



ALASKA RESPONSIBLE FISHERIES MANAGEMENT CERTIFICATION

Final Assessment Report

For The

Alaska Pacific Halibut Commercial Fishery (200nm EEZ)

Client

'Eat on the Wild Side' (FVOA)

Facilitated By

Alaska Seafood Marketing Institute (ASMI)

Assessors:

Ivan Mateo, Lead Assessor
William (Bill) Brodie, Assessor
Sam Dignan, Assessor

Report Code:

AK/HAL/002/2016

Date:

26th January 2017

Global Trust Certification Ltd.

3rd Floor, Block 3,
Quayside Business Park,
Mill Street, Dundalk,
Co. Louth, Ireland.
T: +353 42 932 0912
F: +353 42 938 6864
www.GTCert.com



Foreword

The Alaska Responsible Fisheries Management (RFM) Standard Version 1.3 is composed of Conformance Criteria based on the 1995 FAO Code of Conduct for Responsible Fisheries and the FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries adopted in 2005 and amended/extended in 2009. The Standard also includes full reference to the 2011 FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Inland Fisheries which in turn are now supported by a suite of guidelines and support documents published by the UN FAO. Further information on the Alaska RFM program may be found here: <http://www.alaskaseafood.org/rfm-certification/certified-fisheries-companies/certified-fisheries/>.

Table of Contents

Foreword	11
Table of Contents	12
List of Figures.....	16
List of Tables	16
Acronyms.....	17
i. Summary and Recommendations	19
ii. Schedule of Key Assessment Activities	20
iii. Assessment Team Details.....	21
1. Introduction.....	22
1.1. Recommendations of the Assessment Team.....	23
2. Fishery Applicant Details	24
3. Background to the Fishery.....	25
3.1. Species Biology.....	25
3.2. Fishery Location	28
3.3. Fishing Method	30
3.4. Fishery Management History and Organization	31
3.5. Stock Assessment Activities	34
3.6. Historic Biomass and Removals in the Fishery.....	35
3.7. Economic Value of the Fishery.....	37
4. Proposed Units of Assessment	38
5. Consultation Meetings	39
5.1. On-Site Assessment and Consultation Meetings.....	39
6. Assessment Outcome Summary.....	44
6.1. Conformity Statement	46
7. Fishery Assessment Evidence	47
Section A: The Fisheries Management System	47
7.1. Fundamental Clause 1.....	47
Supporting Clause 1.1	47
Supporting Clause 1.2	50
Supporting Clause 1.2.1	52
Supporting Clause 1.3	53
Supporting Clause 1.3.1	54
Supporting Clause 1.4	55
Supporting Clause 1.4.1	56
Supporting Clause 1.5	57
Supporting Clause 1.6	59
Supporting Clause 1.6.1	61
Supporting Clause 1.7	62
Supporting Clause 1.8	64
Supporting Clause 1.9	66
7.2. Fundamental Clause 2.....	67

Supporting Clause 2.1 67

Supporting Clause 2.1.1 71

Supporting Clause 2.1.2 73

Supporting Clause 2.2 74

Supporting Clause 2.3 75

Supporting Clause 2.4 77

Supporting Clause 2.5 79

Supporting Clause 2.6 81

Supporting Clause 2.7 84

Supporting Clause 2.8 85

7.3. Fundamental Clause 3..... 88

Supporting Clause 3.1 88

Supporting Clause 3.2 92

Supporting Clause 3.2.1 92

Supporting Clause 3.2.2 93

Supporting Clause 3.2.3 94

Supporting Clause 3.2.4 95

Supporting Clause 3.2.5 97

Supporting Clause 3.2.6 100

Section B: Science and Stock Assessment Activities..... 102

7.4. Fundamental Clause 4..... 102

Supporting Clause 4.1 102

Supporting Clause 4.1.1 106

Supporting Clause 4.1.2 108

Supporting Clause 4.2 109

Supporting Clause 4.3 112

Supporting Clause 4.4 113

Supporting Clause 4.5 114

Supporting Clause 4.6 116

Supporting Clause 4.7 117

Supporting Clause 4.8 118

Supporting Clause 4.9 119

Supporting Clause 4.10 120

Supporting Clause 4.11 121

7.5. Fundamental Clause 5..... 122

Supporting Clause 5.1 122

Supporting Clause 5.1.1 124

Supporting Clause 5.1.2 125

Supporting Clause 5.2 127

Supporting Clause 5.3 129

Supporting Clause 5.4 130

Supporting Clause 5.5 131

Section C: The Precautionary Approach..... 132

7.6. Fundamental Clause 6..... 132

Supporting Clause 6.1 132

Supporting Clause 6.2 134

Supporting Clause 6.3 135

Supporting Clause 6.4 136

7.7. Fundamental Clause 7..... 137

Supporting Clause 7.1 137

Supporting Clause 7.1.1 138

Supporting Clause 7.1.2 140

Supporting Clause 7.2 141

Supporting Clause 7.2.1 142

Section D: Management Measures 143

7.8. Fundamental Clause 8..... 143

Supporting Clause 8.1 143

Supporting Clause 8.1.1 146

Supporting Clause 8.1.2 147

Supporting Clause 8.1.3 148

Supporting Clause 8.2 149

Supporting Clause 8.3 150

Supporting Clause 8.4 152

Supporting Clause 8.5 154

Supporting Clause 8.6 156

Supporting Clause 8.7 157

Supporting Clause 8.8 158

Supporting Clause 8.9 160

Supporting Clause 8.10 162

Supporting Clause 8.11 163

Supporting Clause 8.12 164

Supporting Clause 8.13 165

Supporting Clause 8.14 166

7.9. Fundamental Clause 9..... 167

Supporting Clause 9.1 167

Supporting Clause 9.2 169

Supporting Clause 9.3 170

Section E: Implementation, Monitoring and Control 171

7.10. Fundamental Clause 10..... 171

Supporting Clause 10.1 171

Supporting Clause 10.2 177

Supporting Clause 10.3 178

Supporting Clause 10.3.1 179

Supporting Clause 10.4 180

Supporting Clause 10.4.1 181

7.11. Fundamental Clause 11..... 182

Supporting Clause 11.1 182

Supporting Clause 11.2 183

Supporting Clause 11.3 185

Section F: Serious Impacts of the Fishery on the Ecosystem 188

7.12. Fundamental Clause 12..... 188

Supporting Clause 12.1 188

Supporting Clause 12.2 191

Supporting Clause 12.3 193

Supporting Clause 12.4 199

Supporting Clause 12.5 201

Supporting Clause 12.5.1 203

Supporting Clause 12.6 205

Supporting Clause 12.7206

Supporting Clause 12.8207

Supporting Clause 12.9208

Supporting Clause 12.10211

Supporting Clause 12.11214

Supporting Clause 12.12216

Supporting Clause 12.13218

Supporting Clause 12.14222

Supporting Clause 12.15223

7.13. Fundamental Clause 13.....224

 Supporting Clause 13.1224

 Supporting Clause 13.1.1225

 Supporting Clause 13.2226

 Supporting Clause 13.2.1227

 Supporting Clause 13.3228

 Supporting Clause 13.4229

 Supporting Clause 13.5230

 Supporting Clause 13.5.1231

 Supporting Clause 13.5.2232

 Supporting Clause 13.5.3233

 Supporting Clause 13.6234

 Supporting Clause 13.7235

 Supporting Clause 13.8236

 Supporting Clause 13.9237

 Supporting Clause 13.10238

 Supporting Clause 13.11239

 Supporting Clause 13.12240

 Supporting Clause 13.13241

 Supporting Clause 13.14242

8. External Peer Review243

 8.1. Summary and Recommendation Peer Reviewer 1243

 8.1.1. Full Summary of Comments – Peer Reviewer 1243

 8.2. Summary and Recommendation Peer Reviewer 2252

 8.2.1. Full Summary of Comments – Peer Reviewer 2252

9. Non-Conformances and Corrective Actions258

 9.1. Non-conformances259

 9.2. Corrective Actions.....260

 9.3. Status of non-conformances.....268

10. Recommendation and Determination.....270

11. References271

12. Appendices274

Appendix 1 – Assessment Team274

Appendix 2 – Peer Reviewers275

List of Figures

Figure 1. Major spawning and settlement areas for Alaskan Pacific halibut with arrows depicting directions of larval transport and adult compensatory migration (Figure adapted from: <http://tinyurl.com/zrxqttyo>). 25

Figure 2. Schematic of the larval stage of Pacific halibut life cycle. (Source: <http://tinyurl.com/jmudhqu>). 26

Figure 3. Distribution of halibut at ages 2-6 for all years combined from National Marine Fisheries Service (NMFS) groundfish trawl surveys (Figure adapted from: <http://tinyurl.com/zrxqttyo>). 27

Figure 4. IPHC Regulatory Areas for the 2015 fishery (Source: Gilroy *et al.*, 2015). 28

Figure 5. 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. Note “Closed Area” represents the IPHC Bering Sea Closed Area which is closed to directed halibut fishing (Modified from: <http://tinyurl.com/jnclh6r>). 29

Figure 6. Main landing ports for the Alaskan Pacific halibut IFQ fishery. 29

Figure 7. Schematic of a benthic longline as employed in the Alaskan halibut commercial fishery. 30

Figure 8. Picture of a typical Alaskan halibut longline (note weather cover/shelterdeck on the stern). (Source: <http://tinyurl.com/zvrctqk>). 30

Figure 9. Fishery Management Organizational Chart for North Pacific Halibut fisheries within the IPHC Convention Area. 33

Figure 10. Comparison of models included in the 2015 stock assessment. Solid lines show the point estimates, dashed lines and shading approximate 95% confidence intervals. (Source: Stewart et al. 2016). 35

Figure 11. Total halibut removals, 1961-2015 (From Fig. 41, Stewart and Monahan 2016). 36

Figure 12. Spawning biomass estimates from the two long time-series population models used for halibut in the 2015 assessment. Shaded region indicates the approximate 95% confidence interval (Source: Stewart et al. 2016) 36

Figure 13. IPHC Bering Sea Closed Area (Modified from: <http://tinyurl.com/jnclh6r>). 97

Figure 14. Habitat protection areas and habitat conservation zones currently in place in Alaskan waters (Source: NPFMC website). 99

Figure 15. Magnuson Steven Penalty Matrix 184

List of Tables

Table 1. Fishery Applicant Details..... 24

Table 2. Ex-vessel and price in the commercial Pacific halibut off Alaska by FMP area, 2010-2014 (\$millions and \$/lb net weight, respectively) (Source: Fissel et al. 2015). 37

Table 3. Proposed units of assessment and certification for the U.S. Alaska Pacific Halibut Commercial Fishery. 38

Table 4. On-Site Assessment and Consultation Meetings..... 39

Table 5. Species managed by National Marine Fisheries Service (NMFS), species and status. 195

Acronyms

ABC	Acceptable Biological Catch
ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFDF	Alaska Fisheries Development Foundation
AFSC	Alaska Fisheries Science Center
AIMS	Alaska Incident Management System
AKFIN	Alaska Fisheries Information Network
ANILCA	Alaska National Interest Lands Conservation
ANS	Aquatic Nuisance Species Task Force
ASMI	Alaska Seafood Marketing Institute
BOEM	Bureau of Ocean Energy Management
BOF	Board of Fisheries
BSAI	Bering Sea and Aleutian Islands
CAS	Catch Accounting System
CCRF	Code of Conduct for Responsible Fisheries
CDQ	Community Development Quota
CEC	Commission for Environmental Cooperation
CEY	Constant Exploitation Yield
CFEC	Commercial Fisheries Entry Commission
CPUE	Catch per Unit Effort
CSP	Catch Sharing Plan
DEC	Department of Environmental Conservation
DFO	Department of Fisheries and Oceans (Canada)
DNR	Department of Natural Resources
EIS	Environmental Impact Statement
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFP	Exempted Fishing Permit
EM	Electronic Monitoring
ESA	Endangered Species Act
FAO	Food and Agriculture Organization of the United Nations
FMP	Fishery Management Plan
FVOA	Fishing Vessel Owners Association
GOA	Gulf of Alaska
GHL	Guideline Harvest Level
HAPC	Habitat Areas of Particular Concern
IFQ	Individual Fishing Quota
IMO	International Maritime Organization
IPHC	International Pacific Halibut Commission
IRFA	Initial Regulatory Flexibility Analysis
IRIU	Improved Retention/Improved Utilization
JPAC	Joint Public Advisory Committee (CEC)
LAMP	Local Area Management Plan
LAPP	Limited Access Privilege Programs
LASAF	Limited Access System Administrative Fund

LLP	License Limitation Program
MIb	Million Pounds (Net Weight)
MSA	Magnuson Stevens Act
MSFCMA	Magnuson-Stevens Fisheries Conservation and Management
MT	Metric tons
MSY	Maximum Sustainable Yield
NAAEC	North American Agreement on Environmental Cooperation
NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NISC	National Invasive Species Council
Nm	Nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
NPHA	North Pacific Halibut Act
NPRB	North Pacific Research Board
NSF	National Science Foundation
ODDS	Observer Declare and Deploy System
OFL	Overfishing Level
OLE	Office for Law Enforcement
OPMP	Office of Project Management and Permitting (DNR)
OPRC	International Convention on Oil Pollution Preparedness, Response
OY	Optimum Yield
PFMC	Pacific Fishery Management Council
PMEL	NMFS Pacific Marine Environmental Lab
PRD	Protected Resources Division
PSC	Prohibited Species Catch
RAB	Research Advisory Board (IPHC)
RACE	Resource Assessment and Conservation Engineering
RARA	Report of Assessment and Research Activities
REFM	Resource Ecology and Fisheries Management
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (Report)
SHARC	Subsistence Halibut Registration Certificate
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
SRB	Scientific Review Board (IPHC)
TAC	Total Allowable Catch
UAF	University of Alaska
USFWS	U.S. Fish and Wildlife Service
USCG	U.S. Coast Guard
WPUE	Weight per Unit of Effort

i. Summary and Recommendations

This document is the Reassessment Report (ref AK/HAL/002./2016) for the US Alaska Pacific Halibut fisheries following Certification award against the Alaska RFM Program, awarded on April 28th 2011.

Pacific halibut (*Hippoglossus stenolepis*) is the species of focus in this Reassessment and Certification Report. The Pacific halibut commercial fishery employs benthic longline gear within the International IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international (IPHC), federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management.

The reassessment was conducted according to the Global Trust procedures for Alaska RFM Certification using the Alaska RFM Standard to Version 1.3 Standard.

The reassessment was conducted by a team of Global Trust appointed Assessors comprising of two members of Global Trust's internal staff and an externally contracted fishery expert. Details of the assessment team are provided in [Appendix 1](#).

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

During this reassessment two minor non-conformances were found on sub-clauses 4.2 and 12.6. The second minor NC on subclause 12.6 was closed following review of additional information submitted by FVOA. A corrective action plan has been provided by the client for the minor nonconformance on 4.2

Finally the Assessment Team recommends that the management system of the applicant fishery, the US Alaska Pacific halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, fished with benthic longline (within Alaska's 200 nm EEZ), should be awarded continuing certification to the AK Responsible Fisheries Management Certification Program.

ii. Schedule of Key Assessment Activities

Assessment Activities	Date(s)
Appointment of Reassessment Team	March 14 th 2016
On-site Witnessed Reassessment and Consultation Meetings	May 22 th – 25 th 2016
Draft Reassessment Report	July 25 th 2016
External Peer Review	November 25 th 2016
Final Reassessment Report	26 th January 2017
Certification Review/Decision	26 th January 2017

iii. Assessment Team Details

Dr. Ivan Mateo, Lead Assessor

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

Bill Brodie, Assessor

Independent fishery expert,
St. John's, Newfoundland, Canada.
Email: brodie_william@hotmail.com

Samuel Dignan, Assessor

SAI Global/Global Trust Certification Ltd.
Quayside Business Centre,
Dundalk, Co. Louth, Ireland.
Email: samuel.dignan@saiglobal.com

Jean Ragg, Program Administrator

SAI Global/Global Trust Certification Ltd.
Quayside Business Centre,
Dundalk, Co. Louth, Ireland.
Email: jean.ragg@saiglobal.com

1. Introduction

The US Alaska commercial Pacific halibut (*Hippoglossus stenolepis*) fishery, employing benthic longline gear in IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international (IPHC), federal (NMFS)/(NPFMC) and state (ADFG) management, was reassessed against the requirements of the AK-RFM Certification Program. The request for reassessment was made by the Fisheries Vessel Owner Association (FVOA) on behalf of the Alaska commercial halibut fisheries and participants, and was conducted by Global Trust Certification Ltd.

This reassessment report documents the reassessment procedure for the continuing certification of commercially exploited Alaska halibut to the Alaska RFM Certification Program. This is a voluntary program for Alaska fisheries and has been supported by ASMI who wish to provide an independent, third-party certification program that can be used to verify that Alaska fisheries are responsibly managed according to the FAO Code of Conduct for Responsible Fisheries.

The reassessment was conducted according to the Global Trust procedures for Alaska RFM Certification in accordance with EN45011/ISO/IEC Guide 65 accredited certification procedures. The reassessment is based on the criteria specified in the Alaska Responsible Fisheries Management (AKRFM) Standard Version 1.3. The Alaska RFM Standard is composed of conformance criteria based on the 1995 FAO Code of Conduct for Responsible Fisheries and the FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries adopted in 2005 and amended/extended in 2009; hereafter generally referred to as the FAO Criteria. 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.

The reassessment is based on 6 major components of responsible management that are derived from the FAO Code of Conduct for Responsible Fisheries and Guidelines for the Eco-labelling of products from marine capture fisheries:

- 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 13 fundamental clauses which in turn are sustained by 124 sub-clauses. Collectively, these form the Alaska RFM Conformance Criteria against which a fishery applying for certification is assessed.

The reassessment comprised of reassessment planning, onsite audits and certification reporting, Peer Review and Certification Committee review. Five meetings/visits were held during the site visit made to the fishery. At various stages in the reassessment process, information pertaining to the step in the reassessment process has been posted on the Alaska Seafood website at the following address: <http://www.alaskaseafood.org/rfm-certification/certified-fisheries-companies/certified-fisheries/>.

The Draft Report will also be available for comment by stakeholders who have registered interest with Global Trust during a 30 day period. (<http://www.GTCert.com>)

A summary of the consultation meetings is presented in section 5. Assessors were comprised of both external contracted fishery consultants and Global Trust internal staff ([Appendix 1](#)). Peer Reviewers were comprised of external contracted fisheries consultants ([Appendix 2](#)).

This report documents each step in the reassessment process and the recommendation to the Certification Committee of Global Trust who will preside over the certification decision according to the requirements of ISO/IEC Guide 65 accredited certification.

1.1. Recommendations of the Assessment Team

During this reassessment two minor non-conformances were found on sub-clauses 4.2 and 12.6. The second minor NC on subclause 12.6 was closed following review of additional information submitted by FVOA (See Section 9). Following the reassessment team approval of the client action plan to address the minor non-conformance found on sub clauses 4.2 during this reassessment, the reassessment Team recommends that the management system of the applicant fishery, the US Alaska Pacific halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, fished with benthic longline (within Alaska's 200 nm EEZ), should be awarded continuing certification to the Alaska RFM Certification Program.

2. Fishery Applicant Details

Table 1. Fishery Applicant Details.

Applicant Contact Information			
Organization/Company Name:	Eat on the Wild Side (Fishing Vessel Owners' Association (FVOA))	Date:	7/18/2016
Correspondence Address:			
Street:	4005 - 20th Ave. West, Room 232		
City:	Seattle		
State:	Washington	Zip code	98199
Country:	USA		
Phone:	+1 (206) 283-7735	E-mail Address:	robertalverson@msn.com
Key Management Contact Information			
Full Name:	(Last) <i>Alverson</i>	(First) <i>Robert</i>	
Position:	Manager		
Correspondence Address:			
Street:	4005 - 20th Ave. West, Room 232		
City:	Seattle	Zip code	98199
State:	Washington		
Country:	USA		
Phone:	+1 (206) 283-7735	E-mail Address:	robertalverson@msn.com

3. Background to the Fishery

3.1. Species Biology

Pacific halibut (*Hippoglossus stenolepis*) are the largest flatfish in the Family Pleuronectidae, with some individuals growing to over eight feet in length and over 500 pounds. Female halibut grow faster and reach larger sizes than male halibut with male halibut rarely reaching three feet in length. The scientific name for Pacific halibut was first proposed in 1904 by P.J. Schmidt, a Russian scientist who noted anatomical differences such as scale shape, pectoral fin length, and body shape that distinguished it from the Atlantic halibut (*Hippoglossus hippoglossus*). Like other flatfish Pacific halibut are flattened laterally, and swim sideways, with one side facing down and the other facing up. Halibut larvae start life in an upright position like other fish, with an eye on each side of the head. When the larvae are about one inch long the left eye moves to the right side of the head and the coloration on the left side of the body fades. The fish end up with both eyes on the pigmented (olive to dark brown), or right, or upper side of the body, while their underside is white.

Pacific halibut are typically found over a variety of bottom types at depths of 20 to 1,000 feet on or near the continental shelf throughout much of the northern Pacific Ocean. Their range extends from California northward to the Chukchi Sea, and from the Gulf of Anadyr, Russia southward to Hokkaido, Japan. The management area of the International Pacific Halibut Commission (IPHC) covers the continental shelf from northern California to the Aleutian Islands and throughout the Bering Sea. The eastern north Pacific halibut resource is presently managed under the assumption that a single, fully-mixed population exists from California through the eastern Bering Sea. This theory rests largely upon studies that indicate there is northwest larval drift balanced by compensatory migration of juveniles and adults to the southeast, over broad geographic expanses, together with tag recovery data showing extensive movement of fish (Figure 1).

