S. fisheries are classified under the Marine Mammal Protection Act[156] according to the level of interactions that result in incidental mortality or serious injury of marine mammals. The 2018 List of Fisheries Summary Tables list U.S. commercial fisheries by categories according to the level of interactions that result in incidental mortality or serious injury of marine mammals. In the 2018 report [157]no Alaskan fisheries for halibut or salmon are classified as Category I (frequent interaction) or Category II (occasional interaction). 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 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.	
References:	NMFS. 2017. Programmatic Biological Assessment on the Effects of the Pacific Halibut Fisheries in Waters off Alaska on the Endangered Short-tailed Albatross (Phoebastria albatrus), the Threatened Alaska-breeding Population of the Steller's Eider (Polysticta stelleri), and the Threatened Spectacled Eider (Somateria fischeri). NMFS Alaska Region Sustainable Fisheries Division. Juneau, Alaska. https://alaskafisheries.noaa.gov/sites/default/files/analyses/ak_halibut_seabird_ba_august-2017.pdf Pham, C.K., Diogo, H., Menezes, G., Porteiro, F., Braga-Henriques, A., Vandeperre, F. and Morato, T., 2014. Deep-water longline fishing has reduced impact on Vulnerable Marine Ecosystems. Scientific reports, 4. Article number:4837 (2014). U.S. Fish and Wildlife Service (USFWS). 2015. Biological Opinion for the Effects of the Fishery Management Plans for the Gulf of Alaska and Bering Sea/Aleutian Islands Groundfish Fisheries and the State of Alaska Parallel Groundfish Fisheries, December 2015. 49 pp. https://alaskafisheries.noaa.gov/sites/default/files/analyses/usfws-biop-122315.pdf. USFWS. 2018. Biological Opinion For the Effects of the Pacific Halibut Fisheries in Waters off Alaska on the Endangered Short-tailed Albatross (Phoebastria albatrus). Anchorage, AK: 50 pp.
Non-Conformance Number (if relevant)	**NA**

[156] https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act

[157] https://www.fisheries.noaa.gov/national/marine-mammal-protection/list-fisheries-summary-tables#table-1-commercial-fisheries-in-the-pacific-ocean

7.12.4 Clause 12.4

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

FAO Eco (2009) 29.3, 29.4, 31
FAO Eco (2011) 41

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑
Summary Evidence: Halibut size-at-age has been declining since the mid-1980s. Reasons behind the ongoing decline are not well understood. Among the potential reasons for this decline are attributed to include density-dependent decline in growth rate due to resulting from the greatly increased numbers of benthic competitors, , and biomass, of flatfish. Environmental factors (temperature, salinity) as well as diet changes, fishery induced evolution, and size-selective fishing.				
Evidence: Halibut size-at-age has been declining since the mid-1980s[158], 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. Most recent management actions have consisted of revisions to harvest rates as a consequence of the outcome of the stock assessment taking into account declines at size at age.				
References:				
Non-Conformance Number (if relevant)				**NA**

[158] http://www.iphc.int/publications/rara/2014/rara2014_11stockassessment.pdf

7.12.5 Clause 12.5

Appropriate measures shall be applied to minimize:

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

FAO CCRF (1995) 7.6.9
FAO Eco (2009) 31.1

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:
In Alaska, there is a strategy in place to manage most bycatch species which consists of (1) extensive catch accounting system (2) observer program to estimate discarded catch (3) fishery independent surveys conducted by NOAA- Fisheries (4) statistical stock assessments for all of the main bycatch species (5) a tiered system of assessments that provides for more precautionary annual catch limits when assessments use less precise methods. The precautionary procedure for setting annual catch limits provides a high likelihood that stocks will be maintained at levels above their reference points and, and clear procedures exist for restricting catch limits if stock rebuilding is necessary.

Evidence:
In Alaska, there is a strategy in place to manage most bycatch fish species (main species, groundfish, seabirds) which consists of (1) extensive catch accounting system (2) observer program to estimate discarded catch (3) fishery independent surveys conducted by IPHC and NOAA/NMFS (4) statistical stock assessments for all of the main bycatch species (5) a tiered system that provides for more precautionary annual catch limits when assessments use less precise methods. The tiered precautionary procedure for setting annual catch limits provides a high likelihood that stocks will be maintained at levels above their reference points and, and clear procedures exist for restricting catch limits if stock rebuilding is necessary.

Management actions are in place with respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non-target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet). Benthic longline gear is not considered to have serious nor irreversible impacts on marine habitats.

Bycatch of seabirds has been addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), and other seabird species. These measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, and have been shown to significantly reduce seabird interactions when setting or retrieving gear. Seabird occurrence data have been collected during the 2013 IPHC annual setline survey. It is expected that with the implementation of the restructured observer coverage in a part of the halibut fleet, bycatch data collection will improve and allow management to make better informed decisions, especially for species like sharks and skates that generally tend to have low reproductive rates.

References:	
Non-Conformance Number (if relevant)	**NA**

7.12.5.1 Clause 12.5.1 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.12.6 Clause 12.6

Non-target catches, including discards, of stocks other than the "stock under consideration" shall be monitored and shall not threaten these non-target stocks with serious risk of extinction, recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible; if such impacts arise, effective remedial action shall be taken.

FAO Eco (2009) 31.1
FAO Eco (2011) 41.1

Evidence Rating:	Low ☐	Medium ☑		High ☐
Non-Conformance:	Critical ☐	Major ☐	Minor ☑	None ☐

Summary Evidence:
Monitoring Information of Non-target catches, including discards, of stocks other than the "stock under consideration are collected from fishery independent surveys, catch accounting systems, and restructured observer program to assess changes in risk to outcome status, and to assess bycatch species mortalities. However, due to limitations on the coverage of boats <40ft LOA, there is a lack of verifiable information on the catch of bycatch species from this sector. Overall, the impact of the halibut directed fishery on other species does not appear to be significant.

Evidence:
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. Addition to the certificate of halibut taken as by-catch in the troll and pot gears does not change this NC.

The IPHC[159] 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.

In 2017, Electronic Monitoring (EM) pre-implementation[160] was included in the NMFS Annual Deployment Plan[161], and EM systems were deployed on small boat longline and pot vessels targeting sablefish, P. 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 P. cod, and 45 sablefish - containing a total of 12,467 hauls (Table 13). 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%).

[159] https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf
[160] https://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/Final2017EMPre-impPlan.pdf
[161] https://alaskafisheries.noaa.gov/sites/default/files/2017finaladp.pdf

Table 13. Summary of EM monitored fishing activity for 2017 (Source: 2017 Observer Report[162]).

	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) Reports[163], 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 (PSC) database, as per AKFIN, (Fissel et al. (2017), see Table H3), provided data from 2012 – 2016 on PSC on Pacific halibut targeted trips in GOA and BSAI. 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 extensive evaluation in the previous assessment surveillance audit reports for Alaskan halibut, the impact of the halibut directed fishery on other species does not appear to be significant.

During the re-assessment a non-conformance was raised here (Non-Conformance #2) due to available evidence at the time suggesting that the observer scheme did not sufficiently monitor and account for non-target catches by the <40ft LOA sector of the commercial Pacific halibut fleet; this non-conformance was closed following the submission of further evidence by the Client.

References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p.: https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf

Non-Conformance Number (if relevant)	**NA**

[162] http://www.afsc.noaa.gov/Publications/ProcRpt/PR2018-02.pdf
[163] https://www.npfmc.org/safe-stock-assessment-and-fishery-evaluation-reports/

7.12.7 Clause 12.7 (see Re-assessment Report)
7.12.8 Clause 12.8 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.12.9 Clause 12.9

There shall be knowledge of the essential habitats for the "stock under consideration" and potential fishery impacts on them. Impacts on essential habitats and on habitats that are highly vulnerable to damage by the fishing gear involved shall be avoided, minimized or mitigated. In assessing fishery impacts, the full spatial range of the relevant habitat shall be considered, not just that part of the spatial range that is potentially affected by fishing.

FAO Eco (2009) 31.3
FAO Eco (2011) 41.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence: The Magnuson-Stevens Act requires fishery management plans to describe and identify Essential Fish Habitat (EFH), minimize to the extent practicable adverse effects of fishing on EFH, and identify other actions to conserve and enhance EFH (16 U.S.C. 1853(a)(7)).

Essential fish habitats (EFHs) for Alaska halibut include marine environments, designated and protected by the NPFMCl, NMFS and ADF&G. Fishing and gear restrictions are in place to protect designated marine areas of EFH, as described in Fisheries Management Plan for Groundfish Fisheries in the EEZ off Alaska. The Fishery Management Plan (FMP) for Groundfish Fisheries in the EEZ off Alaska contains detailed descriptions of essential fish habitats (EFH) that occur in the state's marine waters, and habitat areas of particular concern. EFH regulations provide guidance on identifying habitat areas of particular concern (HAPCs). HAPCs are meant to provide greater focus to conservation and management efforts and may require additional protection from adverse effects. A 5-year review of EFH through 2015 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.

Evidence:

The MSA requires fishery management plans to describe and identify Essential Fish Habitat (EFH), minimize to the extent practicable adverse effects of fishing on EFH, and identify other actions to conserve and enhance EFH (16 U.S.C. 1853(a)(7)). Alaska has more than 50% of the U.S. coastline and leads the United States in fish habitat area and value of fish harvested. Major research programs aim to identify habitats that contribute to the survival, growth, and productivity of salmon, and to determine how to best manage and protect these habitats.

Essential fish habitat (EFH) research support is based on priorities from the EFH Research Implementation Plan for Alaska. Project results are described in annual reports and peer-reviewed literature. Study results contribute to existing Essential Fish Habitat data sets. All federal agencies must consult with NMFS regarding any action they authorize, fund, or undertake that may adversely affect EFH, and NMFS must provide conservation recommendations to federal and state agencies regarding any action that would adversely affect EFH. All significant permits and actions are subject to the Environmental Impact Statement (EIS) process, which not only requires thorough review by scientists and agencies, but also mandates thorough and comprehensive public information and transparency.

The FMPs for Groundfish Fisheries in the GOA and BSAI Regions contain detailed descriptions of essential fish habitats (EFH) that occur in the state's marine waters, and habitat areas of particular concern (HAPC). The FMP relates that, "The EFH regulations at 50 CFR 600.815(a)(8) provide guidance on identifying habitat areas of particular concern (HAPCs). HAPCs are meant to provide greater focus to conservation and management efforts and may require additional protection from adverse effects. Fishery management plans should identify specific types or areas of habitat within EFH as HAPCs based on one or more of the following considerations:

1. the importance of the ecological function provided by the habitat;
2. the extent to which the habitat is sensitive to human-induced environmental degradation;
3. whether, and to what extent, development activities are, or will be, stressing the habitat type; or
4. the rarity of the habitat type.

Proposed HAPCs, identified on a map, must meet at least two of the four considerations established in 50 CFR 600.815(a)(8), and rarity of the habitat is a mandatory criterion. HAPCs may be developed to address identified problems for fishery management plans species, and they must meet clear, specific, adaptive management objectives.