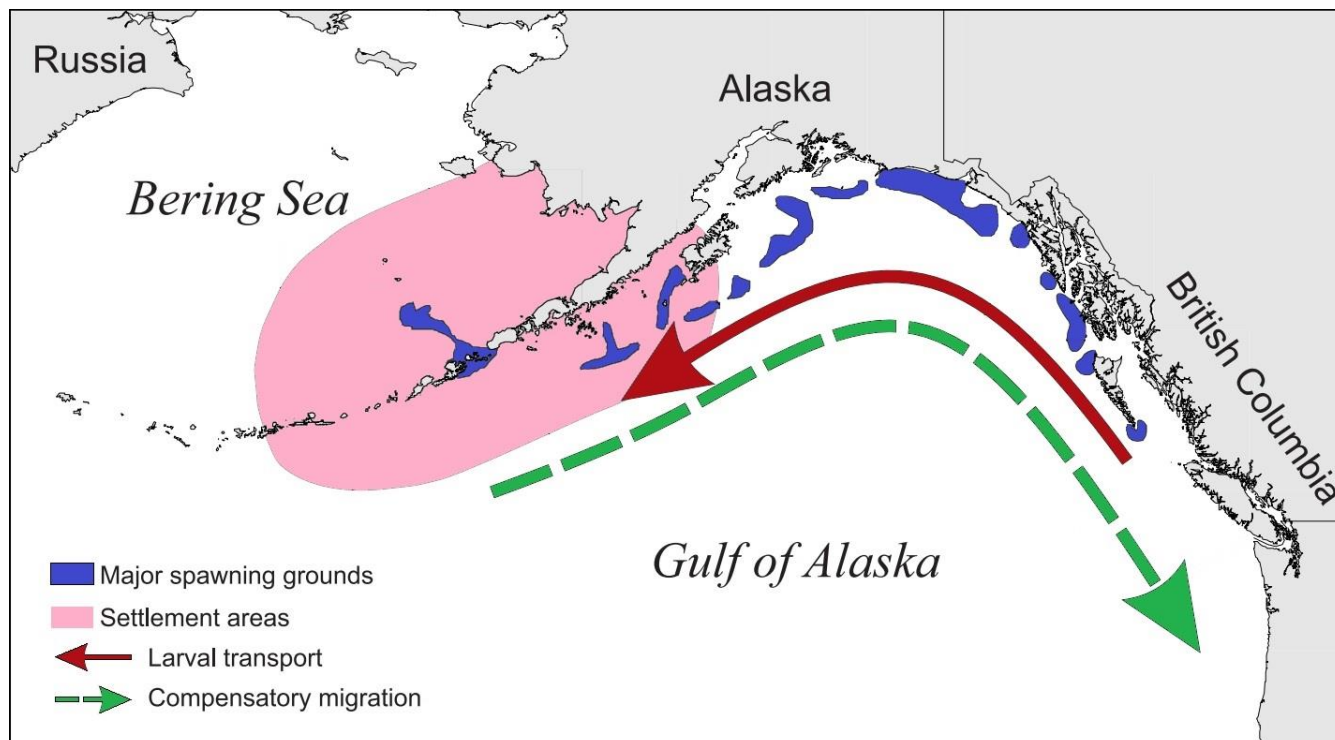


Figure 1. Major spawning and settlement areas for Alaskan Pacific halibut with arrows depicting directions of larval transport and adult compensatory migration (Figure adapted from: <http://tinyurl.com/zrxqtyo>).

Most male halibut are sexually mature by about 8 years of age, while half of the females are mature by about age 12. Halibut spawn annually from November to March, at depths of 300 to 1,500 feet. Pop-up Archival Transmitting tag data have recorded periods where halibut swim up off the bottom and drift back down to the sea floor, repeating this several times. While this behavior is not fully understood, it seems to conform with "spawning rises" witnessed in other flatfish, where females move up into the water column to release eggs while accompanying males fertilize them externally allowing for better egg dispersal. Depending on the size of the fish, female halibut release anywhere from 500,000 eggs for a 50-pound (23 kg) fish to over 4 million for a 250 lb (113 kg) fish.

About 15 days after fertilization, the eggs hatch and the larvae enter a pelagic stage where they are neutrally buoyant and are transported by ocean currents, sustained by their large yolk sac until the early post-larva stage. As the larvae mature, they move higher in the water column and ride the surface currents to shallower, more nourishing coastal waters. In the Gulf of Alaska, the eggs and larvae are carried generally westward with the Alaska Coastal Current and may be transported hundreds of miles from the spawning ground. Six months after hatching, young halibut have developed the characteristics of the adult form and are ready to settle in the shallows of inshore areas (Figure 2).

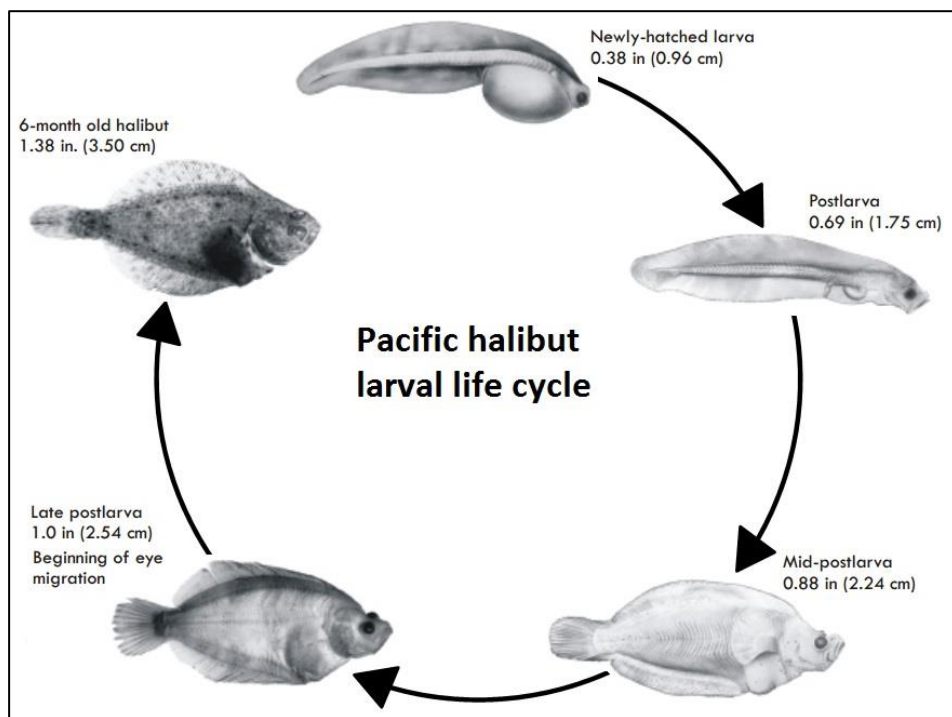


Figure 2. Schematic of the larval stage of Pacific halibut life cycle. (Source: <http://tinyurl.com/jmudhqu>).

During their first year halibut are planktivorous while halibut from 1 to 3 years old feed on euphausiids (small shrimp-like crustaceans) and small fish. The percent of the diet occupied by fish increases with size and age with larger Pacific halibut feeding mainly on fish including other abundant or commercially important species such as walleye pollock (*Theragra chalcogramma*), Pacific cod (*Gadus macrocephalus*), saffron cod (*Eleginus gracilis*), Pacific herring (*Clupea pallasii*), Japanese sardine (*Sardinops melanostictus*), capelin (*Mallotus villosus*), Pacific sand lance (*Ammodytes hexapterus*), Atka mackerel (*Pleurogrammus monopterygius*), sandfish (*Trichodon trichodon*), arrowtooth flounder (*Atheresthes stomias*), yellowfin sole (*Limanda aspera*), sculpins (Cottidae), salmon (*Oncorhynchus spp.*), eelpouts (*Lycodes spp.*), snailfishes (*Liparis spp.*). Larger Pacific halibut also feed on various species of crabs, shrimps, squids, and octopi.

Pacific halibut can be aged by counting the annual pattern of growth rings within the otoliths (ear-bones). While the oldest recorded specimens have been in excess of 50 years old most fish found in the fishery are in their teens and early 20s. Pacific halibut are generally pre-teens (8 to 12 years old) when they reach the minimum size limit (MLS) for the commercial fishery of 32 inches.

Halibut size-at-age has changed over time. For example, the average length and weight of halibut of each age increased from the 1920s to the 1970s, and has decreased since then. By the 2000s, 12-year-old halibut were about three-quarters the length and about one-half the weight they were in the 1980s. Reasons for changes in size-at-age are unknown. The changes are not correlated with changes in ocean temperature. Other possible causes include competition with other species, competition among halibut, climate effects on growth or survival, effects of fishing and size limits, changes in how halibut are aged, or combinations of factors.

Juvenile and some adult halibut migrate generally eastward and southward, into the Gulf of Alaska coastal current, countering the westward drift of eggs and larvae (Figure 3). Halibut tagged in the Bering Sea have been caught as far south as the coast of Oregon, a migration of over 2,000 miles. As a result of the extensive movements of juvenile and adult halibut, the entire eastern Pacific population is treated as a single stock for purposes of assessment. Research is continuing to determine if there are spawning sub-stocks of varying productivity. Halibut also move seasonally between shallow waters and deep waters. Mature fish move to deeper offshore areas in the fall to spawn, and return to nearshore feeding areas in early summer. It is not yet clear if fish return to the same areas to spawn or feed year after year.

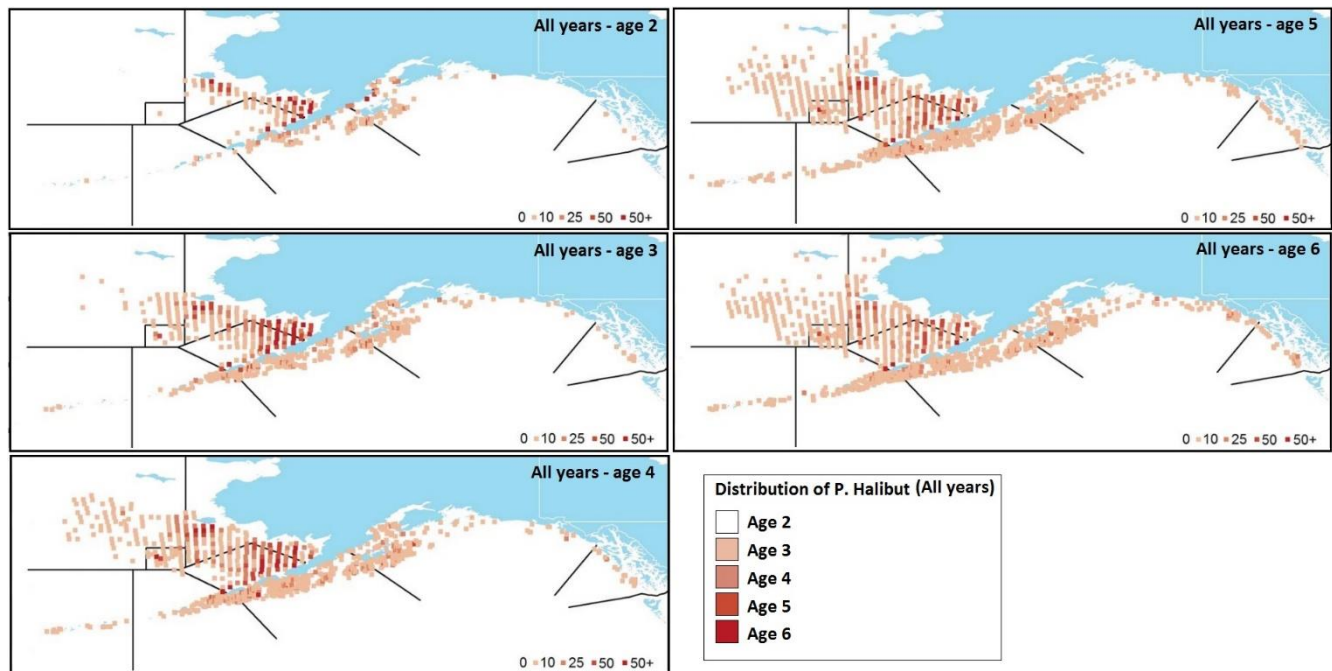


Figure 3. Distribution of halibut at ages 2-6 for all years combined from National Marine Fisheries Service (NMFS) groundfish trawl surveys (Figure adapted from: <http://tinyurl.com/zrxqtyo>).

3.2. Fishery Location

During the mid-1920s, the IPHC, or the International Fisheries Commission (IFC) as it was then known, partitioned the commercial fishing grounds for halibut into a number of statistical areas intended to be used as convenient analytical units for tabulating and analyzing catch, biological, biometric and migration data. The boundaries of the original statistical areas have been revised and added to since their inception for a variety of reasons including the expansion of the fishing grounds, improved understanding of halibut distribution and the need to aggregate data into smaller management units. From the originally defined 35 areas, the Commission now recognizes over 100 statistical areas extending from California, north-westward along the North American coastline, to the United States-Russia boundary, including the Bering Sea.

In addition to the statistical areas, the IPHC uses a set of larger regional units called regulatory areas. The regulatory areas are the reported management units used by IPHC. Most data are aggregated at the statistical area level and are then combined to compute statistics at the regulatory area level. Management and regulatory decisions, such as catch limits, seasons, and restrictions, are implemented at the regulatory area level. There are currently ten regulatory areas eight of which are off the coast of Alaska with the other two, Area 2A and 2B located off the coasts of Washington/Oregon and British Columbia respectively (Figure 4). Note only those areas within the boundaries of the Alaskan EEZ in the North Pacific (i.e. those outlined in green in Figure 5) are covered in detail in this assessment and only catches from these areas are ultimately eligible for Certification.

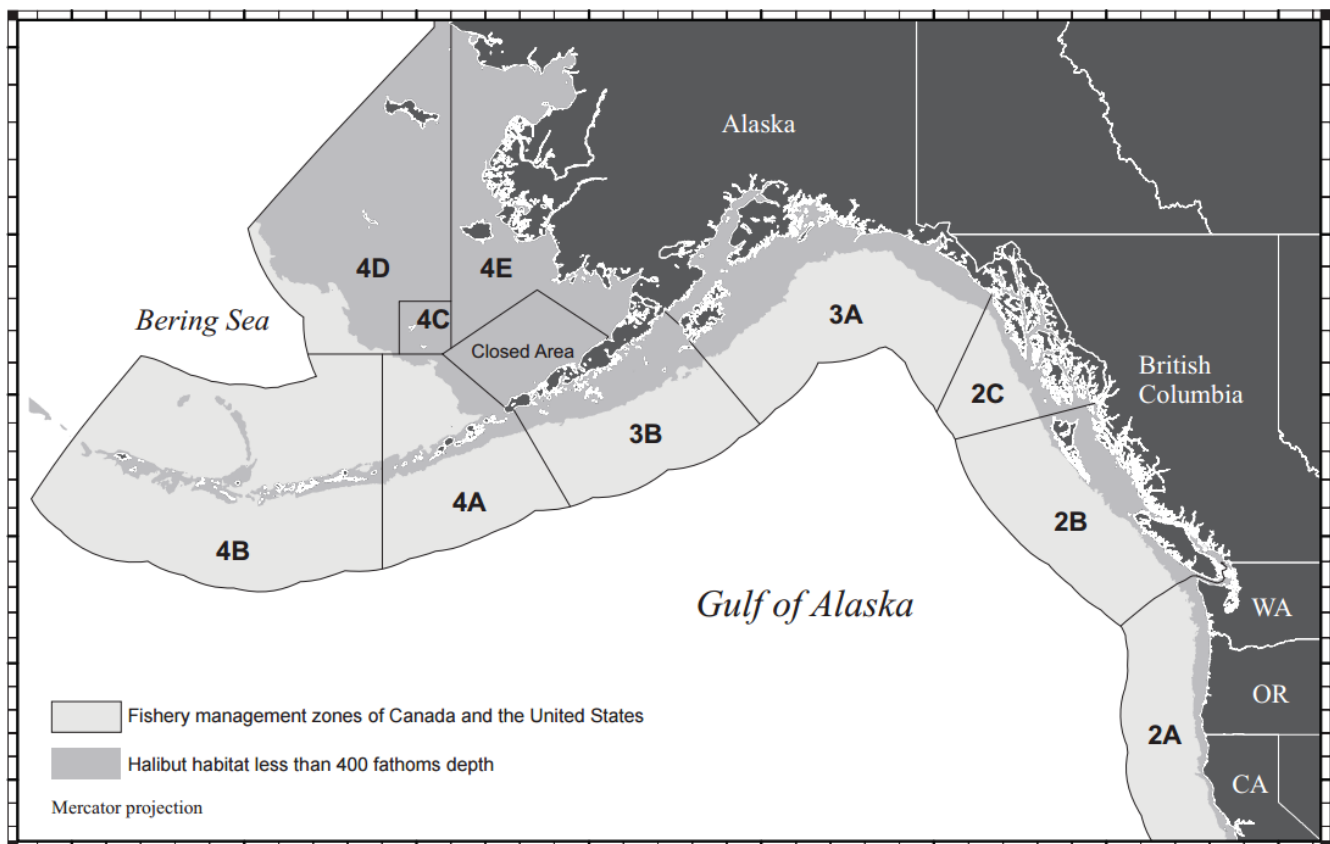


Figure 4. IPHC Regulatory Areas for the 2015 fishery (Source: Gilroy *et al.*, 2015¹).

¹ <http://www.iphc.int/publications/rara/2015/IPHCRARA2015.pdf>

The majority of landings from 2010 to present have come from 3A, 3B, and 2C with the main landing ports consistently being Kodiak and Homer (Figure 6). Dutch harbor has a greater contribution to overall landings in seasons where there are greater allocations in Areas 4A and 4B. In addition to Individual Fishing Quotas (IFQs) Community Development Quotas (CDQs) are also allocated in Areas 4B, 4C, 4D and 4E.

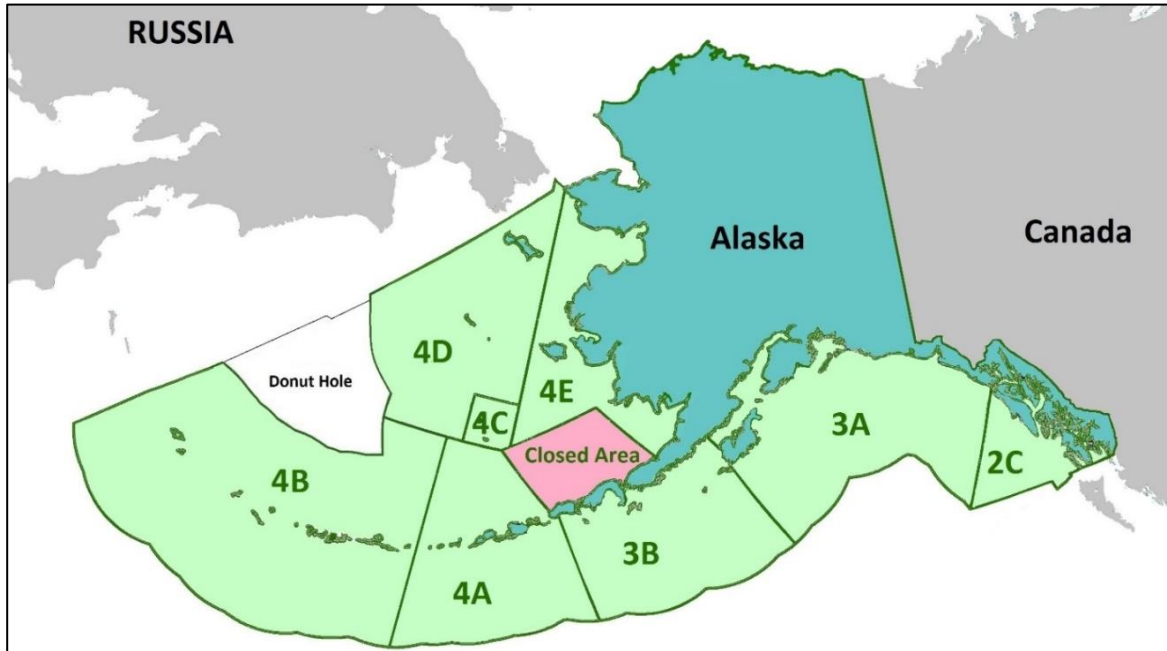


Figure 5. IPHC Regulatory Areas within the boundaries of the Alaskan EEZ in the North Pacific that are covered in detail in this assessment and from which catches eligible for Certification may come. Note “Closed Area” represents the IPHC Bering Sea Closed Area which is closed to directed halibut fishing (Modified from: <http://tinyurl.com/jnclh6r>).



Figure 6. Main landing ports for the Alaskan Pacific halibut IFQ fishery.