The Council will initiate the HAPC process by setting priorities and issuing a request for HAPC proposals. Any member of the public may submit a HAPC proposal. HAPC proposals may be solicited every 5 years to coincide with the EFH 5-year review, or may be initiated at any time by the Council. The Council will establish a process to review the proposals. The Council may periodically review existing HAPCs for efficacy and considerations based on new scientific research.

In 2005, the Council identified the following areas as HAPCs:

- Alaska Seamount Habitat Protection Areas
- Bowers Ridge Habitat Conservation Zone
- Gulf of Alaska Coral

The FMP further relates that the Fisheries Council established the Aleutian Islands Habitat Conservation Area, Aleutian Islands Coral Habitat Protection Areas , and the Gulf of Alaska Slope Habitat Conservation Areas to protect EFH from fishing threats, with the following fishing restrictions in these areas:

Aleutian Islands Habitat Conservation Area
The use of non-pelagic trawl gear, as described in 50 CFR part 679, is prohibited year-round in the Aleutian Islands Habitat Conservation Area, except for the designated areas open to non-pelagic trawl gear fishing.

Aleutian Islands Coral Habitat Protection Areas
The use of bottom contact gear, as described in 50 CFR part 679, and anchoring by federally permitted fishing vessels is prohibited in Aleutian Islands Coral Habitat Protection Areas.

GOA Slope Habitat Conservation Areas
The use of non-pelagic trawl gear in the GOA Slope Habitat Conservation Areas by any federally permitted fishing vessel, as described in 50 CFR part 679, is prohibited.

Alaska Seamount Habitat Protection Area
The use of bottom contact gear and anchoring by a federally permitted fishing vessel, as described in 50 CFR part 679, is prohibited in the Alaska Seamount Habitat Protection Area.

Bowers Ridge Habitat Conservation Zone
The use of mobile bottom contact gear, as described in 50 CFR part 679, is prohibited in the Bowers Ridge Habitat Conservation Zone.

GOA Coral Habitat Protection Areas within GOA Coral HAPC

The GOA Coral Habitat Protection Areas are five specific areas within the larger GOA Coral HAPC. Maps of these areas, as well as their coordinates, are in Appendix A. The use of bottom contact gear and anchoring, as described in 50 CFR part 679, is prohibited in these areas.

In 2015 NOAA Fisheries and the NPFMC conducted an EFH 5-Year Review[164]. The review examined information within the 2005 EFH Environmental Impact Statement (EIS) and determined[165]:

- New and more recent information and methods exists to refine EFH descriptions and maps for many managed species.
- Using the best available science and a newly developed Fishing Effects model, changes in management with regard to fishing within EFH is not recommended at this time.
- The non-fishing impacts analysis, including advisory EFH Conservation Recommendations, be updated with the most current level of information, including sections on ocean acidification, climate change, and ecosystem processes.

As noted in the EFH summary report[166], published in 2017, 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 fisheries and other non-MSA fishing activities (e.g. IPHC-managed halibut, state-water fisheries, etc.) on EFH.

References:	

Non-Conformance Number (if relevant)	**NA**

[164] https://alaskafisheries.noaa.gov/habitat/efh-review
[165] https://repository.library.noaa.gov/view/noaa/17257
[166] Ibid.

7.12.10 Clause 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.

FAO CCRF (1995) 8.4.8/7.6.4

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

In general, during the management of groundfish resources process, NPFMC and IPHC have encountered controversial issues on marine resources conservation and different social and economic goals for sustainable fishery management, including protection of the long-term health of the resource and the optimization of yield. In their FMPs there are sections describing the economic and socioeconomic characteristics of the fisheries and communities in Alaska. Catch levels for each groundfish species or species group that are set by NPFMC and IPHC are based on the best biological, ecological, and socioeconomic information available. 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 in Alaska.

Evidence:

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).

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
- 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, etc. As noted previously, in December 2016 the Twenty-Year Review of the Pacific Halibut and Sablefish IFQ Management Program was released by NPFMC. 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 program (NPFMC 2016).	
References:	Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, A. Lavoie, C. Seung, K. Sparks, S. Wise. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p. https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf NPFMC. 2016. Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program. 474 p. North Pacific Fishery Management Council 605 West 4th, Suite 306 Anchorage, Alaska.
Non-Conformance Number (if relevant)	**NA**

7.12.11 Clause 12.11 (see Re-assessment Report)
7.12.12 Clause 12.12 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.12.13 Clause 12.13

There shall be outcome indicator(s) consistent with achieving management objectives for avoiding, minimizing or mitigating the impacts of the unit of certification on essential habitats for the "stock under consideration" and on habitats that are highly vulnerable to damage by the fishing gear of the unit of certification.

FAO ECO (2011) 41.3

Evidence Rating:	Low ☐	Medium ☐		High ☑
Non-Conformance:	Critical ☐	Major ☐	Minor ☐	None ☑

Summary Evidence:

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.

Evidence:

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.

As noted in Clause 12.9 above, in 2015 NOAA Fisheries and the NPFMC conducted an EFH 5-Year Review. The review examined information within the 2005 EFH Environmental Impact Statement (EIS) and determined :

- New and more recent information and methods exists to refine EFH descriptions and maps for many managed species.
- Using the best available science and a newly developed Fishing Effects model, changes in management with regard to fishing within EFH is not recommended at this time.
- The non-fishing impacts analysis, including advisory EFH Conservation Recommendations, be updated with the most current level of information, including sections on ocean acidification, climate change, and ecosystem processes.

As noted in the EFH summary report, published in 2017, 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 fisheries and other non-MSA fishing activities (e.g. IPHC-managed halibut, state-water fisheries, etc.) on EFH.

All fishery management plans include a description and identification of essential fish habitat, adverse impacts, and actions to conserve and enhance habitat. Maps of essential fish habitat areas are useful for understanding potential effects of proposed development and other activities. Detailed information is presented in the NPFMC FMPs for Aleutian Islands, Bering Sea, Gulf of Alaska, and Arctic Region, and has been summarized in the 2017 Alaska RFM reassessment certification report[167] for this resource.

References:	ALASKA RESPONSIBLE FISHERIES MANAGEMENT CERTIFICATION. 2017. Full Assessment and Certification Report for the Alaska Pacific Halibut Commercial Fishery (200nm EEZ). Report Code: AK/HAL/002/2016. https://www.alaskaseafood.org/wp-content/uploads/2017/02/Alaska-RFM-Final-Full-Assessment-Halibut-Report-Jan-2017-final.pdf

Non-Conformance Number (if relevant)	**NA**

[167] https://www.alaskaseafood.org/wp-content/uploads/2017/02/Alaska-RFM-Final-Full-Assessment-Halibut-Report-Jan-2017-final.pdf

7.12.14 Clause 12.14 (see Re-assessment Report)
7.12.15 Clause 12.15 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

7.13 Fundamental Clause 13

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

FAO CCRF (1995) 9.1.2/9.1.3/9.1.4/9.1.5/9.3.1/9.3.5
FAO Eco (2011) 36.9,38, 39, 40, 41, 43

7.13.1 Clause 13.1 (see Re-assessment Report)
7.13.1.1 Clause 13.1.1 (see Re-assessment Report)
7.13.2 Clause 13.2 (see Re-assessment Report)
7.13.2.1 Clause 13.2.1 (see Re-assessment Report)
7.13.3 Clause 13.3 (see Re-assessment Report)
7.13.4 Clause 13.4 (see Re-assessment Report)
7.13.5 Clause 13.5 (see Re-assessment Report)
7.13.5.1 Clause 13.5.1 (see Re-assessment Report)
7.13.5.2 Clause 13.5.2 (see Re-assessment Report)
7.13.5.3 Clause 13.5.3 (see Re-assessment Report)
7.13.6 Clause 13.6 (see Re-assessment Report)
7.13.7 Clause 13.7 (see Re-assessment Report)
7.13.8 Clause 13.8 (see Re-assessment Report)
7.13.9 Clause 13.9 (see Re-assessment Report)
7.13.10 Clause 13.10 (see Re-assessment Report)
7.13.11 Clause 13.11 (see Re-assessment Report)
7.13.12 Clause 13.12 (see Re-assessment Report)
7.13.13 Clause 13.13 (see Re-assessment Report)
7.13.14 Clause 13.14 (see Re-assessment Report)

The Assessment Team has determined that the supporting rationale for the above Clauses presented during the 2017 re-assessment of this fishery sufficiently addresses and is applicable to the situation with respect to the two additional gear types covered by this scope extension. Therefore, see Re-assessment Report for evidence to support the fishery's (including the two new gear types being assessed in this report) conformity to the AKRFM Standard v1.3. The original Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

8 External Peer Review

8.1 Summary and Recommendation Peer Reviewer 1

The Certificate of Extension Scope Report was well written and comprehensive, containing sufficient information to address the extension of the current certificate to include the two additional gears, pots and troll gear.

8.1.1 Full Summary of Comments – Peer Reviewer 1

Background Section
Peer Review Comments: Background section information was referred to in the Re-Assessment report and was comprehensive and sufficient to characterize the fishery, biology, stock assessment and management detail with adequacy and detail. No Response Required.

A.	The Fishery Management System
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.**
Peer Review Comments: Adequate and good detailed information was provided that supports a well-structured and cooperative management system backed by legal and binding mandates. No Response Required.	
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.**
Peer Review Comments: The AT provided relevant background that supports the management entities utilize sold institutional frameworks backed with strict rules and procedures in decision making taking into account coastal area considerations. Systems are in place to optimize fishing activities while provisioning for appropriate and equal opportunities to participate. No Response Required.	
3.	**Management objectives shall be implemented through management rules and actions formulated in a plan or other framework.**
Peer Review Comments: Management objectives are in place and are applied through strict rules and actions and are developed through formal cooperative processes, and are subject to periodic review to evaluate performance. No Response Required.	

B.	Science and Stock Assessment Activities
4.	**There shall be effective fishery data (dependent and independent) collection and analysis systems for stock management purposes.**
Peer Review Comments: The AT provided comprehensive accounting of the data collection and analysis processes, including how reviews are conducted and how stock assessment incorporates uncertainties about the information, supporting that a reliable system exists that is robust and that undergoes periodic revise. No Response Required.	

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.**

Peer Review Comments:
Routine stock assessment occur, backed by sound, rigorous scientific analyses and external review.

No Response Required.

C.	**The Precautionary Approach**
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.**

Peer Review Comments:
Interim reference points are in place to effectively evaluate the fishery state of stock vs desired goals. Management is proactive and incorporating uncertainties stock assessments to further increase probability of achieving targets and preventing overfishing.

No Response Required.

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.**

Peer Review Comments:
Management has been precautionary in its application of stock assessment models and determining appropriate reference points, particularly recently with development of MSE modelling framework and application of ensemble modelling approach.

No Response Required.

D.	**Management Measures**
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.**

Peer Review Comments:
There is sufficient evidence that supports management has applied/adopted measures that are working to achieve sustainable stock levels (e.g., IFQs, gear/area restrictions, bag limits, subsistence harvest shares, etc...); all these are working collectively towards realizing optimal fishery yields and a sustainable resource.

No Response Required.