3.3. Fishing Method

The only fishing gear that fishers may legally employ to catch halibut commercially in the Alaskan fishery are benthic longlines. Longliners, as vessels that fish with longlines are known, use a long line (“groundline”) that is laid on the seabed to catch demersal species of fish (bottomfish), including halibut, sablefish and lingcod (Figure 7). Attached to the groundline are leaders or gangions with baited hooks. Each longline can be up to a mile in length and have thousands of baited hooks. The lines are anchored at each end of each set (skate). Lines at both ends of the set run to the surface and are marked with a buoy and flag. A longline vessel typically sets several lines for a 24-hours soak. The lines are retrieved over a side or stern roller with a power winch and the fish caught are bled and or dressed and then packed in ice in the vessel’s holds.

Longliners are typically large vessels, 50 to 100 feet long, with a weather cover on the stern to protect the crew. The longlines are coiled and stacked on deck or on the winch, when not in use. Most vessels in this fishery can pack 20 to 40 tons or more of iced product before returning to port. Longliners are readily identified by their weather cover and, when not fishing, by the numerous orange buoys and flags that are tied along their rails. In the case of halibut vessels deliver their catch whole and gutted for subsequent sale to fresh and frozen markets.

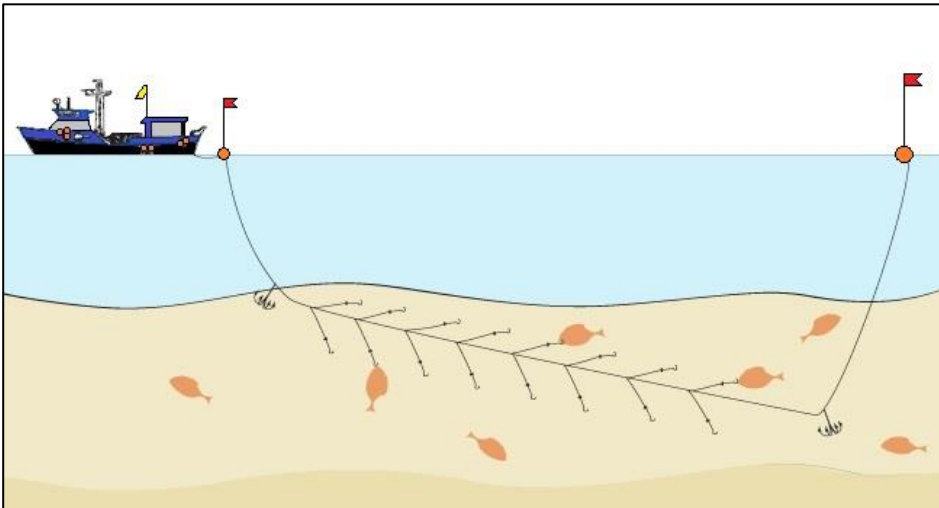


Figure 7. Schematic of a benthic longline as employed in the Alaskan halibut commercial fishery.



Figure 8. Picture of a typical Alaskan halibut longline (note weather cover/shelterdeck on the stern). (Source: <http://tinyurl.com/zvrctqk>.)

3.4. Fishery Management History and Organization

Aboriginal peoples in North America have fished halibut for thousands of years. Commercial longline fisheries based in Seattle and Vancouver developed shortly after the completion of the first transcontinental railroads to those cities. Late in the nineteenth century and in the early years of the twentieth century the fishery went through the classic boom-and-bust cycle. From a small beginning off Cape Flattery and the southern end of Vancouver Island, the Pacific halibut fishery expanded rapidly in sheltered waters and by 1910 extended some seven hundred miles northward to Cape Spencer in South-eastern Alaska.

By 1914, halibut stocks appeared to be declining, and industry began petition both the U.S. and Canadian governments to manage and control the fishery. Efforts to consummate a treaty in 1919 were unsuccessful, but the halibut industry persisted in advocating international control. In 1922, another convention was drafted that excluded sensitive provisions of port-use and tariffs, and Canada and the United States signed the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean on March 2, 1923. The treaty, noteworthy in that it was the first treaty to be concluded anywhere for the conservation of a depleted deep-sea fishery, established an international commission to regulate the north Pacific halibut fishery. The International Fisheries Commission (IFC), later renamed the International Pacific Halibut Commission (IPHC) was born. The Commission was charged with studying the life history of halibut and with recommending regulations for the preservation and development of the fishery. Subsequent treaties in 1930, 1937, and 1953, as well as a 1979 protocol to the convention, left much of the original intent and wording in effect.

Throughout its first four decades the Commission managed the length of the halibut season to control fishing effort and in 1975 the season was 125 days. However, improving stock and price conditions increased effort and demand and by 1985 the season shrank to 25 days. The decline continued and eventually in 1994, the season had shrunk to less than three days for a majority of the U.S. fishery. In response the Canadian government adopted Individual Vessel Quotas (IVQ) in 1991 to manage the fishery and the U.S. following suit in 1995 with the introduction of the Individual Fishery Quota (IFQ) program. Halibut quota is now allocated to vessels and individuals in Canada and the U.S respectively and the fishing season has again been extended to nearly nine month season.

The pioneering conservation effort has proved highly successful as regulations imposed by what became the IPHC, which allowed the depleted Pacific halibut population to rebound significantly. IPHC's mandate is research on and management of the stocks of Pacific halibut (*Hippoglossus stenolepis*) within the Convention waters of both nations. Specifically the IPHC main objective is to set annual catch limits between the two countries and between the regulatory areas and conduct research on the halibut stocks in order to conserve the biological viability of the stock, while allowing for maximum sustainable yield harvests from commercial, sport and subsistence users.

Today the IPHC consists of three government-appointed commissioners for each country who serve their terms at the pleasure of the President of the United States and the Canadian government respectively. The IPHC receives money from both the U.S. and Canadian governments to support a Director and staff currently consists of approx. 30 permanent employees, including fishery biologists, administrative personnel and support staff, located in Seattle. IPHC sets total allowable catch levels for halibut that will be caught by recreational, subsistence and commercial harvesters in the U.S. and Canadian EEZs.

As discussed previously, the Pacific halibut stock ranges from Alaska to California straddling both U.S. and Canadian territorial waters. As a result of the transboundary nature of the stock the fishery management system evaluated in this report is a combination of the management frameworks of both the IPHC (discussed above), and the North Pacific Fishery Management Council (NPFMC) (the U.S. Regional Fishery Management Council with

jurisdiction in Alaska). The IPHC Commissioners recommend TACs for each country (US and Canada) with the management authority for each country then being responsible for setting, managing and administering the TAC within their waters.

The two main legal instruments that form the legal and administrative framework for Alaskan halibut fisheries are the North Pacific Halibut Act (NPHA) and the Magnuson-Stevens Act (MSA). The NPHA (1982) implements the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea between the U.S. and Canada, provides for the appointment of U.S. Commissioners to the IPHC, specifies the responsibilities that the U.S. Secretary of Commerce has for carrying out the treaty, and provides for the regulation of the U.S. portion of fishery by the North Pacific and Pacific Fishery Management Councils (NPFMC and PFMC). Other legal instruments governing the management of the Pacific halibut fishery in Alaska include the Marine Mammal Protection Act, the Endangered Species Act, the Migratory Bird Treaty Act, National Environmental Policy Act, Administrative Procedures Act, and other treaties, laws, and policies.

Aside from the IPHC described above, a brief description of management bodies involved in the Alaskan halibut fishery follows, with Figure 9 presenting a flowchart depicting how each relates to the other:

The North Pacific Fishery Management Council (NPFMC)

The NPFMC is one of eight regional councils established by the Magnuson Fishery Conservation and Management Act in 1976 (which has been renamed the Magnuson-Stevens Act; MSA) to oversee management of the nation's fisheries. NPFMC recommends regulations to govern the directed halibut fisheries in waters off Alaska (provided its actions do not conflict with regulations recommended by the IPHC); and makes allocation decisions among halibut users and user groups fishing off Alaska: non-treaty commercial (incidental salmon troll, directed longline halibut, and incidental longline sablefish fisheries), sport, and treaty Native commercial, subsistence, ceremonial and educational.

In 1995, NPFMC and NOAA Fisheries Service Alaska Regional Office implemented an individual fishing quota (IFQ) system for the Alaska halibut industry, similar to Canada's program implemented in 1991. As a result, the commercial fishing season was extended from only days to 8 months or more. This ended the derby fishery with its incredible loss in gear, halibut resource (through wastage and spoilage), economic returns and human life. The new IFQ system increased the value of the fishery while reducing over 32 inches (above legal size) halibut wastage.

The National Marine Fishery Service (NMFS)

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is responsible for the management, conservation, and protection of living marine resources within the US EEZ. The Alaska Region of NOAA Fisheries oversees fisheries that produce about half the fish caught in US waters, with responsibilities covering 842,000 square nautical miles off Alaska.

For the Alaska halibut fishery, NMFS works closely with the NPFMC and the IPHC, performing scientific research (groundfish trawl surveys, conservation of wildlife such as marine mammals and habitat conservation) and being responsible for developing, implementing, and enforcing regulations pertaining to management of halibut fisheries in US waters. In addition, the NMFS has implemented in February 1, 2011, a Charter Halibut Limited Access Program for Areas 2C (SE Alaska) and 3A (Central GOA). NMFS is also developing regulations to implement a catch sharing plan to allocate halibut between the commercial and charter fisheries in Alaska. NMFS also manages the halibut subsistence fishery for Native, rural, ceremonial and educational purposes.

Alaska Department of Fish and Game (ADFG)

The state of Alaska participates in management through the Alaska Department of Fish and Game (ADFG) Commissioner’s seat on the NPFMC. ADFG licenses halibut anglers and sport fishing businesses and guides, monitors and reports on sport and subsistence halibut harvests, and assists federal agencies with preparation of regulatory analyses.

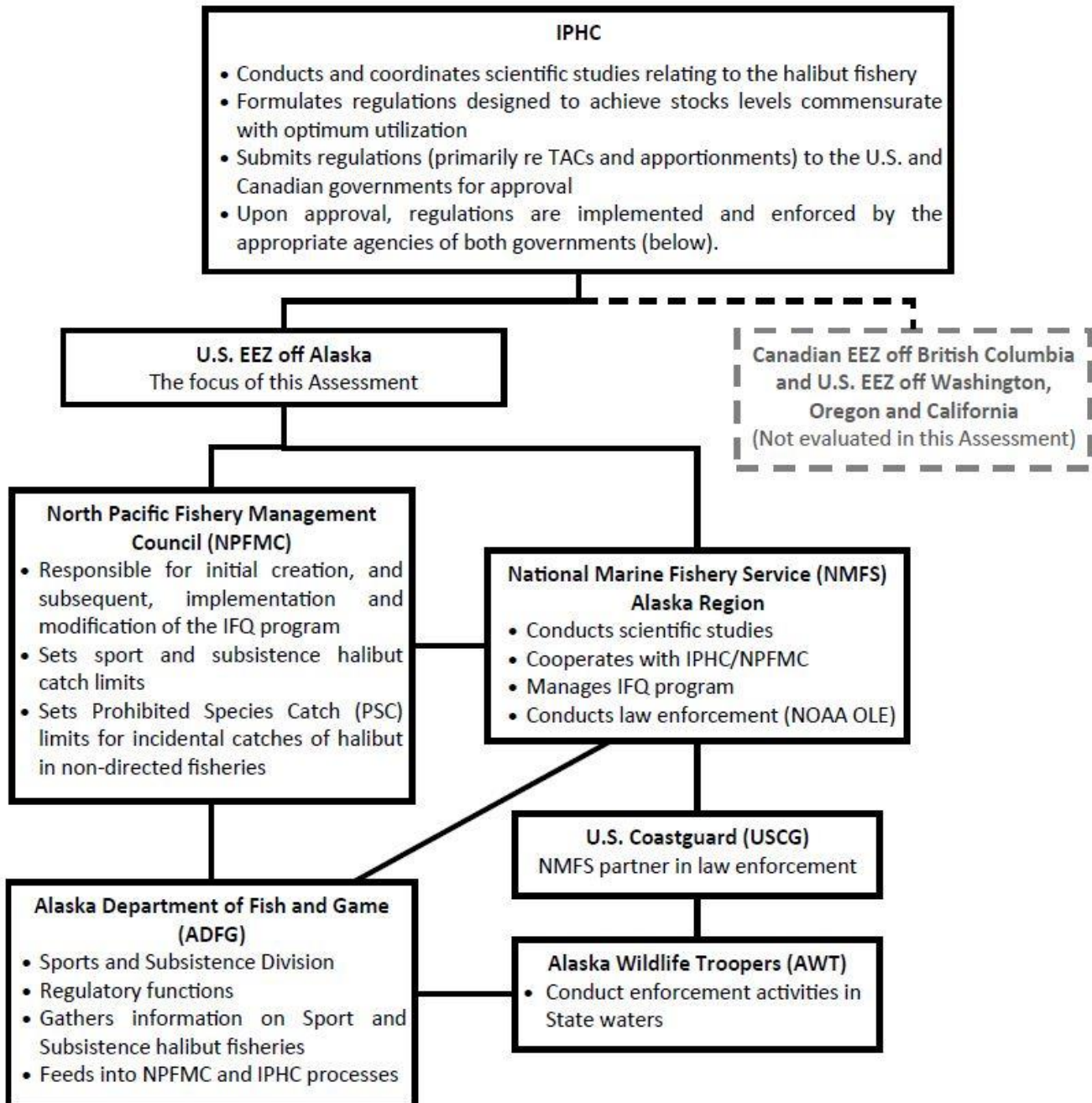


Figure 9. Fishery Management Organizational Chart for North Pacific Halibut fisheries within the IPHC Convention Area.

3.5. Stock Assessment Activities

The Pacific halibut fishery has been managed by the International Pacific Halibut Commission (IPHC) since its creation in 1923. 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 halibut in the western Pacific Ocean and other adjacent areas is not considered to be substantial and is therefore not accounted for (Stewart et al. 2016). Although the stock is assessed as a single unit, catch limits for each of eight regulatory areas are determined from the assessment process, and set annually by IPHC. All sources of catch and mortality are included in the assessments, including commercial fishing, sport fishing, and by-catch. Biological samples and data collected from surveys and fisheries feed into the assessment process, and all sampling, catch estimation, and survey procedures are fully documented in the IPHC annual reports on research and assessments (RARA). IPHC maintains extensive databases of the information required to produce the annual assessments.

Methods used by IPHC to assess halibut have progressed over time, particularly as mathematical and statistical procedures have evolved (Quinn et al. 1985; Clark 2003). In the 1960's the maximum yields that could be obtained on a sustained basis were determined with stock production and yield per recruit models. Several investigations in the 1970's focused on catch-per-unit-effort and its use as an index of population abundance. Efforts in the mid to late 1970's involved the use of catch at age data to estimate abundance, leading to the use of cohort analysis models in 1978. Subsequent investigations also examined fecundity and stock recruitment relationships, leading to more detailed population modelling in the 1980's and thereafter. Assessments were done on a coastwide basis from 1978 to 1994, area-specific basis from 1995 to 2006, and back to coastwide since then.

In the current approach, used in the 2014 and 2015 stock assessments, an ensemble of four equally-weighted age-based stock assessment models combining short vs. long time series, and coastwide vs. area specific models was used to explore the range of plausible stock-size estimates. The ensemble approach recognizes that there is unlikely to be one perfect assessment model, and that robust risk assessment can best be achieved by including multiple models in the estimation of management quantities and the uncertainty about these quantities (Stewart et al. 2016). The four models employed stock synthesis software, a widely-used age-based population modeling tool developed at the National Marine Fisheries Service (Methot and Wetzel 2013). Each of the four models in the ensemble showed a similar historical pattern, i.e. stock declining from the late 1990s, with several years of relative stability at the end of the time-series. The differences among the individual models in ensemble are most pronounced prior to the early 2000s, as seen in Figure 10:

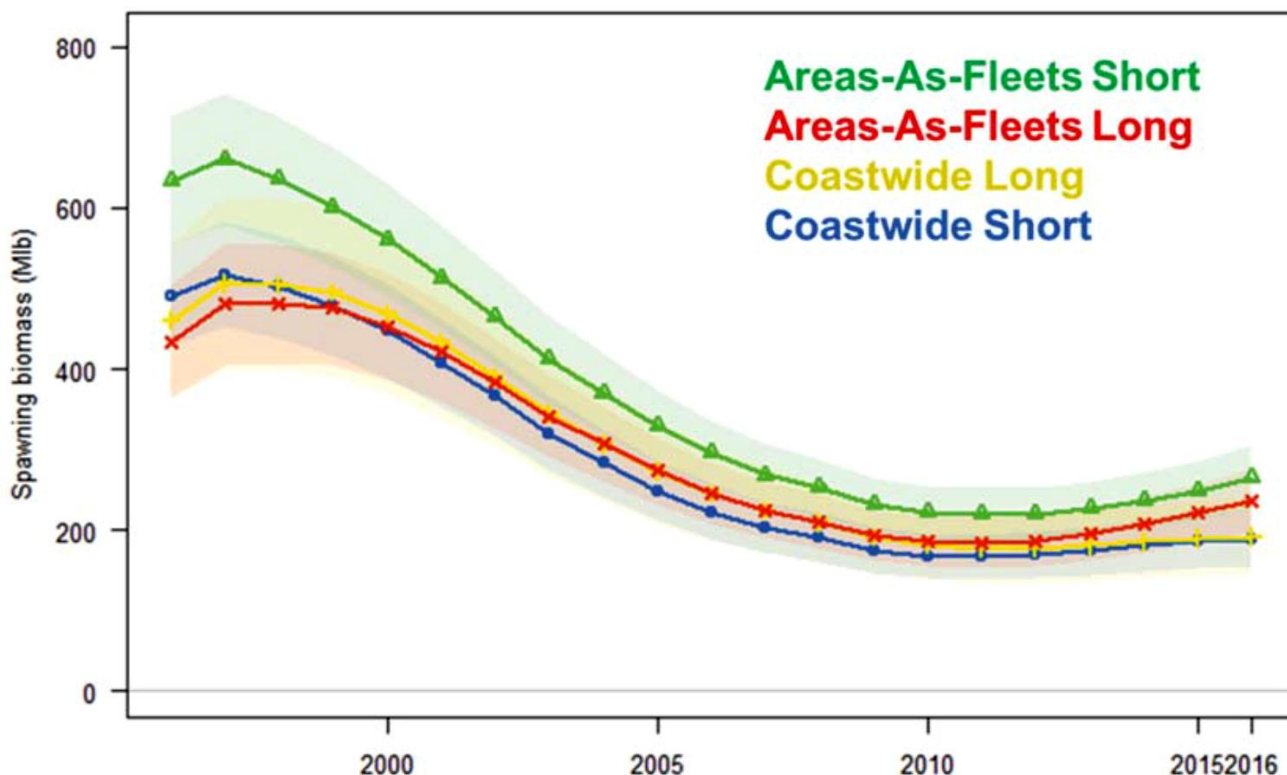


Figure 10. Comparison of models included in the 2015 stock assessment. Solid lines show the point estimates, dashed lines and shading approximate 95% confidence intervals. (Source: Stewart et al. 2016).

The stock assessments are presented, reviewed, and discussed in public meetings organized by IPHC, in advance of their annual meetings. The annual stock assessments are also reviewed by the IPHC Scientific Review Board (SRB). IPHC formed the SRB to provide scientific review of IPHC science products and programs, and to support and strengthen the stock assessment process. At present, the SRB is comprised of two scientific experts from universities, and one from NMFS. Two reviews were conducted by the SRB during 2015, including reviews of progress on stock assessment issues and abundance-based bycatch management. The second meeting helped refine the models to be included in the final assessment ensemble. The SRB reports are included in the annual science reports of IPHC (e.g. Cox et al. 2016). IPHC has also contracted to have reviews of its stock assessments done periodically by the Center for Independent Experts (CIE) at the University of Miami, which also supplies external reviewers for NMFS assessment reviews.

3.6. Historic Biomass and Removals in the Fishery

As described in the 2015 assessment report (Stewart et al. 2016) halibut removals over the last century have averaged about 63 Mlb pounds annually, ranging from 34 to 100 Mlb. IPHC reports catches in millions of pounds (Mlb), and weights are reported as ‘net’ weights, with head and guts removed (approx. 75% of the round or total fish weight). Annual removals were above average from 1985 through 2010 and then decreased annually from a peak in 2004 until 2014 in response to management measures (Figure 11). Commercial fishery landings in 2015 were 24.7 Mlb, and total sport removals 7.1 Mlb, both figures up slightly from 2014. Bycatch mortality was estimated to be 7.7 Mlb, the lowest level in several years. All combined, removals from all sources in 2015 were estimated to be 42.0 Mlb, almost the same as in 2014 at 42.1 Mlb. (Stewart et al. 2016).