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

Peer Review Comments:

Rules are in place that ensure fishing is conducted using acceptable competencies and that destructive fishing practices are not taking place. There are strict rules for entry into the IFQ fishery (minimum number of days of experienced) in addition to regulations on use of specific gear (various mesh size for gillnets and purse seine, bio-degradable and openings for pots, number hooks and hook size for troll gear, etc.), avoidance of young fish through closed areas/seasons, all working together to ensure acceptable fishing operations.

No Response Required.

E.	Implementation, Monitoring and Control
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.**

Peer Review Comments:
There are extensive systems provisioning for monitoring and compliance of the fishery, allowing for the collection of basic fishery statistics, adherence to regulations and indication of infractions. The management entities work together, also with industry, academia and the public towards success in this area. The framework is extensive based on a length time period and is working.

No Response Required.

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

Peer Review Comments:
There are extensive systems provisioning for monitoring and determination of compliance of the fishery, to regulations and indication of infractions. The management entities work together, also with industry, academia and the public towards success in this area. The framework is extensive based on a length time period and is working.

No Response Required.

F.	Serious Impacts of the Fishery on the Ecosystem
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 of the fishery on the ecosystem shall be appropriately assessed and effectively addressed.**

Peer Review Comments:
There is sufficient background information on the fishery impacts on the ecosystem and the fishery interactions and these are being included in management of the fishery. Impacts on the habitat and on the resources that this fishery interacts with are known and considered. It is believed and support exists for hat the directed fishery has minimal impact on the habitat and the additional 2 gears should not add any additional significant impact. Measures to minimize wastage and reduce bycatch are being dealt with using sound approach (area/seasonal closures, gear restrictions. Management has taken measures towards minimizing impacts that also could produce negative consequences for some ecosystem components (e.g., seabirds).

No Response Required.

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

Peer Review Comments:
Not relevant as this fishery is not enhanced.

No Response Required.

8.1.2 Conclusion – Peer Reviewer 1

I am in concurrence with the conclusions of the AT and believe the conclusions are based solely on the material support (evidence) presented in the assessment report. The evidence provided is sufficient and adequate to extend the current fishery certificate, commercial halibut fished by benthic longline, within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

No Response Required

Where non-conformances requiring corrective actions on behalf of the fishery have been raised, for each such non-conformance, please provide:

"In the course of the re-assessment of Alaskan Pacific halibut the Assessment Team identified two areas (Clauses 4.2 and 12.6) that scored less than full conformance to the Alaska RFM Certification Standard Version 1.3. Following the submission of further evidence the second of these two non-conformances was closed without the requirement for corrective actions. The Client submitted a set of corrective actions designed to close the remaining non-conformance. The Corrective Action Plan was accepted by the Assessment Team and satisfactorily addresses the Non-Conformance. The action plan activities are monitored during annual surveillance audits of the fishery to confirm that implementation is progressing as agreed."

The identification of these two (2) non-conformances are appropriate and the Correction Action Plan is appropriate and likely to address the non-conformance within the specified timeframe.

No Response Required

9 Non-Conformances and Corrective Actions

Non-conformances are categorized as minor, major and critical non-conformances. Where the Assessment Team concludes that the available evidence does not meet the 'high' confidence rating for a specific clause of the Conformance Criteria, and on further clarification with fishery management organizations, the outcome remains unchanged; a non-conformance may be raised against that particular clause.

In the course of the re-assessment of Alaskan Pacific halibut the Assessment Team identified two areas (Clauses 4.2 and 12.6) that scored less than full conformance to the Alaska RFM Certification Standard Version 1.3. Following the submission of further evidence the second of these two non-conformances was closed without the requirement for corrective actions. The Client submitted a set of corrective actions designed to close the remaining non-conformance. The Corrective Action Plan was accepted by the Assessment Team and satisfactorily addresses the Non-Conformance. The action plan activities are monitored during annual surveillance audits of the fishery to confirm that implementation is progressing as agreed.

No new/additional non-conformances were identified during this Extension of Scope assessment.

See the Re-assessment Report and subsequent surveillance audits for further information on non-conformance and corrective actions. The Re-assessment Report is available at:
https://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-halibut/

10 Recommendation and Determination

10.1 Recommendation

The Assessment Team recommends that the scope of the current Fishery Certificate for the applicant fishery, the US Alaska Pacific commercial halibut fishery, fished by benthic longlines within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, should be extended to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

10.2 Determination

Following a meeting on January 8th 2019, SAI Global's Fishery Certification Committee determined that the scope of the already existing Fishery Certificate for the applicant fishery, the US Alaska Pacific commercial halibut fishery, fished by benthic longlines within Alaska's 200 nm EEZ, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, is to be extended to include Pacific halibut caught by sablefish pots and salmon trolls in the same area and under the same management regime.

11 References

Reference	Hyperlink
2017 EM Pre-Implementation Plan	http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/Final2017EMPreimpPlan.pdf
AFSC Ecosystem Consideration Report series	https://access.afsc.noaa.gov/reem/ecoweb/)
Alaska Community Survey	https://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/CPU.php
Alaska Confidential Nature of Certain Reports and Records	http://touchngo.com/lglcntr/akstats/Statutes/Title16/Chapter05/Section815.htm
Alaska Department of Fish and Game (ADFG)	http://www.adfg.alaska.gov/
Alaska Ecosystems Program	https://www.afsc.noaa.gov/nmml/alaska/index.php
Alaska Fisheries Science Center and Alaska Regional Office. 2016. North Pacific Observer Program 2015 Annual Report. AFSC Processed Rep. 2016-05, 104 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.	https://alaskafisheries.noaa.gov/sites/default/files/2015observerprogramannualreport.pdf
Alaska Fisheries Science Center and Alaska Regional Office. 2017. North Pacific Observer Program 2016 Annual Report. AFSC Processed Rep. 2017-07, 143 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.	http://www.afsc.noaa.gov/Publications/ProcRpt/PR2017-07.pdf
Alaska Fisheries Science Center and Alaska Regional Office. 2018. North Pacific Observer Program 2017 Annual Report. AFSC Processed Rep. 2018-02, 136 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.	https://alaskafisheries.noaa.gov/sites/default/files/2017annualreport.pdf
Alaska Halibut (2015/16) Surveillance Report	http://www.alaskaseafood.org/wp-content/uploads/2016/03/Form-2011b-FAO-RFM-AK-Halibut-4th-Surveillance-Assessment-Report_FINAL-September-2015-.pdf
Alaska Halibut Re-assessment (2017) Final Certification Report.	http://www.alaskaseafood.org/wp-content/uploads/2017/02/Alaska-RFM-Final-Full-Assessment-Halibut-Report-Jan-2017-final.pdf
Alaska Marine Safety Education Association (AMSEA)	http://www.amsea.org/commercial-fishermen
Alaskan Department of Environmental Conservation (DEC)	http://dec.alaska.gov/
Alaskan Department of Natural Resources (DNR)	http://dnr.alaska.gov/
ASMI Health and Nutrition	http://www.alaskaseafood.org/health-nutrition/
Assessment of the Pacific halibut stock at the end of 2016	http://www.iphc.int/publications/rara/2016/IPHC-2016-RARA-26-R-4.2_Assessment_of_the_Pacific_halibut_stock.pdf
Bering Sea Integrated Ecosystem Research Program	http://www.nprb.org/bering-sea-project
Brown, E. S. 1986. Preliminary results of the 1984 U.S.-Japan Cooperative Bottom Trawl Survey of the central and western Gulf of Alaska. In Major, R.L. (editor), Condition of groundfish resources of the Gulf of Alaska region as assessed in 1985. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-106. p.259-296.	
Bureau of Ocean Energy Management (BOEM)	http://www.boem.gov/uploadedFiles/Proposed_OCS_Oil_Gas_Lease_Program_2012-2017.pdf

Reference	Hyperlink
Catch sharing Congressional Action	https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf.
CDQ groups leasing of IFQ quotas	https://www.npfmc.org/ifqcdq/
Clark and Hare 2006, Assessment of the Pacific halibut stock at the end of 2007 – IPHC.	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwjN2vOOl5rVAhUCJ8AKHXCcBm4QFggwMAE&url=http%3A%2F%2Fwww.iphc.washington.edu%2Fpapers%2Fsa07.pdf&usg=AFQjCNHt6pyFU75ZPYjqbpjwFjPJ7zURZQ
Clark, W.G., and Hare, S.R. 2008. Assessment of the Pacific halibut stock at the end of 2007. Int. Pac. Halibut Comm. Report of Research and Assessment Activities 2007: 177-203.	
Community Profiles for North Pacific Fisheries – Alaska	https://www.pdffiller.com/en/project/124915503.htm?f_hash=cbf6b0&reload=true
Consultation with tribes and Native corporations	https://alaskafisheries.noaa.gov/tribal-consultations
DNR Office of Project Management and Permitting (OPMP)	http://dnr.alaska.gov/commis/opmp/
Dykstra, 2018 Dykstra, C. L. 2018. Contaminant and parasite monitoring of Pacific halibut. IPHC Report of Assessment and Research Activites: 2017, p 104-105.	https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf
Dykstra, C. L. 2018. Contaminant and parasite monitoring of Pacific halibut. IPHC Report of Assessment and Research Activites: 2017, p 104-105.	https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf
Electronic Monitoring	https://www.npfmc.org/electronic-monitoring-2/
EM Pre-Implementation Plan	http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/Final2017EMPreimpPlan.pdf
Faunce, C.H. 2013. The Restructured North Pacific Groundfish and Halibut Observer Program. NOAA quarterly publication.	
Fishery Management Plan for Groundfish of the Gulf of Alaska. 2015. North Pacific Fishery Management Council, 605 W. 4th Avenue, Suite 306, Anchorage, Alaska 99501.	http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf
Fissel, B., Dalton, M., Felthoven, R., Garber-Yonts, B, Haynie, A., Kasperski, S., Lee, J., Lew, D., Santos, A., Seung, C., Sparks, K. 2016. Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic Status of the Groundfish Fisheries off Alaska, 2015. AFSC, NMFS, NOAA, Seattle WA.	https://www.afsc.noaa.gov/refm/stocks/plan_team/economic.pdf
Fissel, B., Dalton, M., Garber-Yonts, B., Haynie, A., Kasperski, S., Lee, J., Lew, D., Lavoie, A., Seung, C., Sparks, K., Wise, S. 2017. Economic status of the groundfish fisheries off Alaska, 2016. In Stock assessment and fishery evaluation report for the groundfish resources of the GOA and BS/AI. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501. 425 p.	https://www.afsc.noaa.gov/REFM/Docs/2017/economic.pdf
Gaichas, S. K., Aydin, K. Y., and Francis, R. C. 2009. Using food web model results to inform stock assessment	https://www.researchgate.net/publication/237153416_Using_Food_Web_Model_Results_to_Inform_Stock_Assessme