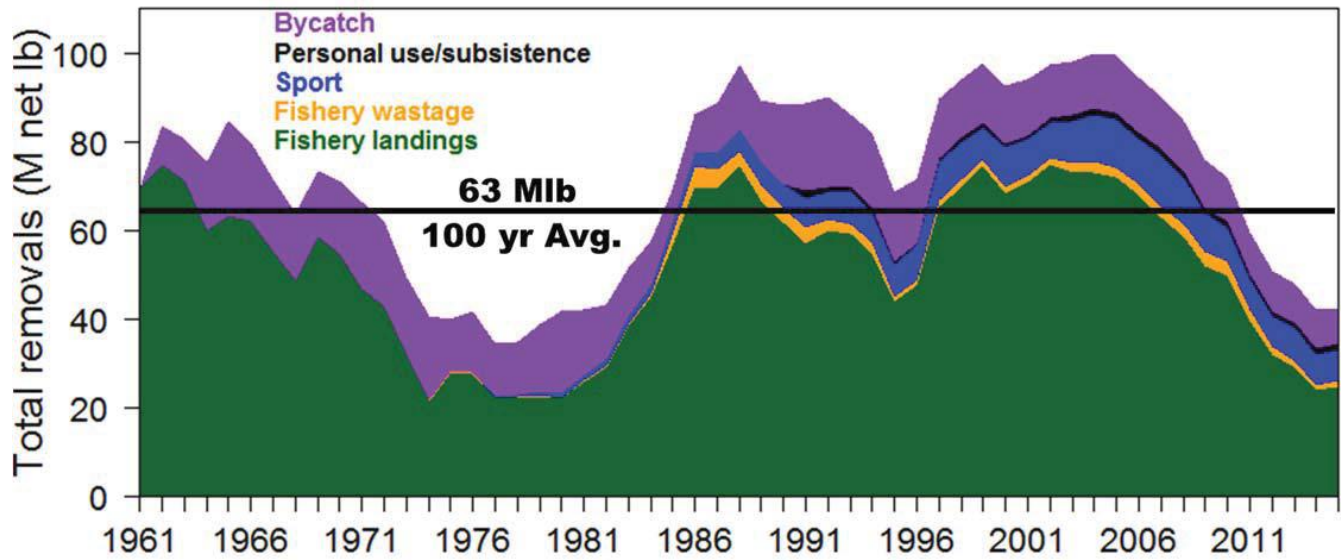


Figure 11. Total halibut removals, 1961-2015 (From Fig. 41, Stewart and Monahan 2016).

Following an increase from the late 1970’s to about 2000, the halibut spawning stock biomass declined before levelling off and increasing slightly in recent years (see Figure 12) From the projections based on the 2015 stock assessment, the stock is projected to increase gradually over 2017-2019, if removals are 40 Mlb or less (Stewart et al. 2016). IPHC determined the total catch level (TCEY) for halibut in the 2016 fisheries to be at about 39.6 Mlb²

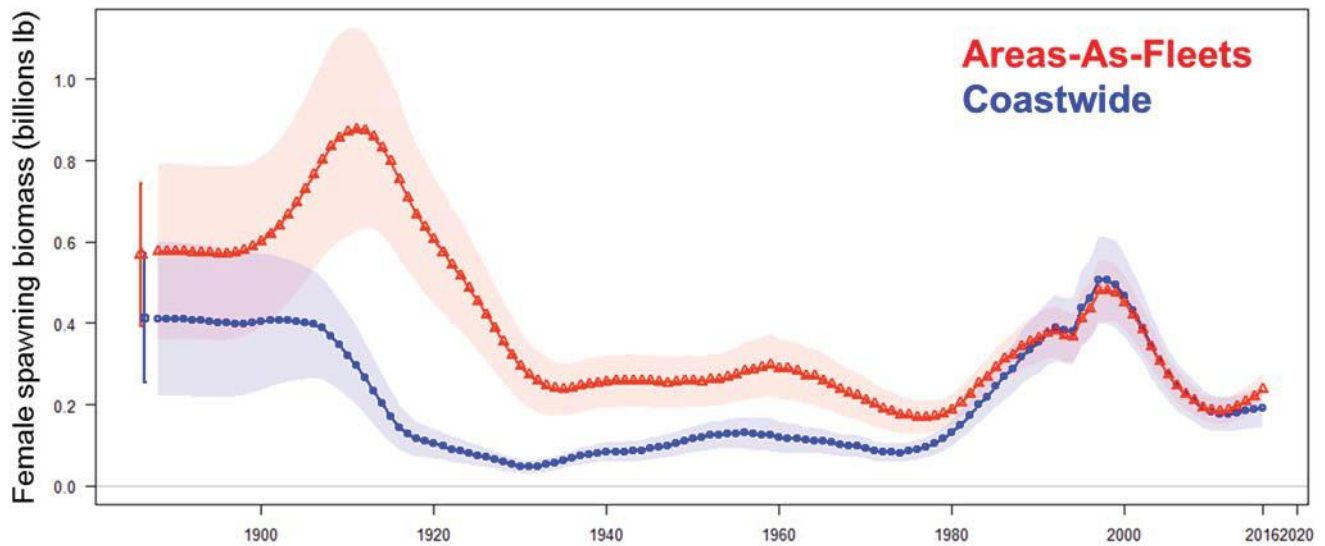


Figure 12. Spawning biomass estimates from the two long time-series population models used for halibut in the 2015 assessment. Shaded region indicates the approximate 95% confidence interval (Source: Stewart et al. 2016)

² [http://iphc.int/meetings/2016am/Final Adopted catch limits 1 29 16.pdf](http://iphc.int/meetings/2016am/Final_Adopted_catch_limits_1_29_16.pdf)

3.7. Economic Value of the Fishery

The halibut resource in Alaska contributes to the economy mainly through the commercial fisheries as well as sport/recreational fishing. Fissel et al. (2015) show a number of tables with economic data in the Alaskan commercial longline fishery for halibut, including Table 2.

Table 2. Ex-vessel and price in the commercial Pacific halibut off Alaska by FMP area, 2010-2014 (\$millions and \$/lb net weight, respectively) (Source: Fissel et al. 2015).

Year	Gulf of Alaska		Bering Sea & Aleutian Islands		All Alaska	
	Value	Price	Value	Price	Value	Price
2010	173.53	4.70	29.33	4.29	202.86	4.63
2011	162.89	6.34	43.60	6.08	206.49	6.29
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	87.94	6.16	15.73	5.33	103.67	6.01

These data indicate that the ex-vessel value of the Alaskan commercial halibut catch was just over \$100 million in 2014, and was about half the value of the 2010-2011 fisheries. Note that the price per pound fluctuates considerably 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.

A study by Lew et al in 2015, based on 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.

The IPHC currently has no expertise in economic analysis on staff but has engaged an outside group to conduct a study of the economic impacts of the halibut fishery, with results expected in 2017.

4. Proposed Units of Assessment

The following are the proposed units of assessment and certification for the U.S. Alaska Pacific Halibut Commercial Fishery.

Table 3. Proposed units of assessment and certification for the U.S. Alaska Pacific Halibut Commercial Fishery.

Unit of Certification			
U.S. ALASKA PACIFIC HALIBUT COMMERCIAL FISHERIES			
Fish Species (Common & Scientific Name)	Geographical Location of Fishery	Gear Type	Principal Management Authority
Pacific halibut (<i>Hippoglossus stenolepis</i>)	Gulf of Alaska (GOA) and Bering Sea & Aleutian Islands (BSAI)	Benthic longline	International Pacific Halibut Commission (IPHC) National Marine Fisheries Service (NMFS) North Pacific Fishery Management Council (NPFMC) Alaska Department of Fish and Game (ADFG)

5. Consultation Meetings

5.1. On-Site Assessment and Consultation Meetings

Table 4. On-Site Assessment and Consultation Meetings.

Meeting Date and Location	Personnel	Areas of discussion
<p>Date: May 16th 2016</p> <p>Location: NPFMC Anchorage Time: 9:30 AM</p>	<p>NPFMC Chris Oliver James Armstong Diane Evans</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Changes to key management measures for 2015-16, ▪ Changes to vessel or fleet allocations, apportionments, or in the way either of the fisheries operated in 2015 ▪ Changes in 2015-16 to technical measures such as closed areas or seasons, or to fishing gears, that would impact either sablefish or halibut ▪ Concerns, for either resource, with current or projected stock status from the most recent assessments ▪ Concerns with coverage levels, or other key aspects of the observer program, ▪ Comments on the review of the 2015 Observer Annual Report ▪ Update on electronic/video monitoring. ▪ Overview Halibut Management Committee, and its impact management of halibut ▪ Discussion on impact of recent measures to reduce halibut by-catch (e.g. amendment 95 for GOA groundfish fisheries) ▪ Update on establishing abundance-based PSC limits for Pacific halibut in the BSAI groundfish fisheries. ▪ Update of recent work on discard mortality rates for halibut and potential impacts on PSC limits. ▪ Update on the Community Quota Entity Program, Rural Outreach Committee, and any other outreach programs. ▪ Update on Essential Fish Habitat review in 2015-16, how will this impact management in 2016-17 ▪ analysis on compliance in the groundfish fishery ▪ Update on IPHC Management Strategy Evaluation process. (Results to date and resulting actions) ▪ Update on potential to allow on-deck sorting of halibut by trawl vessels ▪ Updates on measures to reduce overages in the charter halibut fisheries in 2C and 3A ▪ Subsistence fishing for halibut. Scale and accounting mechanism
<p>Date: May 17th 2016</p>	<p>IPHC Bruce Leaman Ian Stewart</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Updates on the IPHC's annual setline survey.

Meeting Date and Location	Personnel	Areas of discussion
<p>Location: IPHC Seattle Time: 9:30 AM</p>	<p>Allan Hicks</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<ul style="list-style-type: none"> ▪ Update on possible effects of whale depredation on survey results. ▪ Update on trawl survey calibration studies. ▪ concerns with availability of fishery catch data/reporting from any fleet sectors/areas ▪ Progress on development of alternative models using explicit spatial structure and/or migration for future stock assessments and/or inclusion into the ensemble approach, as well as the MSE. ▪ Progress on determination of sex-ratio in catches. ▪ Possible resolution of differences in natural mortality in the AAF model vs the coastwide model. ▪ Update on MSE/MSAB. Progress in developing operating models. ▪ Progress on investigating ecosystem effects and inter-species interactions with halibut ▪ Progress on long-term environmental and ecological drivers of halibut size-at-age. ▪ Progress on Investigating factors underlying fishery responses to halibut PSC caps ▪ Update on tagging programs/results ▪ Consideration of approaches to include catch/mortality from all sources in management (effects of U32 mortality, use of SPR, ties to MSE approach). ▪ changes to key management measures for 2015-16, and possible impact on halibut fishery or assessment ▪ Discussion main bycatch/discards of non-halibut species in the halibut directed fishery ▪ Discussion on bycatch and discard avoidance mechanisms/improved selectivity, regulatory measures and technical, operational methods in use by the fleet. ▪ Progress on developing index-based PSC limits for halibut in various fisheries. ▪ Endangered species interactions in 2015 fishery and survey (e.g. short-tailed albatross)
<p>Date: May 17th 2016</p> <p>Location: Fisheries Terminal Seattle Time: 1:30 PM</p>	<p>Client meeting FVOA Robert Alverson</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Status of the stocks in reassessment and past client activities
<p>Date: May 19th 2016</p>	<p>US Coastguard Courtney Seargent Alanna McGovern</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Enforcement legislation, rules or proposals. Significant changes and updates over calendar year 2015.

Meeting Date and Location	Personnel	Areas of discussion
<p>Location: USGSC Juneau Time:9:30 PM</p>	<p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<ul style="list-style-type: none"> ▪ Enforcement of management measures that support reduction of bycatch and discards, reduction of impacts on habitat, 2015 updates. ▪ Number of boardings, number of violations detected, types of violations for the species in question. General level of compliance overall. Updates for 2015. ▪ Gear loss concerns Updates for 2015 mostly related to longline gear, crab pots. ▪ Relationships and interaction with AWT, updates for 2015. Significant prosecution from NMFS OLE in 2015. ▪ Dixon Entrance: foreign fleet fishing activities Russian federation line, foreign vessel encroachment
<p>Date: May 19th 2016</p> <p>Location: NOAA AK Regional Office Juneau Time: 1:30 PM</p>	<p>NOAA AK Regional Office Mary Furuness</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Changes to key management measures for 2015-16, ▪ Changes to vessel or fleet allocations, apportionments, or in the way either of the fisheries operated in 2015 ▪ Changes in 2015-16 to technical measures such as closed areas or seasons, or to fishing gears, that would impact either sablefish or halibut ▪ Concerns with coverage levels, or other key aspects of the observer program, ▪ Comments on the review of the 2015 Observer Annual Report ▪ Update on electronic/video monitoring. ▪ Feedback from enforcement or industry on implementation of the use of pot longline gear in the Gulf of Alaska Sablefish IFQ fishery ▪ Overview Halibut Management Committee and its impact management of halibut ▪ Discussion on impact of recent measures to reduce halibut by-catch (e.g. amendment 95 for GOA groundfish fisheries) ▪ Update on establishing abundance-based PSC limits for Pacific halibut in the BSAI groundfish fisheries. ▪ Update of recent work on discard mortality rates for halibut and potential impacts on PSC limits. ▪ Update on the Community Quota Entity Program, Rural Outreach Committee, and any other outreach programs. ▪ Update on Essential Fish Habitat review in 2015-16, how will this impact management in 2016-17 ▪ Analysis on compliance in the groundfish fishery ▪ Update on IPHC Management Strategy Evaluation process. (Results to date and resulting actions) ▪ Update on potential to allow on-deck sorting of halibut by trawl vessels

Meeting Date and Location	Personnel	Areas of discussion
		<ul style="list-style-type: none"> ▪ Updates on measures to reduce overages in the charter halibut fisheries in 2C and 3A ▪ Subsistence fishing for halibut. Scale and accounting mechanism
<p>Date: May 20th 2016</p> <p>Location: ADFG Juneau Time: 9:30 AM</p>	<p>ADFG Juneau Forrest Bowers</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor Bill Brodie, Assessor Sam Dignan, Assessor</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Discussion of reduction in frequency of the tagging program ▪ Discussion of results for sablefish from the ADF&G longline survey in 2015 ▪ Changes to sablefish quotas or observed abundance in other state-managed areas ▪ Discussion of Low recruitment of sable fish in Northern Southeast Inside (NSEI) ▪ Updates on the acoustic telemetry research on juvenile sablefish in State waters ▪ Other scientific research/studies being conducted by ADF&G relevant to sablefish or halibut in State waters ▪ Changes in management measures for the state-managed fisheries for sablefish in Prince William Sound, NSEI, and SSEI areas ▪ Changes in monitoring of recreational or subsistence catches in the halibut fishery in 2015 Any significant changes in these fisheries from recent years ▪ Discussion of management concerns with levels of recreational or subsistence catches of halibut in state waters in 2015 ▪ Discussion observer coverage in the State-managed sablefish fisheries ▪ Discussion of trap limit per license ▪ Bait used and amount ▪ Discussion of operational guidelines or standards (i.e. best practices, code of conduct) on how harvesters can avoid unsustainable fishing practices ▪ Discussion of regulations in place to reduce the risk of entanglement of marine mammals ▪ Fishing practices to reduce the impact of traps on benthic habitats
<p>Date: June 24th 2016</p> <p>Location: Conference call</p>	<p>NOAA OLE AK Office Will Ellis</p> <p>Assessment Team Members: Ivan Mateo, Lead Assessor</p>	<p>Topics Discussed:</p> <ul style="list-style-type: none"> ▪ Enforcement legislation, rules or proposals. Significant changes and updates over calendar year 2015. ▪ Enforcement of management measures that support reduction of bycatch and discards, reduction of impacts on habitat, 2015 updates.

Meeting Date and Location	Personnel	Areas of discussion
		<ul style="list-style-type: none"> ▪ Number of boardings, number of violations detected, types of violations for the species in question. General level of compliance overall. Updates for 2015. ▪ Gear loss concerns Updates for 2015 mostly related to longline gear, crab pots. ▪ Relationships and interaction with AWT, updates for 2015. Significant prosecution from NMFS OLE in 2015. ▪ Dixon Entrance: foreign fleet fishing activities Russian federation line, foreign vessel encroachment ▪ Donut Hole: any fishing activity detected in 2015

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 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 P. 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 P. halibut fisheries and ecosystems. These data include 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.

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 P. halibut for conservation and management purposes. Appropriate processes exist to ensure proper planning of research projects, as well as ongoing peer review of stock assessment and research activities. The quality, quantity and relevance of IPHC's publications are noteworthy. IPHC staff are involved in a number of collaborative projects with other researchers and institutions.

C. Precautionary Approach

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. Precautionary approach-based reference points are used in the management of this stock. Scientific information and stock assessments available are at a consistently high level, 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 Measures

Conservation and management measures in place ensure the long-term sustainability of the resources. IPHC's precautionary approach and harvest control rule have the objective of keeping the stock above 30% of its unfished level 80% of the time, based on scientific analyses. 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.

E. Implementation, Monitoring and Control

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. 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 and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the benthic longline fishery has minimal or temporary impacts on halibut habitat. Various studies have applied ecosystem models to food webs and impacts of climate change. Halibut have low discard rates, but high PSC rates in other fisheries and discussions are underway between the agencies to put in place additional regulatory measures to avoid halibut and further minimize halibut bycatch mortality. The directed halibut fishery takes significant amounts of Pacific cod, sharks, skates and rockfish; but the fishery does not pose a threat to bycatch species. Management measures limit interactions with seabirds and the fishery has minimal impact on the short-tailed albatross, the only seabird listed as endangered under the ESA. Interactions with whales remain a problem as they take fish off longline gear, but the fishery does not adversely affect whale populations.

6.1. Conformity Statement

During this reassessment two minor non-conformances were found on subclauses 4.2 and 12.6. The second minor NC on subclause 12.6 was closed following review of additional information submitted by FVOA (See Section 9).

A corrective action plan was provided for the non-conformance on subclause 4.2. 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.

Finally the Assessment Team recommends that the management system of the applicant fishery, the US Alaska Pacific halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, fished with benthic longline (within Alaska's 200 nm EEZ), should be awarded continuing certification to the AK Responsible Fisheries Management Certification Program.

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

No. Supporting clauses/sub-clauses	13
Supporting clauses applicable	10
Supporting clauses not applicable	3
Non-Conformances	0

Supporting Clause 1.1

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

FAO CCRF (1995) 7.7.1

FAO Eco (2009) 28

FAO Eco (2011) 35

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

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.

Evidence:

The two main legal instruments that form the legal and administrative framework for GOA and BSAI halibut fisheries are the North Pacific Halibut Act (NPHA) and the Magnuson-Stevens Act (MSA). The NPHA (1982) implements the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea between the U.S. and Canada. The Convention, first signed in 1923 and subsequently modified in 1930, 1937 and 1953 with a protocol added in 1979, established the International Fisheries Commission,

latterly the International Pacific Halibut Commission (IPHC)³. The IPHC or “Commission” is a bilateral, international treaty based organization composed of U.S. and Canadian representatives (3 government-appointed commissioners from each) which is mandated to conduct research on, and make recommendations as to the regulation of, halibut fisheries within the convention waters of both nations. IPHC annual reports from 1947 to present are available online⁴.

The main functions of the Commission are to:

- Conduct and coordinate scientific studies relating to the halibut fishery and to formulate regulations designed to develop the stocks of halibut to those levels that permit optimum utilization;
- Submit regulations, mainly the TAC of halibut in the Convention Area and apportionment of same amongst regulatory areas, to the two governments for approval. Upon approval, the regulations are implemented and enforced by the appropriate agencies of both governments.

The IPHC publishes regulations for halibut fisheries annually⁵ for informational purposes while the formal regulations are printed by the respective governments; these are contained within the Federal Register⁶ and on NOAA’s website⁷ for U.S. waters and in the Canada Gazette⁸ and as Conditions of License in the Canadian fishery.

The Northern Pacific Halibut Act of 1982 (Halibut Act) provides the Secretary of State of the U.S., with the concurrence of the Secretary of Commerce, the authority and general responsibility to carry out the requirements of the Convention and the Halibut Act. Following IPHC apportionments, halibut fisheries in the American EEZ off Alaska (Figure 5), hereafter referred to as the Alaskan EEZ, are managed by the North Pacific Fisheries Management Council (NPFMC or “Council”) and the National Marine Fisheries Service (NMFS or “NOAA Fisheries”) (Figure 9).

The Magnuson-Stevens Fishery Conservation and Management Act (MSA)⁹, most recently reauthorized in 2007, is the primary domestic legislation governing management of marine fisheries within U.S. territorial waters. It established eight Regional Fisheries Management Councils to manage fisheries in the United States Exclusive Economic Zone (EEZ) (from three to 200 nautical miles offshore) including the North Pacific Fishery Management Council (NPFMC)¹⁰ and the Pacific Fishery Management Council (PFMC) that produce Fishery Management Plans (FMPs) governing fishing operations in the Pacific halibut fishery. Agencies involved in fisheries management in U.S. waters, including all of their activities and decisions, are subject to the MSA.

The NPFMC recommends regulations to govern directed halibut fisheries in Alaskan waters (provided its actions do not conflict with regulations recommended by the IPHC) and makes allocation decisions among user groups. User groups accessing the halibut fishery off Alaska include:

- Non-treaty commercial
 - directed longline halibut fishery
 - incidental salmon troll fishery

³ <http://www.iphc.washington.edu/library/annual-reports.html>

⁴ <http://www.iphc.washington.edu/library/annual-reports.html>

⁵ <http://www.iphc.int/publications/regs/2016iphcregs.pdf>

⁶ <https://www.federalregister.gov/articles/2016/03/16/2016-05948/pacific-halibut-fisheries-catch-sharing-plan>

⁷ <https://alaskafisheries.noaa.gov/rules-notices/search/category/halibut-49>

⁸ <http://gazette.gc.ca/gazette/home-accueil-eng.php>

⁹ http://www.nmfs.noaa.gov/sfa/laws_policies/msa/documents/msa_amended_2007.pdf

¹⁰ www.fakr.noaa.gov/npfmc/default.htm

- incidental longline sablefish fishery
 - Sport
 - Treaty Native commercial and ceremonial
 - Subsistence

The NMFS¹¹ through its Alaska regional office works closely with the NPFMC and the IPHC, performing scientific research and being responsible for developing, implementing, and enforcing regulations pertaining to management of halibut fisheries in U.S. waters. NMFS also manages the halibut subsistence entry program for Native, rural, ceremonial and educational purposes.