Reference	Hyperlink
estimates of mortality and production for ecosystem-based fisheries management. Canadian Journal of Fisheries and Aquatic Sciences.	nt_Estimates_of_Mortality_and_Production_for_Ecosystem-Based_Fisheries_Management.
Gauvin, J. 2013. Final Report on EFP 12-01: Halibut deck sorting experiment to reduce halibut mortality on Amendment 80 Catcher Processors. Alaska Seafood Cooperative Report.	
Geernaert, T. O. 2018. Trends in seabird counts from the IPHC fishery independent setline surveys (2002-17). IPHC Report of Assessment and Research Activities: 2017, p 106-115.	https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf
Goen, 2017	www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R-2.4_Personal_use.pdf
Goen, J., and Erikson, L. 2018. Fishery Statistics. 2017. IPHC-2018-AM094-05.	https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-05.pdf
Goen, J., Geernaert, T., Henry, E., Soderlund, E., Ranta, A. M., Kong, T.M., and Forsberg, J. 2018. Fishery-independent setline survey (FISS) design and implementation in 2017, including current and future expansions. IPHC-2018-AM094-06 Rev1.	https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-06.pdf
Halibut Abundance-Based PSC Management	https://www.npfmc.org/halibutpsc/
Halibut Discard Mortality Rate (DMR) Working Group Recommendations (2017-2018)	https://www.afsc.noaa.gov/REFM/Docs/2016/AKhalibut.pdf
Halibut Stock Distribution Management - IPHC	http://www.iphc.washington.edu/documents/basictext/IPHC-2017-Rules-of-Procedure.pdf
Henry, E., Soderlund, E., Henry, A. M., Geernaert, T., Ranta, A. M., and Kong, T., Forsberg J. 2017. 2016 IPHC fishery-independent setline survey. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016: 4175-215.	
Hicks, A.C, Stewart, I. J. 2017. An investigation of the current IPHC harvest policy and potential for improvement. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016. IPHC-2016-RARA-26-R: 421-438.	http://www.iphc.int/publications/rara/2016/IPHC-2016-RARA-26-R-4.6_Developments_in_MSE_and_MSAB.pdf
International Convention for the Prevention of Pollution From Ships	https://www.law.cornell.edu/uscode/text/33/1901
IPHC 2015 standardized stock assessment survey	http://www.iphc.int/publications/rara/2015/RARA2015_30SSAsurvey2.pdf
IPHC oceanographic monitoring program aboard the fishery-independent setline survey in 2016	http://www.iphc.int/publications/rara/2016/IPHC-2016-RARA-26-R-5.1_Oceanographic_monitoring.pdf
IPHC performance review	http://www.iphc.int/documents/review/PerformancereviewprogressreportJan2014.pdf
IPHC Stock Assessment Survey profile data	http://www.iphc.int/research/surveys/37-survey-data.html
IPHC Survey	http://www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R3.1_2016_IPHC_fishery_independent_survey.pdf
IPHC. 2017. Pacific Halibut Fishery Regulations 2017, Version 2, 5 April 2017. Int. Pac. Halibut Comm.	http://www.iphc.washington.edu/publications/regs/2017iphcregs_v20170405.pdf
Lew, D. K., Sampson, G., Himes-Cornell, A., Lee, J., and Garber-Yonts, B. 2015. Costs, earnings, and employment in	

Reference	Hyperlink
the Alaska saltwater sport fishing charter sector, 2011-2013. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-299, 134 p.	
Marine Mammal Laboratory (MML) Research	https://www.afsc.noaa.gov/nmml/
Martell, S., Leaman, B., Kruse, G., Aydin, K., and Holsman, K. 2015. Fishery, Climate, and Ecological Effects on Pacific Halibut Size-at-age (SAA). North Pacific Research Board, Semi-annual Progress Report, July 2015.	
Muto, M. M., Helker, V. T., Angliss, R. P., Allen, B. A., Boveng, P. L., Breiwick, J. M., Cameron, M. F., Clapham, P. J., Dahle, S. P., Dahlheim ,M. E., Fadely, B. S., Ferguson, M. C., Fritz, L. W., Hobbs, R. C., Ivashchenko ,Y. V., Kennedy, A. S., London, J. M., Mizroch ,S. A., Ream, R. R., Richmond, E. L., Shelden, K. E. W., Towell, R. G., Wade, P. R., Waite, J. M., and Zerbini, A. N. 2017. Alaska marine mammal stock assessments, 2016. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-355, 366 p. doi:10.7289/V5/TM-AFSC-355.	http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-355.pdf
National Environmental Policy Act (NEPA)	https://ceq.doe.gov/nepa/Citizens_Guide_Dec07.pdf
NMFS, Habitat Conservation Division (HCD)	http://www.fakr.noaa.gov/habitat/default.htm
NMFS, Surveys	http://www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R-3.3_Bering_Sea_NMFS_trawl_survey.pdf
NMFS. 2017. Programmatic Biological Assessment on the Effects of the Pacific Halibut Fisheries in Waters off Alaska on the Endangered Short-tailed Albatross (*Phoebastria albatrus*), the Threatened Alaska-breeding Population of the Steller's Eider (*Polysticta stelleri*), and the Threatened Spectacled Eider (*Somateria fischeri*). NMFS Alaska Region Sustainable Fisheries Division. Juneau, Alaska.	https://alaskafisheries.noaa.gov/sites/default/files/analyses/ak_halibut_seabird_ba_august-2017.pdf
NOAA Fisheries and Species Managed	https://alaskafisheries.noaa.gov/pr/steller-sea-lions
NOAA Marine Debris Program. 2015. Report on the impacts of "ghost fishing" via derelict fishing gear. Silver Spring, MD. 25 pp	https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf
NOAA/NMFS National Bycatch Reduction Strategy	https://www.fisheries.noaa.gov/national/bycatch/national-bycatch-reduction-strategy
NOAA's Alaska Fisheries Science Center (AFSC) Economic and Social Sciences Research Program	http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php
North Pacific Research Board	http://www.nprb.org/
NPFMC SAFE -Stock Assessment and Fishery Evaluation Reports	https://www.npfmc.org/safe-stock-assessment-and-fishery-evaluation-reports/
NPFMC. 2016. Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program. 474 p. North Pacific Fishery Management Council 605 West 4th, Suite 306 Anchorage, Alaska.	
NPRB funded research projects in the Gulf of Alaska	http://www.nprb.org/gulf-of-alaska-project/about-the-project/
Observer Declare and Deployment System (ODDS)	https://chum.afsc.noaa.gov:7104/apex/f?p=140:1
Pacific Halibut Subsistence Harvest Allowance	http://www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R-2.4_Personal_use.pdf

Reference	Hyperlink
Pacific States Marine Fisheries Commission	http://psmfc.org
PMEL oceanographic and environmental data program	http://www.pmel.noaa.gov
Sadorus, L. L., and Walker, J. 2018. IPHC Oceanographic monitoring program 2017. IPHC Report of Assessment and Research Activities 2017, p. 95-103.	https://iphc.int/uploads/pdf/am/2018am/iphc-2017-rara27-r.pdf
Sadorus, L., Lauth, R., and Ranta, A. 2017a. Results from the Bering Sea NMFS trawl survey in 2016. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016. IPHC-2016-RARA-26-R: 220-231.	
Sadorus, L., Palsson, W. A., and Ranta, A. 2017b. Results from the NMFS Aleutian Islands Biennial Bottom Trawl Survey in 2016. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016. IPHC-2016-RARA-26-R: 232-240.	http://www.iphc.washington.edu/publications/rara/2016/IPHC-2016-RARA-26-R-3.0_Executive_summary.pdf
Stewart, I. 2018. Final Pacific halibut catch tables for 2018. IPHC-2018-AM094-11 Rev_1.	https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-11.pdf
Stewart, I., and Hicks, A. 2018. Assessment of the Pacific halibut (*Hippoglossus stenolepis*) stock at the end of 2017. IPHC-2018-AM094-10.	https://iphc.int/uploads/pdf/am/2018am/iphc-2018-am094-10.pdf
Stewart, I.J. 2017. Regulatory area harvest policy calculations and catch tables. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016: 403-420.	
Subsistence halibut fishing	https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut
The Commercial Fisheries Entry Commission	http://www.alaskaseafood.org/quality/
The Gulf of Alaska Integrated Ecosystem Research Project (IERP)	http://gulfofalaska.nprb.org/
The State of Alaska, Department of Labor and Workforce Development (ADLWD) includes AVTEC (formerly called Alaska Vocational Training and Education Center	http://www.avtec.edu/
The University of Alaska Sea Grant Marine Advisory Program (MAP	http://seagrant.uaf.edu/map/fisheries/
The Western Alaska Community Development Quota (CDQ) Program	https://alaskafisheries.noaa.gov/fisheries/cdq
U.S. Fish and Wildlife Service (USFWS)	http://www.fws.gov/help/about_us.html
U.S. Fish and Wildlife Service (USFWS). 2015. Biological Opinion for the Effects of the Fishery Management Plans for the Gulf of Alaska and Bering Sea/Aleutian Islands Groundfish Fisheries and the State of Alaska Parallel Groundfish Fisheries, December 2015. 49 pp.	https://alaskafisheries.noaa.gov/sites/default/files/analyses/usfws-biop-122315.pdf.
USFWS. 2018. Biological Opinion For the Effects of the Pacific Halibut Fisheries in Waters off Alaska on the Endangered Short-tailed Albatross (Phoebastria albatrus). Anchorage, AK: 50 pp.	
Webster, R. A., Stewart, I. J. 2017. Setline survey-based apportionment estimates. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016: 395-402.	

Reference	Hyperlink
Webster, R. and Soderlund, E. 2017. Area 4CDE edge IPHC survey expansion. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2016. IPHC-2016-RARA-26-R: 216-219.	
Western Gulf of Alaska 2016 Report Card	https://access.afsc.noaa.gov/reem/ecoweb/GOA_report_card.pdf

12 Appendices

12.1 Appendix 1 – Assessment Team

Based on the technical expertise required to carry out the above fishery assessment, SAI Global selected an Assessment Team as follows.

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.

12.2 Appendix 2 – Peer Reviewer

Based on the technical expertise required to carry out a Peer Review of the above fishery assessment, SAI Global selected a Peer Reviewer as follows.

Nancie Cummings, Peer Reviewer

Ms. Cummings has over 35 years of experience working in marine and estuarine fisheries science in the U.S. She has been actively involved in conducting marine fish stock assessments, in the optimal design of fisheries data collections, and in providing inputs required for management of U.S. federally managed species. As a lead stock assessment analyst she has been involved for more than 30 years with analyses of highly migratory species (albacore and Bluefin tuna), coastal migratory species (king and Spanish mackerels, cobia, and dolphin fish), and reeffish stocks (amberjacks, groupers and shallow and deep-water snappers) in the U.S Gulf of Mexico and South Atlantic and Caribbean. Ms. Cummings has conducted primary fishery stock evaluations for status determinations required by U.S. fishery management councils and has conducted stock rebuilding projections of U.S. federally managed marine resources including reeffish, mackerels, tunas, and shellfish. Ms. Cummings also has experience conducting analyses of salmonid resources off Washington State, including in-season run-size forecasting, escapement estimations, and developing creel census estimations. Ms. Cummings has extensive experience working with commercial and recreational fisheries constituent groups, tribal groups, national and international advisory groups, and academic institutions. Ms. Cummings has experience in application of data poor stock assessment techniques and recent experience developing and leading Data Limited Stock Assessment Workshops in the U.S. and in an International forum. Ms. Cummings received her M.S. degree in Fisheries from the College of Fisheries, University of Washington working on a stock assessment of Pacific cod in the North Pacific Bering Sea. She holds a Bachelor of Science degree in Biology from Erskine College (South Carolina).