The state of Alaska participates in Pacific halibut fisheries management through the Alaska Department of Fish and Game (ADFG)¹² Commissioner’s seat on the NPFMC. Moreover, ADFG licenses halibut anglers and sport fishing businesses and guides, monitors and reports on sport and subsistence halibut harvests, and assists federal agencies with preparation of regulatory analyses.

References:	
Non-Conformance Number (if relevant)	NA

¹¹ <https://alaskafisheries.noaa.gov/>

¹² <http://www.adfg.alaska.gov/index.cfm?adfg=halibut.management>

Supporting Clause 1.2

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

FAO ECO (2009) 30.3

FAO ECO (2011) 37.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

Agencies involved in the management of the eastern North Pacific halibut fishery consider the whole stock biological unit, the area through which the species migrates during its life cycle and other biological characteristics of the stock when implementing management measures.

Evidence:

1) Consideration of whole stock biological unit over its entire area of distribution

The IPHC is a bilateral, international treaty based organization specifically established to manage halibut fisheries within the convention waters of both nations. The primary purpose of IPHC is to take into account the whole stock unit over its entire area of distribution which extends from California to the Bering Sea. As the biological stock unit encompasses multiple jurisdictions (U.S. and Canada) the IPHC considers exploitation by all parties when defining exploitation levels and determining stock health to avoid overfishing/depletion of the resource.

Exploitable biomass in each regulatory area is estimated by apportioning the total estimated exploitable biomass for the stock between areas in proportion to an estimate of stock distribution derived from the IPHC setline survey catch rates [Weight Per Unit Effort (WPUE)]. Migration of halibut between regulatory areas as informed by recent tagging studies results is taken into account during the apportionment process. By considering both the spatial distribution of the resource and migration patterns when determining fishing opportunities the IPHC seeks to avoid localized depletions which could potentially adversely impact the resilience of the stock as a whole.

2) Consideration of area through which the species migrates during its life cycle

IPHC conducts extensive research on Pacific halibut throughout the entire area through which the species migrates during its life cycle (Figure 1). Additionally, the IPHC explicitly considers halibut life cycle and migration when recommending apportionment of catch limits between regulatory areas. Within the Alaskan EEZ, NPFMC and NMFS also consider the entire range through which halibut migrate during its life cycle.

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

3) Consideration of other biological characteristics of stock contributing to its stability/resilience

The eastern north Pacific halibut resource, within the IPHC convention area, is presently managed under the assumption that a single, fully-mixed population exists from California through the eastern Bering Sea which is studied and managed by IPHC, NPFMC, NMFS and ADFG. The Pacific halibut stock is apportioned yearly between the various regulatory areas according to the biomass abundance estimate in each of these derived from annual stock assessment activities. Alaskan halibut may spend a portion of their life in the jurisdiction of

another country (i.e. Canada) and may suffer mortality or other pressures with the directed commercial halibut fishery (i.e. bycatch in other commercial fisheries, recreational and subsistence catches etc.). NMFS and the NPFMC gather data on all sources of halibut removals and mortality meaning all potentially significant sources of halibut mortality are considered and accounted for when assessing stock health. An experimental program currently underway under the provisions of an Exempted Fishing Permit (EFP) aims to increase survivability of incidentally caught halibut¹³. The EFP allows holders to remove incidentally caught halibut from trawls on the deck and release those fish back to the water in a timely manner, a process known as “deck sorting”.

References:	
Non-Conformance Number (if relevant)	NA

¹³ <https://alaskafisheries.noaa.gov/sites/default/files/81fr4018.pdf>

Supporting Clause 1.2.1

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

FAO CCRF (1995) 7.3.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The management regime of the Alaskan halibut fishery takes into account measures previously agreed, established and applied in relation to the management of the fishery.				
Evidence: Both the IPHC and the NPFMC annually review current and historic management measures deployed in the halibut fishery and consider possible future modifications to the management regime in light of these. 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 ¹⁴ . While the “issues of the day” may change all meetings are open to the public comment both prior to and during the meeting. The continual public input into the NPFMC process has the effect of ensuring that stakeholder’s issues of concern remain live and are discussed continuously for as long as they remain of importance to the stakeholder. The Three Meeting Outlook (issue current as of June 27 th 2016 ¹⁵) outlines issues likely to be of concern and therefore be discussed at the following three NPFMC meetings. The Three Meeting Outlook allows stakeholders to prepare and submit comments in advance of meetings the substance of which may then be discussed at the meeting in the relevant fora. 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 ¹⁶ .				
References:				
Non-Conformance Number (if relevant)				NA

¹⁴ <http://www.npfmc.org/council-meeting-archive/>

¹⁵ <http://www.npfmc.org/wp-content/PDFdocuments/meetings/threemeetingoutlook.pdf>

¹⁶ <http://www.iphc.int/meetings-and-events/annual-meeting.html>

Supporting Clause 1.3

Where trans-boundary, shared, straddling or highly migratory fish stocks and high seas fish stocks are exploited by two or more States (neighboring or not), the applicant management organizations concerned shall cooperate and take part in formal fishery commission or arrangements that have been appointed to ensure effective conservation and management of the stock/s in question and its environment.

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The applicant management organizations consist of both formal fishery commission (IPHC) and council (NPFMC) arrangements designed to ensure effective conservation and management of the eastern North Pacific halibut stock and its environment.				
Evidence: The primary purpose of IPHC is overseeing the halibut fishery in its Convention Area, a trans-boundary, straddling and highly migratory species, and ensures collaboration and cooperation between all entities involved in its management ¹⁷ . This is evidenced by the main functions of the IPHC which include: <ul style="list-style-type: none"> • conducting and coordinating scientific studies relating to the halibut fishery; • formulating regulations designed to develop the stocks of halibut to those levels that permit optimum utilization; and • submitting regulations to the two governments concerned, namely the U.S. and Canada, for approval. <p>The IPHC forum leads to a cooperative structure between the U.S. and Canada that provides for a joint management and conservation system aimed at ensuring effective conservation and management of the Eastern North Pacific halibut stock and its environment.</p> <p>The IPHC conducts numerous projects annually to support both of its major mandates namely stock assessment and basic halibut biology. Current projects include standardized stock assessment fishing surveys covering an area that stretches from northern California to the end of the Aleutian Island chain and port sampling aimed at collecting scientific information from the halibut fleet. In conjunction with these ongoing programs, the IPHC conducts numerous biological and scientific experiments to further the understanding and information about Pacific halibut.</p> <p>(For further information on the IPHC see response to Clause 1.1)</p>				
References:				
Non-Conformance Number (if relevant)				NA

¹⁷ <http://www.iphc.int/about-iphc.html>

Supporting Clause 1.3.1

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

FAO CCRF (1995) 7.1.3, 7.1.4, 7.1.5, 7.3.2, 10.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>The structure of the IPHC ensures compatibility of conservation and management measures in place for the eastern North Pacific halibut stock within and between the jurisdictions of both states involved in prosecuting the fishery, namely the U.S. and Canada.</p>				
Evidence:				
<p>The IPHC is a bilateral, international treaty based organization composed of U.S. and Canadian representatives which is mandated to conduct research on, and make recommendations as to the regulation of, halibut fisheries within the convention waters of both nations. The structure of the IPHC ensures compatibility of conservation and management measures between the jurisdictions of both states.</p> <p>The IPHC consists of three government-appointed commissioners for each country appointed by either the Governor General of Canada or President of the United States of America (current commissioners as of June 26th 2016¹⁸) with the chairmanship of the Commission alternating annually between countries. In turn the commissioners appoint the Director of the IPHC who supervises the scientific staff, which collects and analyzes the information required to manage the halibut fishery. The commissioners annually review regulatory proposals made by the scientific staff and consider proposals from industry, the Conference Board, and the Processors Advisory Group. The regulatory measures adopted by the Commission are submitted to the two governments for approval and fishers of both nations are required to observe the approved regulations.</p> <p>The IPHC encourages public participation in the management of the resource and regularly seeks advice from various State, Provincial, and Federal agencies as well as its advisory bodies including the Conference Board¹⁹, the Processor Advisory Group²⁰, the Research Advisory Board²¹, the Management Strategy Advisory Board²², and the Scientific Review Board²³.</p>				
References:				
Non-Conformance Number (if relevant)				NA

¹⁸ <http://www.iphc.int/about-iphc.html?id=27>

¹⁹ <http://www.iphc.info/conference-board>

²⁰ <http://www.iphc.info/pag>

²¹ <http://www.iphc.int/documents/annmeet/2012/infosheets/2-Advisorybodies.pdf>

²² <http://www.iphc.info/msab>

²³ <http://www.iphc.info/srb>

Supporting Clause 1.4

A State not member/participant of a sub-regional or regional fisheries management organization shall cooperate, in accordance with relevant international agreements and law, in the conservation and management of the relevant fisheries resources by giving effect to any relevant measures adopted by such organization /arrangement.

FAO CCRF (1995) 7.1.5

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence: All States prosecuting the eastern North Pacific halibut fishery, namely the U.S. and Canada, are members of the IPHC; as such this Clause is NOT APPLICABLE .			
Evidence: All States prosecuting the eastern North Pacific halibut fishery, namely the U.S. and Canada, are members of the IPHC; as such this Clause is NOT APPLICABLE .			
References:			
Non-Conformance Number (if relevant)			NA

Supporting Clause 1.4.1

States seeking to take any action through a non-fishery organization which may affect the conservation and management measures taken by a competent sub-regional or regional fisheries management organization or arrangement shall consult with the latter, in advance to the extent practicable, and take its views into account.
 FAO CCRF (1995) 7.3.5

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: All fishery management organizations involved in the eastern North Pacific halibut fishery are part of the management framework previously described in Clause 1.1 to Clause 1.3.1. As a result management entities, prior to taking action through a non-fishery organization that may impact conservation and management measures relevant to the halibut fishery, consult in advance with and take into account the views of affected organizations within the management framework.				
Evidence: The IPHC by its existence facilitates consultation between entities involved in the management of the halibut resource. The structures of the IPHC ensure consultation both at national, between internal agencies within the U.S./Canada, and international levels, between agencies of the U.S. and Canada. The NPFMC, NMFS, ADFG and Canadian Department of Fisheries and Oceans (DFO) all share in the responsible management of the IPHC and with additional input the public, bring relevant issues/perspectives to the Commission. The commissioners annually review regulatory proposals and any measures proposed for adoption are submitted to the two governments for approval. The Commission encourages public participation in the management of the resource and regularly seeks advice from various State, Provincial, and Federal agencies as well as its advisory bodies. (For further details of mechanisms ensuring consultation within the management framework of the halibut fishery see Clause 1.1 to 1.3.1 inclusive)				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 1.5

The Applicant fishery’s management system shall actively foster international cooperation and coordination on fishery matters with regard to:

- Information gathering and exchange
- Fisheries research
- Fisheries management
- Fisheries development

FAO CCRF (1995) 7.3.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The IPHC is a bilateral, international treaty based organization specifically established to manage halibut fisheries within the convention waters of both nations. It achieves this by actively fostering international cooperation and coordination between agencies of the U.S. and Canada involved in the management of the eastern North Pacific halibut fishery with regards to information gathering and exchange and fisheries research, management and development.

Evidence:

As the eastern North Pacific halibut stock extends from the coast of California to the Bering Sea, stretching across multiple jurisdictions, the IPHC was specifically established as a forum for international cooperation between U.S. and Canadian agencies involved in the management of the fishery²⁴. This is evidenced by the main functions of the IPHC which include:

- conducting and coordinating scientific studies relating to the halibut fishery;
- formulating regulations designed to develop the stocks of halibut to those levels that permit optimum utilization; and
- submitting regulations to the two governments concerned, namely the U.S. and Canada, for approval.

The IPHC forum creates a cooperative structure within which U.S. and Canadian agencies jointly formulate management measures aimed at ensuring effective conservation and management of the Eastern North Pacific halibut stock and its environs.

The IPHC conducts numerous research projects on an ongoing basis, the focus of which may change depending on the most important outstanding issues of the day²⁵. The majority of the IPHC’s research focusses on one of their three continuing objectives namely:

- i) improving the annual stock assessment and quota recommendations;
- ii) developing information on current management issues; and
- iii) adding to knowledge of the biology and life history of halibut.

The IPHC compiles a detailed annual Report of Assessment and Research Activities (RARA). The RARA provides an overview of all research and stock assessment activities conducted in the preceding year and outlines planned research activities along with priority scores, costings and anticipated start and end dates²⁶.

²⁴ <http://www.iphc.int/about-iphc.html>

²⁵ <http://www.iphc.int/research.html>

²⁶ <http://www.iphc.int/publications/rara/2015/IPHCRARA2015.pdf>

The Research Advisory Board (RAB) of the IPHC, composed of active members of the fishing community who are interested in contributing to the direction of IPHC research, provides advice to the Commission staff on its research programs and proposed projects. The RAB meets annually with the IPHC Executive Director and staff and presents recommendations to Commissioners and produces an annual report which becomes part of the research discussion at IPHC Annual Meetings. Current IPHC research streams focus on halibut biology, stock assessment surveys and processes, oceanographic data collection and estimating non-directed halibut bycatch in other fisheries.

The IPHC’s Scientific Review Board (SRB) provides independent scientific review of IPHC science products and programs and helps to support and strengthen the stock assessment process²⁷. 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.

Other entities involved in collaborative research into Pacific halibut and the halibut fishery include the North Pacific Research Board (NPRB), the National Science Foundation (NSF) and the University of Alaska Fairbanks (UAF). Note this is not an exhaustive list.

The NPRB funds major research projects in the Gulf of Alaska²⁸ and the Bering Sea²⁹ aimed at examining physical and biological mechanisms that determine the survival of juvenile groundfishes in the GOA and understanding the impacts of climate change and dynamic sea ice cover on the eastern BS ecosystem respectively. Additionally the Bering Sea project is conducted in collaboration with the NSF³⁰.

The School of Fisheries and Ocean Sciences³¹ at UAF has also, since 2000, participated in a collaborative research project with the IPHC which uses pop-up satellite tags to examine the movement and behavior of Pacific halibut. The project also examines several aspects of halibut spawning including reproductive segregation among large marine ecosystems, timing of spawning migrations, spawning behavior, and skip-spawning³².

References:

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

²⁷ <http://www.iphc.info/Pages/SRB.aspx>

²⁸ <http://www.nprb.org/gulf-of-alaska-project/about-the-project/>

²⁹ <http://www.nprb.org/bering-sea-project/about-the-project/>

³⁰ <http://www.nsf.gov/>

³¹ <http://www.uaf.edu/sfos/>

³² <http://www.uaf.edu/sfos/research/projects/pacific-halibut-migration/>

Supporting Clause 1.6

States and sub-regional or regional fisheries management organizations and arrangements, as appropriate, shall agree on the means by which the activities of such organizations and arrangements will be financed, bearing in mind, inter alia, the relative benefits derived from the fishery and the differing capacities of countries to provide financial and other contributions. Where appropriate, and when possible, such organizations and arrangements shall aim to recover the costs of fisheries conservation, management and research.

FAO CCRF (1995) 7.7.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

The means by which the activities of management organizations involved in the eastern North Pacific halibut fishery will be financed are agreed based on both national and international agreements. The IPHC is jointly financed by the U.S and Canadian governments with the cost of annual stock assessment surveys by a cost recovery program involving the selling of sampled fish. The costs of management, data collection, and enforcement of the Alaskan halibut IFQ program are recovered by NMFS under a cost recovery program mandated by the MSA.

Evidence:

The IPHC receives monies from both the U.S. and Canadian governments to support a Director and staff. At the IPHC annual meeting budgets are discussed and approved. The Commission operates according to its rules of procedure.

The IPHC is considered a public international organization and is entitled to the privileges, exemptions, and immunities conferred by the International Organizations Immunities Act (22 U.S.C. Sec. 288), except those pursuant to Sections 4(b), 4(e), and 5 (a) of that Act by virtue of U.S. Presidential Executive Order 11059. In 1987, the IPHC was granted 503(c) status as a not-for-profit organization and is considered part of the U.S. Federal government for purchasing and travel³³.

Information relating to the financing of the IPHC is contained in its Annual Report as can be seen from this excerpt from the 2014 Annual Report³⁴:

“The IPHC is funded jointly by the U.S. and Canadian governments. For fiscal year 2014, the U.S. appropriated \$4.35 million to the IPHC which included funding earmarked for pension deficits and the IPHC headquarters lease. Canada appropriated \$848,720 and provided an additional payment of \$98,400 to cover pension deficits, similar to that provided in the U.S. appropriations.”

Annually the Executive Director of the IPHC submits a detailed budget and research plan for approval to the Commissioners, reports on expenses, and provides an audit report to both governments. Funding from the U.S. is through the International Fisheries Commissions line item in the Department of State appropriations. Funding from Canada occurs through the DFO. Funding for annual stock assessment surveys is provided through a cost recovery program of selling fish which are caught and sampled, to the level necessary to make the program cost-neutral over the long term³⁵.

³³ <http://www.iphc.int/about-iphc.html>

³⁴ <http://www.iphc.int/publications/annual/ar2014.pdf>

³⁵ <http://www.iphc.int/publications/techrep/tech0059.pdf>

The MSA obligates NMFS to recover the actual costs of management, data collection, and enforcement of the Alaskan halibut IFQ program. The law provides that a fee be paid by IFQ fishermen based on the ex-vessel value of fish landed under the IFQ Program. 25% of the monies collected are deposited in the U.S. Treasury and are available to Congress for annual appropriations to support the North Pacific (IFQ) Loan Program. The remaining 75% is deposited in the Limited Access System Administrative Fund (LASAF) and are available only to the Secretary of Commerce and must be spent on IFQ Program management, data collection, and enforcement.

NMFS produces an annual review of the cost recovery program detailing requirements and responsibilities of fishery participants and NMFS; how the fee is determined; what IFQ Program costs were paid for by the fee; and compares LASAF expenditures between years³⁶.

References:

Non-Conformance Number (if relevant)

NA

³⁶ <https://alaskafisheries.noaa.gov/sites/default/files/reports/ifq-hs-feerpt2014.pdf>

Supporting Clause 1.6.1

Without prejudice to relevant international agreements, States shall encourage banks and financial institutions not to require, as a condition of a loan or mortgage, fishing vessels or fishing support vessels to be flagged in a jurisdiction other than that of the State of beneficial ownership where such a requirement would have the effect of increasing the likelihood of non-compliance with international conservation and management measures.

FAO CCRF (1995) 7.8.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence:			
<p>The eastern North Pacific halibut fishery is conducted exclusively within the EEZs of the U.S. and Canada and only U.S. and Canadian flagged vessels are permitted to access their respective portion of the fishery. There is no possibility of the use of flags of convenience occurring.</p> <p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
Evidence:			
<p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
References:			
Non-Conformance Number (if relevant)			NA

Supporting Clause 1.7

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

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

FAO CCRF (1995) 7.6.8

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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 fishery³⁷ 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 Alaskan halibut and sablefish IFQ program has gone through numerous innovations over the years and has been officially modified many times since initial implementation including modifications to trading restrictions, eligibility rules, administrative catch accounting systems and more. In December of 2014, NMFS recommended that the Council initiate a formal and comprehensive review of the Halibut and Sablefish IFQ Program. The Magnuson-Stevens Act requires the NPFMC and NMFS to review all LAPPs that have been approved by the Secretary of Commerce, including those programs approved prior to the enactment of the reauthorized Magnuson-Stevens Act in 2007; additionally, the Act stipulates that these reviews should occur no less frequently than once every 7 years. NMFS recommended that the IFQ program review be initiated by 2017 to meet the requirements of the MSA. Because the IFQ program was enacted prior to the 2007 reauthorization of the MSA, it has not been subject to the mandatory review process of LAPPs under the Act. In the 20 years since implementation of the IFQ program, this will be the first formal and comprehensive review of the program.

Although this will be the first comprehensive review of the IFQ program, there have been numerous regulatory impact reviews and reports produced by NPFMC and NMFS that provide relevant information about quota share ownership and transfers, IFQ use and landings, and specific provisions in the IFQ program (for examples see: (Pautzke and Oliver, 1997³⁸; Fina, 2011³⁹; NMFS 2014⁴⁰, 2015a⁴¹; 2016⁴²).

³⁷ <http://www.npfmc.org/council-meeting-archive/>

³⁸ <https://alaskafisheries.noaa.gov/sites/default/files/reports/ifqpaper.pdf>

³⁹ http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Fina_CatchShare_411.pdf

⁴⁰ <https://alaskafisheries.noaa.gov/sites/default/files/reports/rtf12.pdf>

⁴¹ <https://alaskafisheries.noaa.gov/sites/default/files/reports/sablefish-transferrpt2015.pdf>

⁴² https://alaskafisheries.noaa.gov/sites/default/files/reports/ifq_community_holdings_95-15.pdf

An outline of the proposed scope of the IFQ program review, work plan, and examples of public comments can be seen on the NPFMC meeting agendas for December 2015 and February 2016 ^{43,44}.

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 business⁴⁵. Additionally, the IPHC’s SRB provides independent scientific review of IPHC science products and programs and helps to support and strengthen the stock assessment process⁴⁶. 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:	Pautzke and Oliver (1997) Fina (2011) NMFS (2014) NMFS (2015a) NMFS (2016)
--------------------	----------------------------------------------------------------------------------------

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

⁴³ http://legistar2.granicus.com/npfmc/meetings/2015/12/931_A_North_Pacific_Council_15-12-07_Meeting_Agenda.pdf

⁴⁴ http://legistar2.granicus.com/npfmc/meetings/2016/2/934_A_North_Pacific_Council_16-02-01_Meeting_Agenda.pdf

⁴⁵ <http://www.iphc.int/meetings-and-events/annual-meeting.html>

⁴⁶ <http://www.iphc.info/Pages/SRB.aspx>

Supporting Clause 1.8

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

- Management arrangements
- Decision-making

FAO CCRF (1995) 7.1.9

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The IPHC and NPFMC both have management arrangements and decision making processes that are organized in a transparent manner.

Evidence:

In 2012 an outside performance review of the Commission structure, commissioned by the IPHC itself, found the Commission’s protocols and decision-making processes at the time to be somewhat lacking in definition and transparency⁴⁷. In response to this the IPHC undertook a number of changes aimed at better defining the Commission’s rules of procedure and increasing the transparency of decision-making processes. As a result of these changes:

- The IPHC’s advisory bodies were directed to develop or amend their rules of procedure in order to make their operations more transparent and predictable
- All Commission meetings are now treated as open unless specifically closed (Examples of specifically closed meetings might include those pertaining to personnel, financial or commercially sensitive matters)
- Agendas for IPHC meetings allow more time for public comment and discussion
- The web broadcast now allows submission of comments and questions from the on-line audience
- Both attendees and web audience participants are now afforded the opportunity to engage the Commission in two-way dialogue during meetings
- The range of meeting materials and updates posted on the IPHC website has been expanded, and the period of posting prior to meetings increased. This has greatly increased the information available to the public before, during, and after meetings allowing for more focused public comment
- The IPHC also directed the Conference Board (CB) and the Processor Advisory Group (PAG) to open their meetings to the public.

In 2014 the IPHC self-reported its progress against the recommendations of, and commitments resulting from, the 2012 performance review⁴⁸. Following the changes to Commission procedures since the performance review responses to all management issues are provided in the form of supporting documents, minutes of meetings, and public testimony published on the IPHC website. Annual reports posted on the website include the “Bluebook”, a detailed recap of the Annual IPHC meeting⁴⁹, and the ‘RARA”, a detailed IPHC Report of Assessment and Research Activities⁵⁰.

⁴⁷ http://www.iphc.int/documents/review/FINAL_IPHC_Performance_Review-April30.pdf

⁴⁸ <http://www.iphc.int/documents/review/PerformancereviewprogressreportJan2014.pdf>

⁴⁹ http://www.iphc.int/publications/bluebooks/IPHC_bluebook_2016.pdf

⁵⁰ <http://www.iphc.int/publications/rara/2015/IPHCRARA2015.pdf>

NPFMC’s management arrangements and decision making processes for the fishery are organized in a very transparent manner. 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. The Council (and NMFS) provides a great deal of information on their websites, including agenda of meetings, discussion papers, and records of decisions⁵¹. The Council actively encourages stakeholder participation, and all Council deliberations are conducted in open, public session. As previously discussed, the Three Meeting Outlook⁵² outlines issues likely to be of concern and therefore be discussed at the following three NPFMC meetings affording stakeholders the opportunity to prepare and submit comments for discussion in advance of meetings.

The funding sources of the IPHC and NPFMC, outlined in detail in Clause 1.6, are publically available and both bodies submit annual reports accounting for both sources of funding and subsequent expenditure.

References:	
Non-Conformance Number (if relevant)	NA

⁵¹ <http://www.npfmc.org/council-meeting-archive/>

⁵² <http://www.npfmc.org/wp-content/PDFdocuments/meetings/threemeetingoutlook.pdf>

Supporting Clause 1.9

Management organizations not party to the Agreement to promote compliance with international conservation and management measures by vessels fishing in the high seas shall be encouraged to accept the Agreement and to adopt laws and regulations consistent with the provisions of the Agreement.

FAO CCRF (1995) 8.2.6

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .				
Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	10
Supporting clauses applicable	9
Supporting clauses not applicable	1
Non-Conformances	0

Supporting Clause 2.1

An appropriate policy, legal and institutional framework shall be adopted in order to achieve sustainable and integrated use of living marine resources, taking into account 1) the fragility of coastal ecosystems and finite nature of their natural resources; 2) allowing for determination of the possible uses of coastal resources and govern access to them, 3) taking into account the rights and needs of coastal communities and their customary practices to the extent compatible with sustainable development. In setting policies for the management of coastal areas, 4) States shall take due account of the risks and uncertainties involved.

FAO CCRF (1995) 10.1.1, 10.1.3, 10.2.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

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.

Evidence:

An appropriate policy, legal and institutional framework is adopted in order to achieve sustainable and integrated use of living marine resources, taking into account the fragility of coastal ecosystems, the finite nature of their natural resources and the needs of coastal communities. These include decision-making processes and activities relevant to the fishery resource and its users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users.

The NMFS, NPFMC⁵³ and IPHC cooperatively manage halibut stocks within the Alaskan EEZ. The NMFS and NPFMC as federal agencies participate in coastal area management-related institutional frameworks through federal National Environmental Policy Act (NEPA) process⁵⁴. NEPA documents are require to be produced each time regulations are renewed or amended meaning all proposed regulations include NEPA

⁵³ <http://www.npfmc.org/>

⁵⁴ https://ceq.doe.gov/nepa/Citizens_Guide_Dec07.pdf

considerations. The NEPA process requires information to be made publically available and provides a robust opportunity for public involvement and ensures decisions are made in collaboration with fishery managers, fishermen, fishing organizations and fishing communities.

Other State and federal entities (including a brief description of those functions of each related to coastal resource management) that participate in ensuring the sustainable and integrated use of living marine resources within the Alaskan EEZ include, but are not limited to:

Alaskan Department of Environmental Conservation (DEC)⁵⁵

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

Alaska Department of Fish and Game (ADFG)⁵⁶

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

Alaskan Department of Natural Resources (DNR)⁵⁷

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

DNR Office of Project Management and Permitting (OPMP)⁵⁸

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

U.S. Fish and Wildlife Service (USFWS)⁵⁹

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

Bureau of Ocean Energy Management (BOEM)⁶⁰

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

Prior to 1st July 2011, Alaska had a dedicated State Coastal Management Program, however, the Alaskan State legislature and governor failed to agree on conditions for extending the program and it expired. While the Coastal Management Program for Alaska was not renewed upon the expiry of the old program this would in reality only serve to formalize and better define the State's role in decision making processes. As outlined elsewhere in this Section there are numerous other state and federal environmental and resource laws that

⁵⁵ <http://dec.alaska.gov/>

⁵⁶ <http://www.adfg.alaska.gov/>

⁵⁷ <http://dnr.alaska.gov/>

⁵⁸ <http://dnr.alaska.gov/commis/opmp/>

⁵⁹ http://www.fws.gov/help/about_us.html

⁶⁰ http://www.boem.gov/uploadedFiles/Proposed_OCS_Oil_Gas_Lease_Program_2012-2017.pdf

facilitate management organizations participation in coastal area management, decision-making processes and activities related to the halibut fishery and its users, in support of sustainable and integrated resource use, and conflict avoidance. Ultimately, the assessment team considers the collectivity of the NEPA and existing State and Federal agencies' processes, to be demonstrably capable of planning and managing coastal developments in a transparent, organized and sustainable way.

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

NPFMC processes

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

The Western Alaska Community Development Quota (CDQ) Program⁶¹

The Western Alaskan Community Development Quota (CDQ) Program is a federal fisheries program, authorized and governed by the MSA as amended in 2006 (MSA Section 305(i)(1)), which aims to promote fisheries related economic development in western Alaska. The aims of the Program, which allocates a percentage of Bering Sea and Aleutian Islands (BSAI) quotas for various species including halibut to eligible communities, include:

1. Providing eligible villages with the opportunity to participate and invest in BSAI fisheries
2. Supporting economic development in western Alaska
3. Alleviating poverty and provide economic and social benefits for residents of western Alaska
4. Achieving sustainable and diversified local economies in western Alaska.

The Program involves 65 eligible communities within a fifty-mile radius of the Bering Sea coastline split into six regional organizations, referred to as CDQ groups. The Program allocates a portion of the BSAI harvest of halibut to CDQ groups.

Subsistence halibut fishing⁶²

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

⁶¹ <https://alaskafisheries.noaa.gov/fisheries/cdq>

⁶² <https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut>

Consultation with tribes and Native corporations⁶³

In Alaska, NOAA's National Marine Fisheries Service (NMFS) consults with tribes and Native corporations about Federal actions that may affect tribal governments and their members. In fact the Alaska National Interest Lands Conservation Act (ANILCA⁶⁴) which conveyed large sections of federal land to settle Alaska native lands claims specifically directs federal agencies to consult and coordinate with the State of Alaska. Executive Order 13175 sets the framework for regular and meaningful consultation and collaboration with Alaska Native representatives in the development of policies, legislation, regulations, and programs.

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

References:

Non-Conformance Number (if relevant)

NA

⁶³ <https://alaskafisheries.noaa.gov/tribal-consultations>

⁶⁴ <http://dnr.alaska.gov/commis/opmp/anilca/>

Supporting Clause 2.1.1

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

FAO CCRF (1995) 10.4.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

There are mechanisms for cooperation and coordination between the national authorities involved in coastal zone management. These mechanisms relate both specifically to the halibut resource in the eastern North Pacific as well as to the broader management of activities in the marine environment.

Evidence:

There are mechanisms for cooperation and coordination between the national authorities of the U.S. and Canada involved in planning, development, conservation and management of coastal areas in the eastern North Pacific region. These mechanisms relate both specifically to the halibut resource in the eastern North Pacific as well as to the broader management of activities in the marine environment.

As previously outline the IPHC provides an international forum for the cooperative management, by the U.S. and Canada, of the halibut resource in the eastern North Pacific; the structures and role of the IPHC is extensively outlined in the Supporting Clauses related to Fundamental Clause 1 (i.e. Clauses 1.1 to 1.9).

In the broader context of marine coastal zone management the United States and Canada have one of the world’s oldest and most effective environmental partnerships necessitated by the extensive shared border and diverse ecosystems which require close cooperation among many U.S. states, Canadian provinces, U.S. Tribes, First Nations, and local and federal governments. The two federal governments have implemented over 40 international agreements to facilitate environmental management in the border area with in excess of 100 additional such agreements at the state level between U.S. states and Canadian provinces⁶⁵.

Since 1994, Canada, Mexico and the United States have collaborated in protecting North America's environment through the North American Agreement on Environmental Cooperation (NAAEC), enacted at the same time as the North American Free Trade Agreement (NAFTA), to ensure that economic growth in the region would be accompanied by effective cooperation and continuous improvement in the environmental protection provided by each country. The NAAEC established a tri-national intergovernmental organization, the Commission for Environmental Cooperation (CEC)⁶⁶, to facilitate international collaboration on the protection, conservation, and enhancement of North America’s environment.

The CEC comprises a Council, a Secretariat and a Joint Public Advisory Committee (JPAC) and receives financial support from all three governments concerned. The Council is the governing body of the Commission and is made up of cabinet-level or equivalent representatives of each country, the Secretariat provides technical, administrative and operational support to the Council and JPAC consisting of five citizens from each country advises the Council on any matter within the scope of the NAAEC.

⁶⁵ <https://www.epa.gov/international-cooperation/epa-collaboration-canada>

⁶⁶ <http://www.cec.org/about-us/about-cec>

The mission of the CEC is to; *“facilitate collaboration and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade, and social links among Canada, Mexico, and the United States”*.

The CEC is mandated to address some of North America’s most pressing environmental priorities through its cooperative work program and other initiatives. Examples of past and current CEC projects related to the marine environment include; *“Marine Protected Areas: Strengthening Management Effectiveness and Supporting Coastal Community Resilience”*, *“Engaging Communities to Conserve Marine Biodiversity through NAMPAN”* and *“Conserving Marine Species and Spaces of Common Concern”* ^{67,68,69}.

References:

Non-Conformance Number (if relevant)

NA

⁶⁷ <http://www.cec.org/our-work/projects/marine-protected-areas-strengthening-management-effectiveness-and-supporting-coastal-community-resilience>

⁶⁸ <http://www.cec.org/our-work/projects/engaging-communities-protect-marine-biodiversity-through-nampan>

⁶⁹ <http://www.cec.org/our-work/projects/conserving-marine-species-and-spaces-common-concern>

Supporting Clause 2.1.2

States shall ensure that the authority or authorities representing the fisheries sector in the coastal management process have the appropriate technical capacities and financial resources.

FAO CCRF (1995) 10.4.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The management authorities (IPHC, NMFS, NPFMC etc.) have the appropriate technical capacities and financial resources to effectively represent the fisheries sector in the coastal management process.				
Evidence: The IPHC is financially resourced through monies it receives from both the U.S. and Canadian governments, through the Department of State and DFO respectively, is considered part of the U.S. Federal government for purchasing and travel and is afforded not-for-profit status in the U.S. ⁷⁰ . Budgets for the IPHC are discussed and approved at its annual meeting and information relating to the financing of the IPHC is contained in its Annual Report. The IPHC funds its annual stock assessment surveys through a cost recovery program consisting of the sale of sampled fish to the level necessary to make the program cost-neutral over the long term ⁷¹ . The costs incurred by the NMFS in its management of the Alaskan halibut IFQ Program are recovered as obligated by the MSA through a fee to be paid by IFQ fishermen based on the ex-vessel value of their catches landed under the Program. 25% of the monies collected are deposited in the U.S. Treasury and are available to Congress for annual appropriations to support the North Pacific (IFQ) Loan Program. The remaining 75% is deposited in the Limited Access System Administrative Fund (LASAF) and are available only to the Secretary of Commerce and must be spent on IFQ Program management, data collection, and enforcement. Collaboration between management agencies at the technical and research level on stock assessments, halibut biology, environmental drivers etc. as outlined in Clauses 2.1 and 2.1.1 clearly demonstrate that these agencies have technical capacity necessary to effectively represent their sector in the wider coastal management process.				
References:				
Non-Conformance Number (if relevant)				NA

⁷⁰ <http://www.iphc.int/about-iphc.html>

⁷¹ <http://www.iphc.int/publications/techrep/tech0059.pdf>

Supporting Clause 2.2

Representatives of the fisheries sector and fishing communities shall be consulted in the decision making processes involved in other activities related to coastal area management planning and development. The public shall also be kept aware on the need for the protection and management of coastal resources and the participation in the management process by those affected.

FAO CCRF (1995) 10.1.2, 10.2.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>Representatives of the fisheries sector including fishing communities and the wider public are consulted in the decision making processes involved in coastal area management, planning and development. In addition the public are kept aware of their rights and responsibilities with respect to the protection of coastal resources and their avenues for participation in the management process.</p>				
Evidence:				
<p>Representatives of the fisheries sector and fishing communities are consulted in the decision-making processes and in other activities related to coastal area management planning and development. This happens through the NEPA processes, and especially through the NPFMC as well as through public review processes organized by the NMFS. Please refer to previous Clauses in this section for further information and evidence. The NMFS and NPFMC as federal agencies participate in coastal area management-related institutional frameworks through federal National Environmental Policy Act (NEPA) process⁷². NEPA processes provide public information and robust and inclusive opportunities for public involvement. Decisions are made through public processes and involvement of fishery managers, fishermen, fishing organizations and fishing communities; actively invited through publicly advertised and scheduled meetings. Assessing the social and cultural value of coastal resources is stated as an explicit part of the decision making process for allocation and use of resources.</p> <p>The NPFMC and NMFS both have processes in place to facilitate public engagement and ensure the concerns of coastal communities are heard. NPFMC conducts open meetings with both oral and written public testimony being taken and NMFS consults with tribes and Native corporations regarding Federal actions that may affect tribal governments and their members. The facilitation of public input ensures that the NPFMC and NMFS are kept abreast of issues of concern to coastal communities and that these are then given due consideration in the Council’s engagement with NEPA processes. Management entities and processes give due publicity to conservation and management measures and ensure that laws, regulations and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures are explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures.</p>				
References:				
Non-Conformance Number (if relevant)				NA

⁷² https://ceq.doe.gov/nepa/Citizens_Guide_Dec07.pdf

Supporting Clause 2.3

Fisheries practices that avoid conflict among fishers and other users of the coastal area (e.g. aquaculture, tourism, energy) shall be adopted and fishing shall be regulated in such a way as to avoid risk of conflict among fishers using different vessels, gear and fishing methods. Procedures and mechanisms shall be established at the appropriate administrative level to settle conflicts which arise within the fisheries sector and between fisheries resource users and other coastal users.

FAO CCRF (1995) 7.6.5, 10.1.4, 10.15

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Fisheries practices that avoid conflict among fishers and other users of the coastal zone are adopted. Fishing is regulated in such a way as to avoid conflict among fishers using different vessels, gear and fishing methods. Procedures and mechanisms are established to settle conflicts within the fisheries sector and between fisheries resource users and other coastal users.

Evidence:

The management system with its open and transparent structures and processes and participatory nature resolves the majority of disputes internally. Dissatisfied parties affected by Council and NMFS decisions can appeal the decision to the Appeals Office in the NMFS Alaska Regional Office, which adjudicates appeals of initial administrative determinations and whose jurisdiction includes the halibut IFQ and CDQ Programs as well as other management programs. These dispute resolution mechanisms have proven to be effective at dealing with most issues avoiding the necessity for disputes to escalate to the stage of legal action. However, in cases where processes have not resulted in the resolution of disputes, parties can and do resolve the disputes in the federal court system.

IPHC and NPFMC meetings provide fora for resolution of potential conflicts with users being afforded the opportunity to testify in person or in writing. In addition, stakeholders may review and submit written comments to the NMFS on proposed rules published in the Federal Register. The NPFMC works closely with ADFG and the BOF to coordinate fishery management programs in state and federal waters off Alaska to address fish habitat concerns, catch limits, allocation issues and other management issues.

The NPFMC and the Alaska Board of Fisheries have also created a joint protocol for development of "local area management plans," or LAMPs, for halibut fisheries at ports where allocation or gear conflicts are present⁷³. The Board of Fisheries solicits LAMP proposals and evaluates them for adherence to the protocol before forwarding them to the NPFMC for action. A variety of measures, including moratoriums, harvest caps, and/or exclusion zones for all fisheries, can possibly be implemented as part of a LAMP to address near shore depletion or resolve other user conflicts.

In many cases the NEPA process, deliberately takes into account all resources and users of those resources in order to resolve potential conflicts among users before project approvals are given. Conflict resolution mechanisms include both administrative (through governmental agencies) and legal (through courts of law) procedures. However, in most cases project approvals are withheld until substantive conflicts are resolved.

⁷³ http://www.adfg.alaska.gov/static-sf/Region2/ground_fish/PDFs/Guidelines.pdf

The NPFMC is responsible for allocation of the halibut resource among user groups in Alaska waters. The management framework accounts for all sectors of the Alaskan halibut fishery through NPFMC processes, the CDQ Program, the Charter Halibut Catch Sharing Plan (CSP) and allowances for subsistence halibut fishing.

Conflict among fishers in the directed commercial halibut fishery has been greatly reduced since the inception in 1995 of the halibut IFQ Program. The switch from a derby style halibut fishery to the IFQ Program, with individual apportionments of the available quota and greatly extended fishing seasons, effectively eliminated the “race to fish” and led to a reduction in gear conflict between fishers. All gear marking buoys used in the commercial halibut fishery in Alaskan waters are required to be marked with either the vessel’s State license or registration numbers. Markings must be above the waterline and at least four inches in height and half an inch wide in a contrasting color.

The majority of recreational charter halibut fishing sector in Alaska is confined to Areas 2C and 3A (Figure 4) and prior to 2014 the sector was managed under a guideline harvest level (GHL) program. However in 2012, the Council recognized that the GHL program was unable to constrain the sector’s harvests to desired levels, particularly as halibut abundance declined. In response the NPFMC, NMFS, ADFG and IPHC developed the charter halibut Catch Sharing Plan (CSP) between the commercial and charter sectors in areas 2C and 3A which replaced the Guideline Harvest Level Program for the 2014 season^{74,75}. The charter halibut CSP:

1. Defines an annual process for allocating halibut between the charter and commercial halibut fisheries in Areas 2C and 3A
2. Establishes by regulation sector allocations that vary in proportion with changing levels of annual halibut abundance and that balance the differing needs of the charter and commercial halibut fisheries over a wide range of halibut abundance in each area
3. Describes a public process by which the Council may develop recommendations to the IPHC for charter angler harvest restrictions that are intended to limit harvest to the annual charter halibut fishery catch limit in each area
4. Prohibits retention of halibut by skipper/crew while under charter.

The inception of the CSP and further proposals to allow the charter halibut fishery to lease a limited amount of commercial IFQ quota is aimed at reducing conflict between commercial and recreational halibut fishers.

References:	
--------------------	--

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

⁷⁴ <http://www.npfmc.org/wp-content/PDFdocuments/halibut/CSPJan14.pdf>

⁷⁵ http://www.npfmc.org/wp-content/PDFdocuments/halibut/CSPFACTsheet12_2013.pdf

Supporting Clause 2.4

States and sub-regional or regional fisheries management organizations and arrangements shall give due publicity to conservation and management measures and ensure that laws, regulations and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures shall be explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures.

FAO CCRF (1995) 7.1.10

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

Management entities have processes in place to effectively disseminate information relating to conservation and management measures and the bases for and purposes of these measures are explained to resource users in order to facilitate their application and thus gain increased support in their implementation.

Evidence:

Management entities have processes in place to effectively disseminate information relating to conservation and management measures, and related laws and regulations. There is a huge variety of avenues and forms in which interested individuals may access a wide range of information relating to the Alaskan Pacific halibut fishery. The [NPFMC](#), [NMFS](#), [IPHC](#) and [ADFG](#) all run websites where users can access comprehensive up to date information on management and conservation measures in the halibut fishery. Management organizations also maintain official profiles on various social media platforms from which they can both disseminate information and interact directly with stakeholders^{76,77,78,79,80}. Management agencies release regular information bulletins⁸¹, news releases^{82,83} and newsletters⁸⁴ informing the public of goings-on in Alaskan fisheries.

Management agencies also have dedicated outreach sections that, in addition to attending public events, produce educational resources aimed at providing science-based materials and activities for students and teachers interested in exploring the science behind marine resource management and conservation^{85,86}. Additionally, the IPHC has developed a unit of curriculum specifically focused on the Pacific halibut fishery; *“Pacific Halibut and the Ocean Ecosystem”* during which students take on the various roles of ocean organisms, fishers, biologists, and managers and make decisions that attempt to achieve the balanced use of marine resources. The IPHC has also produced literature aimed at educating younger readers about the halibut fishery; *“Pacific Halibut Flat or Fiction”*⁸⁷.

⁷⁶ <https://twitter.com/NOAAFisheriesAK>

⁷⁷ <https://www.facebook.com/NOAAFisheriesAK/?ref=hl>

⁷⁸ <https://mobile.twitter.com/IPHCInfo>

⁷⁹ <https://www.facebook.com/InternationalPacificHalibutCommission/>

⁸⁰ <https://www.facebook.com/alaskafishandgame>

⁸¹ <https://alaskafisheries.noaa.gov/infobulletins/search/>

⁸² <https://alaskafisheries.noaa.gov/news-releases/search>

⁸³ <http://www.iphc.int/news-releases/news-releases-2016.html>

⁸⁴ <http://www.npfmc.org/wp-content/PDFdocuments/newsletters/news416.pdf>

⁸⁵ <http://www.afsc.noaa.gov/Education/default.htm>

⁸⁶ http://www.nmfs.noaa.gov/educators_students/education.html

⁸⁷ <http://www.iphc.int/publications/flat/flatorfiction.pdf>

The bases and purposes of management and conservation measures are explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures. As previously described both the IPHC and NPFMC conduct the majority of their business in open fora with stakeholders being afforded the opportunity to both make submissions and comment orally either in person or electronically. The basis for management recommendations is outlined in the supporting documents uploaded to the respective publically accessible web platforms in advance of meetings with sufficient time being given for stakeholders to digest the information and comment accordingly. In this way IPHC and NPFMC meetings provide fora for resolution of potential issues between resource users and managers in advance of these issues becoming full blown conflicts thereby facilitating stakeholder “buy in” and possibly increasing support for proposed management measures within the community.

References:	
Non-Conformance Number (if relevant)	NA

Supporting Clause 2.5

The economic, social and cultural value of coastal resources shall be assessed in order to assist decision-making on their allocation and use.

FAO CCRF (1995) 10.2.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The economic, social and cultural values of coastal resources are regularly assessed by the pertinent authorities (i.e. NMFS) in order to assist decision-making on their allocation and use. There are comprehensive networks for the collection and analysis of data and results are readily available.

Evidence:

The value of coastal halibut resources from economic, institutional and social perspectives is regularly assessed in order to assist decision makers with allocation and use decisions. The economic, social and cultural value of Alaskan fisheries are continually assessed to assist decision-making on their allocation with the results being presented annually in economic Stock Assessment and Fishery Evaluation (SAFE) reports alongside ecosystem and Stock Assessment SAFEs⁸⁸.

NOAA’s Alaska Fisheries Science Center (AFSC) runs the Economic and Social Sciences Research Program in Alaska⁸⁹. The aim of the Program is to provide economic and sociocultural information to assist NMFS in meeting its stewardship responsibilities with activities being conducted in support of this mission including:

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

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

In 2005, AFSC compiled baseline socioeconomic information about 136 Alaska communities most involved in commercial fisheries compiling information from the US Census, ADFG, CFEC, NMFS Restricted Access Management Division, Alaska Department of Community and Economic Development, and various community groups, websites, and archives in the process. In 2011 an exercise whereby the scope of the original evaluations was expanded led to updated profiles being produced for a total of 196 communities. The new

⁸⁸ <http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf>

⁸⁹ <http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php>

profiles add a significant amount of new information to help provide a better understanding of each community’s reliance on fishing. Introductory materials cover purpose, methods, and an overview of the profiled communities in the larger context of the state of Alaska and North Pacific fisheries. The community profiles comprise additional information including, but not limited to, annual population fluctuation, fisheries-related infrastructure, community finances, natural resources, educational opportunities, fisheries revenue, shore-based processing plant narratives, landings and permits by species, and subsistence and recreational fishing participation, as well as information collected from communities in the Alaska Community Survey, which was implemented during summer 2011, and the Processor Profiles Survey, which was implemented in Fall 2011. Comprehensive community profiles, concise snapshots and searchable maps of communities involved in commercial, recreational and subsistence halibut fishing may be found on the AFSC website^{90,91}.

The Alaska Fisheries Information Network (AKFIN) was established in 1997 in response to an increased need for detailed, organized fishery information to aid decision-making by managers with the aims of consolidating, managing and dispensing information related to commercial fishing in Alaska⁹². The AKFIN maintains an analytic database of both state and federal historic, commercial Alaska fisheries data relevant to the needs of fisheries analysts and economists and to provide that data in a usable format.

References:	
Non-Conformance Number (if relevant)	NA

⁹⁰ <http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/CPU.php>

⁹¹ <http://www.afsc.noaa.gov/maps/ESSR/commercial/default.htm>

⁹² <http://www.akfin.org/about-akfin>

Supporting Clause 2.6

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

FAO CCRF (1995) 10.2.4, 10.2.5, 10.3.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Monitoring of the coastal environment in Alaska is performed by federal and state agencies. Economic and social parameters are routinely assessed by the NPFMC, NMFS and ADFG either during the NEPA review of plan amendments or during their on-going studies and evaluations.

Evidence:

Monitoring of the coastal environment in Alaska is performed by federal and state agencies. Economic and social parameters are routinely assessed by the NPFMC, NMFS and ADFG either during the NEPA review of plan amendments or during their on-going studies and evaluations.

As previously described in Clause 2.1 the NMFS and NPFMC as federal agencies participate in coastal area management-related institutional frameworks through federal NEPA processes. Other State and federal entities that cooperate at the sub-regional level in order to improve coastal area management include:

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

(Brief descriptions of the roles of each as they relate to coastal area management may be found in supporting evidence for Clause 2.1.)

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

The AFSC's "Ecosystem Monitoring and Assessment Program" (EMA) aims to improve and reduce uncertainty in stock assessment models of commercial fish and shellfish species through the collection of observations of survey catch and oceanography. Its oceanographic observations include temperature, conductivity, salinity, density, photosynthetically available radiation (PAR), oxygen, Chlorophyll a, and estimates of the composition and biomass of phytoplankton and zooplankton (includes jellyfish) species.

The NPRB funds major research projects in the Gulf of Alaska⁹³ and the Bering Sea⁹⁴ aimed at examining physical and biological mechanisms that determine the survival of juvenile groundfishes in the GOA and understanding the impacts of climate change and dynamic sea ice cover on the eastern BS ecosystem respectively. For oceanography, the NPRB has funded numerous studies describing baseline oceanographic parameters and supported environmental buoy arrays.

PMEL regularly collect oceanographic and environmental data important to understanding the changing habitat of halibut and other marine species in Alaskan waters⁹⁵.

The IMS is the oldest and largest unit of the UAF's School of Fisheries and Ocean Science and is the home for research in oceanography and marine biology, including graduate student research for M.S. and Ph.D. degrees. IMS conducts studies in the world's oceans, with particular emphasis on arctic and Pacific subarctic waters, including collaborative, multidisciplinary ecosystem studies of the waters around Alaska. IMS also conducts studies that form part of larger national and international cooperative programs⁹⁶. IMS faculty and research staff provides expertise in marine biology, biological oceanography, physical, chemical and geological oceanography with major areas of research focused around:

- ecosystem structure and dynamics
- effects of climate change
- oceanographic and ecosystem factors affecting Alaskan fisheries
- applied research problems facing the U.S. Arctic offshore oil and gas industry

Since the expansion of its survey operations in 1997, the IPHC has annually conducted fishing operations at more than 1,000 sampling stations in depths of 35m to 500m from Oregon to the Bering Sea representing the largest consistent sampling program of any research agency in the north Pacific. From the late 1990s the IPHC, in seeking to add value to its survey program while maintaining the core survey activities, decided to begin collecting oceanographic data in parallel to its setline survey. For the IPHC coupling oceanographic drivers of primary and secondary productivity with estimates of production from the IPHC setline survey is an obvious next step to increasing the understanding of what drives the abundance and distribution of marine natural resources.

Additionally the IPHC, in collaboration with Washington Sea Grant, developed a sampling protocol for collecting seabird occurrence data on the IPHC setline surveys. Although initially a collaborative project between the IPHC, ADFG and the NMFS sablefish survey, the IPHC permanently incorporated the seabird data collection protocols into its survey program when the collaboration came to an end in 2004. Samplers aboard research vessels count seabirds in the vicinity of the vessel's stern immediately following gear retrieval addressing the question of where and when certain seabird species occur aiding in the assessment of individual species at risk by providing information that may reflect population trends over time. The collection and analysis of data also allows for recommendations for improvements to the seabird avoidance requirements for commercial fishing vessels to be made.

ADFG Habitat Division⁹⁷ conducts research on coastal and marine environments throughout Alaska in an effort to document and mitigate human-related impacts, changes in habitat & species abundance. The agency also

⁹³ <http://www.nprb.org/gulf-of-alaska-project/about-the-project/>

⁹⁴ <http://www.nprb.org/bering-sea-project/about-the-project/>

⁹⁵ <http://www.pmel.noaa.gov>

⁹⁶ <http://www.uaf.edu/sfos/research/institute-of-marine-scienc/research-overview/>

⁹⁷ <http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main>

collects physical and chemical data, including temperature, depth, salinity and conductivity during their St. Matthew's pot survey using data loggers placed on the survey pots.

The NMFS' Habitat Conservation Division (HCD) works to avoid, minimize, or offset adverse anthropogenic effects on Essential Fish Habitat (EFH) and living marine resources in Alaska. This work includes conducting and/or reviewing environmental analyses for a large variety of activities including commercial fishing. HCD focuses on activities in habitats used by federally managed fish species in marine, estuarine, and freshwater areas⁹⁸.

The Coast Guard enforces fisheries laws at sea including regulations to aid the recovery of marine protected species and their associated habitats⁹⁹.

References:	
--------------------	--

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

⁹⁸ <http://www.fakr.noaa.gov/habitat/default.htm>

⁹⁹ <http://www.uscg.mil/hq/cg5/cg531/LMR.asp>

Supporting Clause 2.7

States shall, within the framework of coastal area management plan, establish management systems for artificial reefs and fish aggregation devices. Such management systems shall require approval for the construction and deployment of such reefs and devices and shall take into account the interests of fishers, including artisanal and subsistence fishers.

FAO CCRF (1995) 8.11.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>There is no evidence to suggest that either Pacific halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Pacific halibut. There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.</p>				
Evidence:				
<p>There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.</p> <p>According to Alaska Responsible Fisheries Management (RFM) Certification Program Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in Alaska Version 1.3¹⁰⁰, the use of artificial structures may be appropriate for some stocks but not necessary for all. This clause may therefore not be applicable if such structures are not practical or appropriate for stocks. The use of artificial structures should be considered appropriate if one or more of the species under assessment has benefitted from the use of artificial structures in other fisheries, or if species with similar biological characteristics have benefitted from the use of artificial structures in other fisheries.</p> <p>There is no evidence to suggest that Pacific halibut has benefitted from the use of artificial structures in either the Alaskan or in other fisheries. There is also no evidence that species with similar biological characteristics have benefitted from the use of artificial structures in other fisheries. The use of artificial structures is neither practical nor appropriate for halibut. There is no use of artificial structures for the benefit of the halibut stock; as such this Clause is NOT APPLICABLE.</p>				
References:				
Non-Conformance Number (if relevant)				NA

¹⁰⁰ <http://www.alaskaseafood.org/wp-content/uploads/2016/05/Scoring-Guidance-for-AK-RFM-V-1.3May2016.pdf>

Supporting Clause 2.8

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

- a) Provide timely information and if possible, prior notification to potentially affected States;
- b) Consult with those States as early as possible.

FAO CCRF (1995) 10.3.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Were events such as oil spills, outbreaks of marine invasive species or aquaculture farms escapes to occur in Alaskan waters there are management plans in place to address the resulting fallout. Additionally, there are systems to allow the early sharing of information with the relevant Canadian authorities should such events have the potential for spill over impacts on Canadian waters.

Evidence:

Oil and Hazardous Substances

The International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) is an international maritime convention establishing measures for dealing with marine oil pollution incidents nationally and in co-operation with other countries¹⁰¹. The OPRC Convention was drafted within the framework of the International Maritime Organization (IMO) before being adopted in 1990, entering into force in 1995 and having a Protocol relating to hazardous and noxious substances added in 2000. As of April 2016, there are 109 state parties to the convention including those countries most likely to be impacted by a marine pollution incident in Alaskan waters the U.S., Canada and Russia.

States that are party to the Convention undertake, individually or jointly, to take all appropriate measures to prepare for and respond to oil pollution incidents. Parties are additionally required to co-operate and provide advisory services, technical support and equipment for the purpose of responding to an oil pollution incident upon the request of any Party affected or likely to be affected by such incident. In short this means that under the Convention, the U.S. can both call upon other signatory states to provide assistance in the event of a marine pollution incident within U.S. waters, and be called upon to provide reciprocal assistance should a similar event occur in another signatory state.

The Convention includes a requirement to report without delay any event, or indeed any observed event, involving a discharge, probable discharge or the presence of oil at sea to either the nearest coastal State, in the case of a ship, or to the coastal State to whose jurisdiction the unit is subject, in the case of an offshore unit. Similarly persons having charge of sea ports and oil handling facilities are required to report without delay any event involving a discharge or probable discharge of oil or the presence of oil to the competent national authority.

While international marine pollution contingency plans for the Canada-U.S contiguous waters have been in place since the early 1970s the provisions of OPRC necessitated further revisions to the Canada-United States

¹⁰¹<http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/Default.aspx>

Joint Marine Pollution Contingency Plan (JCP)¹⁰². The U.S. and Canadian Coast Guards are the custodians of the of the plan which is intended to outline and define roles and responsibilities in the event of a marine pollution incident and provide non-binding guidance to the respective Coast Guards, as well as other appropriate authorities, in coordinating preparedness and response operations.

The Alaska Department of Environmental Conservation's Division of Spill Prevention and Response (SPAR) is responsible for protecting Alaska's land, waters, and air from oil and hazardous substance spills by preventing, responding to and ensuring the clean-up of unauthorized discharges of oil and hazardous substances¹⁰³. SPAR has developed the Prevention and Emergency Response Program whose mission is to protect public safety, public health and the environment by preventing and mitigating the effects of oil and hazardous substance releases and ensuring their cleanup through government planning and rapid response¹⁰⁴. During a spill response, PERP staff carry out a variety of key tasks, depending on the size and nature of the incident including;

- Identifying the spiller or "responsible party"
- Determining the volume spilled and recovered
- Tracking the movement of the spill
- Coordinating with all local, state and federal interests using the Incident Command System (ICS) outlined in the State of Alaska Disaster Response Plan¹⁰⁵ and the Alaska Incident Management System Guide (AIMS) For Oil and Hazardous Substance Response¹⁰⁶

The Oil and Hazardous Substance Release Prevention and Response Fund, which is based on a per-barrel surcharge on crude oil production, was created in 1986 to provide funds for the safe handling and clean-up of oil and hazardous substances. State clean-up costs are recovered from the spiller, who is ultimately responsible for these costs. SPAR may also seek federal reimbursement from the national Oil Spill Liability Trust Fund for costs incurred in oil spill response activities.

The Pacific States/British Columbia Oil Spill Task Force is an organization comprised of representatives from state and provincial environmental agencies in the Pacific coastal area resulting from a memorandum signed by the governors of the U.S. states of Alaska, Washington, Oregon, and California, and the premier of the Canadian Province of British Columbia in 1989; Hawaii joined the Task Force in 2001 further broadening its regional scope. The task force was initially created in response to the need for cross-border coordination and cooperation in the wake of two major spill events, namely the oil barge *Nestucca* (December 1988) and *Exxon Valdez* (March 1989).

The Task Force's mission is to improve prevention, preparation, and response to oil spills on a state and provincial level. It achieves this by collecting and sharing data on oil spills, coordinating oil spill prevention projects, and promoting regulatory safeguards.

Marine Non-native/Invasive Species Management

There are numerous State and Federal agencies concerned with the management of biological threats with the potential to have adverse transboundary environmental effects on coastal areas including ADFG, the Aquatic Nuisance Species (ANS) Task Force and the National Invasive Species Council (NISC).

¹⁰² <http://www.dfo-mpo.gc.ca/Library/343409.pdf>

¹⁰³ <http://dec.alaska.gov/spar/index.htm>

¹⁰⁴ <http://dec.alaska.gov/spar/PPR/docs/perp.pdf>

¹⁰⁵ https://dec.alaska.gov/spar/ppr/plans/adece_disaster.pdf

¹⁰⁶ [http://dec.alaska.gov/spar/PPR/docs/AIMS_Guide-Complete\(Nov02\).pdf](http://dec.alaska.gov/spar/PPR/docs/AIMS_Guide-Complete(Nov02).pdf)

The National Invasive Species Council (NISC) was created by Executive Order in 1999 and provides high-level interdepartmental coordination of federal invasive species actions as well as working with other federal and non-federal groups to address invasive species issues at the national level¹⁰⁷.

The ANS Task Force is an interagency committee established under the Nonindigenous Aquatic Nuisance Prevention and Control Act 1990 (NANPPCA) that is currently made up of 13 Federal Agencies¹⁰⁸. The Task Force, co-chaired by the USFWS and NOAA, is charged with coordinating, developing and implementing a program to prevent the introduction and dispersal of ANS in U.S. waters, to monitor, control and research such species, and to disseminate information regarding ANS. This program is outlined in the Task Force Strategic Plan which undertakes to fulfil the provisions of the NANPPCA in addressing aquatic invasive species issues¹⁰⁹. In 2002, ADFG prepared a management plan to address the threat posed by invasive species to the aquatic ecosystems in Alaska; *“The Alaska Aquatic Nuisance Species Management Plan”* that was approved by the federal Aquatic Nuisance Species (ANS) Task Force¹¹⁰. Both the Task Force Strategic and the Alaska Aquatic Nuisance Species Management Plans espouse the importance of communication and education in the prevention of nuisance species.

Aquaculture/Mariculture Management

U.S. federal and state permits require containment management systems at all marine sites and enforce these measures through regular inspections and audits. With respect to aquaculture activities in the marine environment, advanced containment systems and improved management practices have dramatically reduced escapes from U.S. fish farms in the last 10 years¹¹¹ and this trend is likely to continue as equipment and husbandry techniques continue to evolve.

ADFG’s Mariculture Program permits and regulates aquatic farming in a manner that ensures the protection of the state’s fish, game, and aquatic plant resources¹¹². In Alaska, the mariculture industry primarily produces oysters, clams, and mussels. Among its core activities the Mariculture Program ensures that aquatic farming does not significantly alter an established fishery resource and is compatible with fish and wildlife resources and their habitat.

References:	
Non-Conformance Number (if relevant)	NA

¹⁰⁷ <https://www.doi.gov/invasivespecies/>

¹⁰⁸ <http://www.anstaskforce.gov/default.php>

¹⁰⁹ <http://www.anstaskforce.gov/Documents/ANSTF%20Strategic%20Plan%202013-2017.pdf>

¹¹⁰ <http://www.adfg.alaska.gov/FedAidpdfs/RIR.5J.2002.10.pdf>

¹¹¹ http://www.nmfs.noaa.gov/aquaculture/faqs/faq_ag_environment.html#8what

¹¹² <http://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.programinfo>

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

No. Supporting clauses/sub-clauses	7
Supporting clauses applicable	7
Supporting clauses not applicable	0
Non-Conformances	0

Supporting Clause 3.1

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

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

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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:

The objectives of the IPHC as they relate to management of the halibut resource are laid out in the various agreements underpinning the activities of the IPHC. The initial US and Canada Agreement for the management, conservation and sustainable utilization of Pacific halibut in the North Pacific, signed in 1923 stated that: *“The Commission (IPHC) shall (...) make recommendations as to the regulation of the halibut fishery of the North Pacific Ocean, including the Bering Sea, which may seem desirable for its preservation and development”*.

In 1953, a further Agreement of the Commission expanded on previous objectives of the IPHC as follows: *“The Contracting Parties agree that for the purpose of developing the stocks of halibut of the Northern Pacific Ocean and Bering Sea to levels which will permit the maximum sustained yield from that fishery and for maintaining the stocks at those levels...”*

As previously outlined, the Alaska halibut fishery is managed cooperatively by the IPHC, NMFS and the NPFMC. The IPHC conducts research on, and makes 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 functions of the Commission are advisory with regulatory authority being retained by the respective governments. 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^{113,114}; 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, organized into 9 broader policy objectives, have been outlined. The policy objectives into which the management objectives are currently organized 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 strategies¹¹⁵. At its October 2013 meeting, the MSAB established a set of overarching

¹¹³ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmf.pdf>

¹¹⁴ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/BSAI/BSAIfmf.pdf>

¹¹⁵ http://www.iphc.int/publications/bluebooks/IPHC_bluebook_2014.pdf

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)
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 an 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 SSB₀ (where SSB₀ 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

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, recognizing 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

Supporting Clause 3.2

Management measures shall provide inter alia that:

Supporting Clause 3.2.1

Excess fishing capacity shall be avoided and exploitation of the stocks remains economically viable.

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
Measures, namely the IFQ and CDQ programs, are in place to ensure that excess fishing capacity is avoided and exploitation of the stocks remains economically viable.				
Evidence:				
<p>In 1995 NMFS implemented the NPFMC’s program of Individual Fishing Quotas (IFQs) established under amendments 15 and 20 to the BSAI and GOA FMPs. The IFQ program was explicitly intended to alleviate excess fishing capacity and improve the economic viability of the halibut industry. The quota share system resulted in the removal of excess fishing capacity, fewer active vessels deploying less gear, greatly extended fishing seasons and increased economic viability within the fishing industry. The rationalization program has incentivized responsible fishing practices with gear losses, damage as a result of on-deck sorting and deadloss all having been reduced. Prior to rationalization, all vessels participated in a “race to fish” scenario. When the fisheries were rationalized, the number of qualifying vessels was reduced. Today fewer vessels are needed to take the TAC thereby reducing operational costs and increasing overall efficiency.</p> <p>The Western Alaska Community Development Quota (CDQ) program, intended to help develop commercial fisheries in communities of the BSAI coast, by allowing them exclusive access to specified amounts of halibut and sablefish in the BSAI management area, was established in parallel to the IFQ program.</p> <p>NMFS Alaska Regional Office’s Restricted Access Management Program (RAM) is responsible for managing Alaska Region permit programs, including those that limit access to the Federally-managed fisheries of the North Pacific. RAM responsibilities include: providing program information to the public, determining eligibility and issuing permits, processing transfers, collecting landing fees and related activities.</p>				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 3.2.2

The economic conditions under which fishing industries operate shall promote responsible fisheries.

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>There are management measures in place to monitor the economic conditions under which the fishery operates providing evidence of the general economic value of the resource and its benefit to both fishermen and fishing communities. Management measures in the fishery incentivize responsible fishing practices. Management objectives contained in GOA and BSAI Groundfish FMPs are not gear specific and apply equally to mobile and static gears.</p>				
Evidence:				
<p>In 1995, the NPFMC instituted a catch sharing mechanism that created quota shares for GOA and BSAI halibut fisheries resulting in the removal of excess fishing capacity, fewer active vessels deploying less gear, greatly extended fishing seasons and increased economic viability within the fishing industry. Prior to rationalization, all vessels participated in a “race to fish” scenario. When the fisheries were rationalized, the number of qualifying vessels was reduced. Today fewer vessels are needed to take the TAC thereby reducing operational costs and increasing overall efficiency. The IFQ and CDQ programs have incentivized responsible fishing practices with gear losses and discard mortality of undersized halibut having been reduced.</p> <p>As discussed in detail in Clause 2.5, the economic conditions under which the halibut operates are regularly assessed and analyzed with results being presented annually in economic SAFE reports. The AFSC has also compiled baseline socioeconomic information about those Alaska’s coastal communities most involved in commercial fisheries. The resulting profiles provide a greater understanding of each community’s reliance on fishing for its economic wellbeing and the potential impacts management measures might have on those communities.</p>				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 3.2.3

The interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries shall be taken into account.

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries are taken into account during the development of management measures.				
Evidence: The interests of all fishers are explicitly, thoroughly, and routinely taken into account. NPFMC and NMFS devote a great deal of effort, with continuous stakeholder participation, in managing the commercial, sport, and subsistence fisheries. The subsistence halibut fishery allows rural and Alaska native persons to ‘practice the long-term customary and traditional harvest of Pacific halibut for food in a non-commercial manner’ ¹¹⁶ . Special permits for community harvest, ceremonial, and educational purposes also are available to qualified Alaska communities and Alaska Native Tribes. The CDQ program allocates a percentage of BSAI quota for halibut to eligible communities and aims to promote fisheries related economic development in western Alaska ¹¹⁷ . The Program involves 65 eligible communities organized into six regional organizations, referred to as CDQ groups, each of which is allocated quota for BSAI halibut. In addition to the CDQ program, the Community Quota Enterprise (CQE) program allows eligible villages to purchase additional harvest rights (in the form of IFQs), to further enhance their economies ¹¹⁸ . In Alaska, NMFS consults with tribes and Native corporations regarding Federal actions that may affect tribal governments and their members ¹¹⁹ . There is a framework for regular consultation and collaboration with Alaska Native representatives in the development of policies, legislation, regulations, and programs. Individual sport fishermen and sport charter operators/guides participate actively in the Council process. The Council manages those fisheries as part of its routine business including allocating proportions of the overall halibut TAC in areas 2C and 3A between the commercial and charter halibut fisheries following processes outlined in the charter halibut Catch Sharing Plan (CSP) (described in further detail in Clause 2.3) ¹²⁰ .				
References:				
Non-Conformance Number (if relevant)				NA

¹¹⁶ <https://alaskafisheries.noaa.gov/fisheries/subsistence-halibut>

¹¹⁷ <https://alaskafisheries.noaa.gov/fisheries/cdq>

¹¹⁸ <https://www.commerce.alaska.gov/web/ded/fin/loanprograms/communityquotaentity.aspx>

¹¹⁹ <https://alaskafisheries.noaa.gov/tribal-consultations>

¹²⁰ http://www.npfmc.org/wp-content/PDFdocuments/halibut/CSPFACTsheet12_2013.pdf

Supporting Clause 3.2.4

Biodiversity of aquatic habitats and ecosystems shall be conserved and endangered species shall be protected. Where relevant, there shall be pertinent objectives, and as necessary, management measures.

FAO CCRF (1995) 7.2.2
 FAO ECO (2009) 28.2
 FAO ECO (2011) 35.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

There are management measures to ensure that the biodiversity of aquatic habitats and ecosystems are conserved, and endangered species protected which reflect the existence of management objectives designed to achieve same.

Evidence:

NPFMC’s BSAI and GOA groundfish FMPs identify aquatic habitats and ecosystems and endangered species with the potential to be adversely impacted by fishing activity in Alaskan waters. Where relevant, the FMPs include objectives, and as necessary, management measures to protect vulnerable habitats, ecosystems and species.

While the BSAI and GOA FMPs do not directly encompass the Pacific halibut fishery, objectives within them relating to the conservation of aquatic habitats, ecosystems and endangered species apply equally to all fisheries. For example while the specific impacts of halibut fishing on a HAPC might not be incorporated in either FMP, the prohibition of all bottom contact gears including longlines, in an area imparts *de facto* protection from potential impacts by the halibut fishery.

Conservation of aquatic habitats and biodiversity are integral parts of NPFMC’s management process as required under the MSA-EHF. These concerns and decisions are summarized in the Ecosystems Considerations chapter of the NPFMC’s annual Stock Assessment and Fishery Evaluation (SAFE) reports. The NPFMC and NMFS have a long history of restricting fishing operations in order to protect endangered and threatened species of marine mammals and birds. Numerous objectives outlined in the GOA and BSAI FMPs speak directly to the conservation of aquatic habitats and ecosystems and the protection of endangered species including:

- 12. Continue to protect the integrity of the food web through limits on harvest of forage species.
- 13. Incorporate ecosystem-based considerations into fishery management decisions, as appropriate.
- 14. Continue and improve current incidental catch and bycatch management program.
- 20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures.
- 23. Continue to cooperate with U.S. Fish and Wildlife Service (USFWS) to protect ESA-listed species, and if appropriate and practicable, other seabird species.
- 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.
- 25. Encourage programs to review status of endangered or threatened marine mammal stocks and fishing interactions and develop fishery management measures as appropriate.
- 26. Continue to cooperate with NMFS and USFWS to protect ESA-listed marine mammal species, and if appropriate and practicable, other marine mammal species.
- 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.

References:

Non-Conformance Number (if relevant)

NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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. Management objectives contained in GOA and BSAI Groundfish FMPs are not gear specific and apply equally to mobile and static gears.

Evidence:

IPHC objectives are primarily consistent with achieving outcomes directly related to the halibut stock and removals. The IPHC Bering Sea Closed Area is a Federal closure that restricts commercial fishing for halibut in an area of 122,631 km² in the south-eastern Bering Sea (Figure 13). Within the Closure Area, directed fishing for halibut and possession of halibut, except in the course of a continuous transit, are prohibited. The IPHC Bering Sea Closed Area was created by the Commission in 1967 to protect a nursery area for juvenile halibut, in response to severe declines in halibut abundance. The current Closed Area is slightly smaller than the original definition due to subsequent reductions and the exclusion of Bristol Bay.

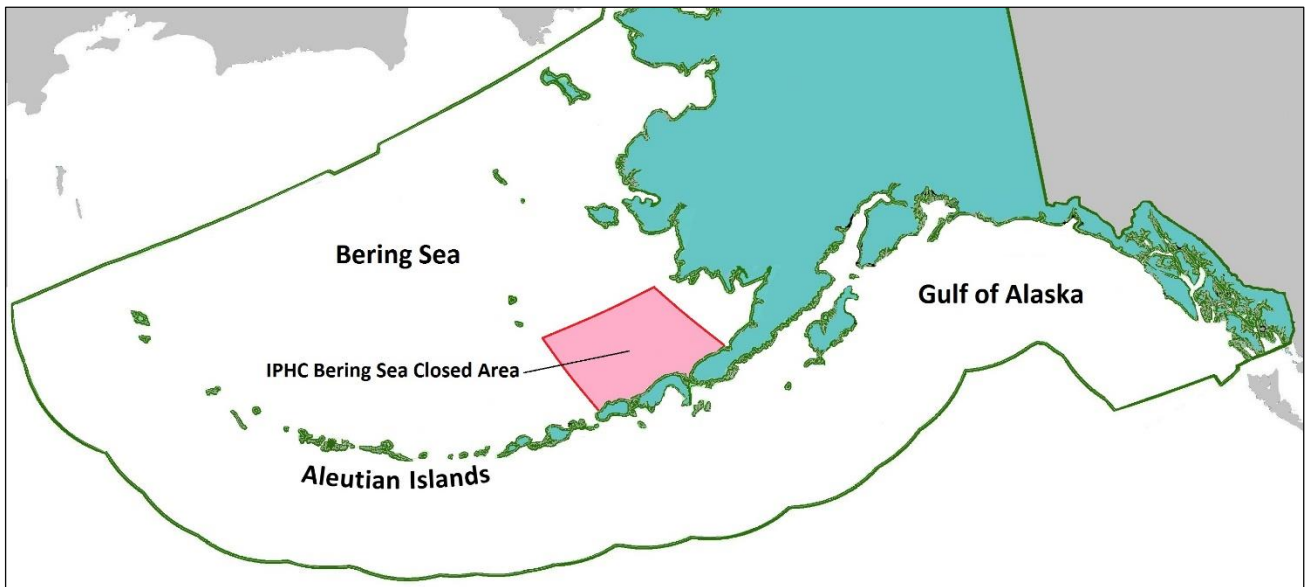


Figure 13. IPHC Bering Sea Closed Area (Modified from: <http://tinyurl.com/jnclh6r>).

The conservation of Essential Fish Habitat (EFH) and other habitats highly vulnerable to impacts from bottom contact fishing gears known as Habitat Areas of Particular Concern (HAPC) is an integral part of NPFMC's management process as required under the MSA^{121,122,123}. 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 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. As 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.

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 in Figure 14 below.

¹²¹ <https://alaskafisheries.noaa.gov/habitat/efh>

¹²² <https://alaskafisheries.noaa.gov/habitat/hapc>

¹²³ https://alaskafisheries.noaa.gov/sites/default/files/hapc_ak.pdf

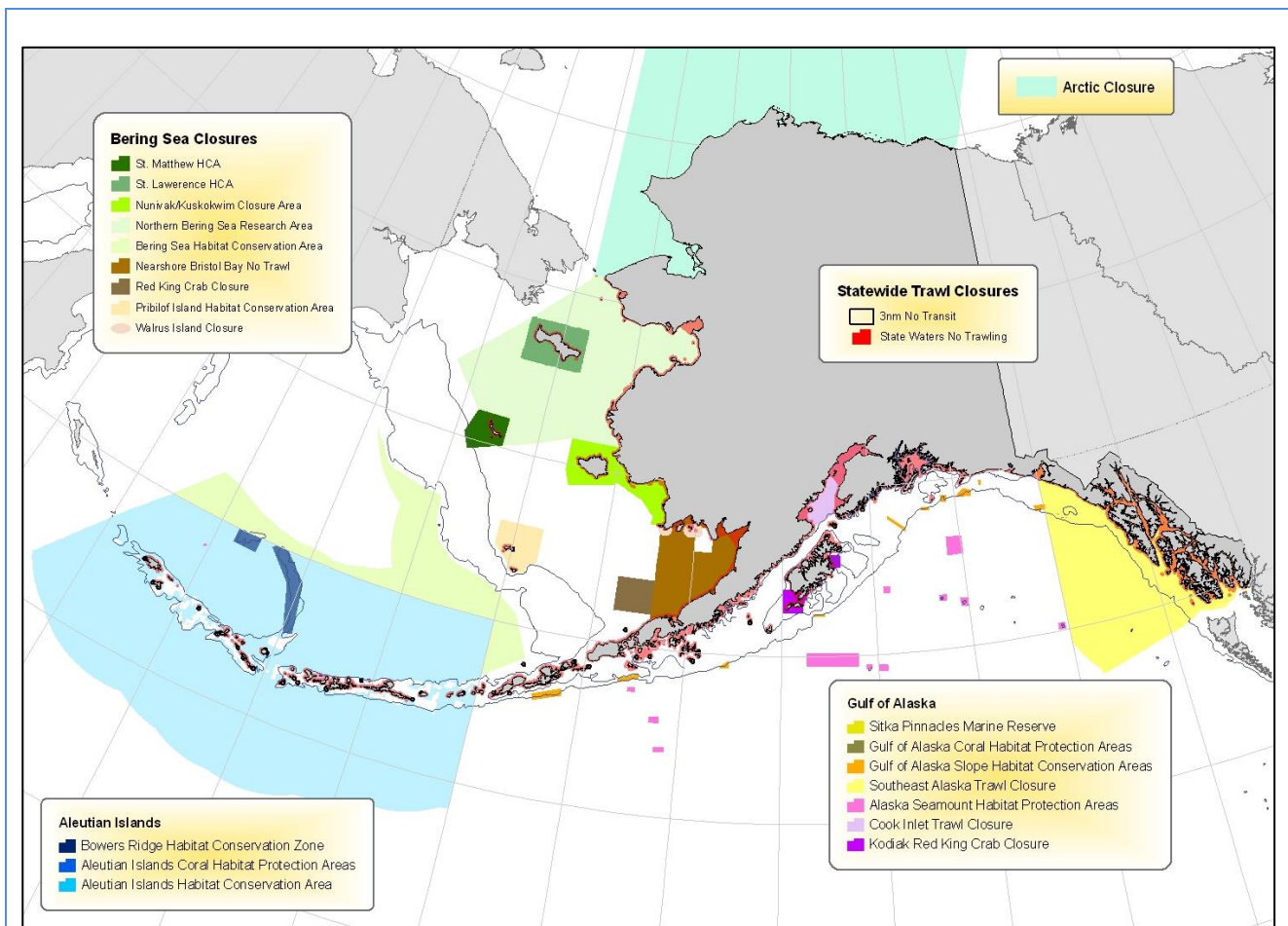


Figure 14. Habitat protection areas and habitat conservation zones currently in place in Alaskan waters (Source: NPFMC website¹²⁴).

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 area¹²⁵ which spatially coincides with important¹²⁵ 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 IPHC halibut closed area that can be seen in (Figure 13). A map detailing all closed Areas in Alaskan water is available on the NOAA website¹²⁶.

References:	
Non-Conformance Number (if relevant)	NA

¹²⁴ <http://www.npfmc.org/habitat-protections/>

¹²⁵ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/EFH/EFHDiscPaper411.pdf

¹²⁶ http://marineprotectedareas.noaa.gov/helpful_resources/inventoryfiles/AK_Map_090831_final.pdf

Supporting Clause 3.2.6

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

FAO ECO (2011) 36.9

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

There are management objectives that seek to minimize adverse impacts of the commercial halibut fishery on the structure, processes and function of aquatic ecosystems. Bottom set longlines as used in the halibut fishery, being static in nature, are likely to have greatly reduced adverse impacts on the structure, processes and function of aquatic ecosystems when compared with mobile demersal fishing gears.

Evidence:

IPHC objectives are primarily consistent with achieving outcomes directly related to the halibut stock and removals. Consideration of the adverse impacts of the commercial fisheries on the structure, processes and function of aquatic ecosystems is primarily the remit of the NPFMC and NMFS with management and decisions made in respect of this being summarized in the Ecosystems Considerations chapter of the NPFMC’s annual SAFE reports.

Numerous objectives outlined in the GOA and BSAI FMPs speak directly to the need to minimize adverse impacts of the commercial halibut fishery on the structure, processes and function of aquatic ecosystems particularly those under the broad policy objectives; Preserve Food Web, Manage Incidental Catch and Reduce Bycatch and Waste, Avoid Impacts to Seabirds and Marine Mammals and Reduce and Avoid Impacts to Habitat.

Preserve Food Web:

- 10. Develop indices of ecosystem health as targets for management.
- 11. Improve the procedure to adjust acceptable biological catch levels as necessary to account for uncertainty and ecosystem factors.
- 12. Continue to protect the integrity of the food web through limits on harvest of forage species.
- 13. Incorporate ecosystem-based considerations into fishery management decisions, as appropriate.

Manage Incidental Catch and Reduce Bycatch and Waste:

- 14. Continue and improve current incidental catch and bycatch management program.
- 15. Develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems.
- 16. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available.
- 17. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce bycatch which includes economic discards.
- 18. Continue to manage incidental catch and bycatch through seasonal distribution of total allowable catch and geographical gear restrictions.
- 19. Continue to account for bycatch mortality in total allowable catch accounting and improve the accuracy of mortality assessments for target, prohibited species catch, and noncommercial species.

- 20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures.
- 21. Reduce waste to biologically and socially acceptable levels.
- 22. Continue to improve the retention of groundfish where practicable, through establishment of minimum groundfish retention standards.

Avoid Impacts to Seabirds and Marine Mammals:

- 23. Continue to cooperate with U.S. Fish and Wildlife Service (USFWS) to protect ESA-listed species, and if appropriate and practicable, other seabird species.
- 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.
- 25. Encourage programs to review status of endangered or threatened marine mammal stocks and fishing interactions and develop fishery management measures as appropriate.
- 26. Continue to cooperate with NMFS and USFWS to protect ESA-listed marine mammal species, and if appropriate and practicable, other marine mammal species.

Reduce and Avoid Impacts to Habitat:

- 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.

References:

Non-Conformance Number (if relevant)

NA

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

No. Supporting clauses/sub-clauses	13
Supporting clauses applicable	10
Supporting clauses not applicable	3
Non-Conformances	1

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

All fishery removals and mortality of P. 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 P 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), sport (recreational), personal use or subsistence removals, and bycatch of halibut in fisheries targeting other species. Bycatch and wastage are subdivided into O26 (over 26 inches) and U26 (under 26 inches) components as the U26 components are 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 2015 and earlier years can be found on the NMFS Alaskan fisheries website¹²⁷.

Commercial Fisheries: 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.

Each industry report submitted via eLandings¹²⁸ 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. Logbooks kept by vessel captains, etc. are made available to observers while on board.

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 commercial fishery halibut catches is in Gilroy et al. 2016.

Wastage: The mortality of all halibut that do not become part of the landed catch is termed wastage by IPHC. The three main sources of this mortality include: 1) fish that are captured and discarded because they are below the legal size limit of 32 inches (U32), 2) fish that are estimated to die on lost or abandoned fishing gear, and 3) fish that are discarded for regulatory reasons (e.g., a vessel’s trip limit has been exceeded). The methods applied to produce each of these estimates differ due to the amount and quality of information available. Information on lost gear and regulatory discards is collected through logbook interviews and fishing logs received by mail. The ratio of U32 to O32 halibut (>32 inches in length) is determined from the IPHC stock assessment longline survey in most areas but in the Area 2B fishery there are direct observations. Wastage for O32 halibut was calculated from the ratio of gear lost to gear hauled, multiplied by total landed catch. Mortality for halibut in lost or abandoned gear is assumed to be 100%. Total estimate of halibut wastage in 2015 was about 1.28 million pounds net weight, which was the lowest since 1996, and about half the level of 2011. Further details on wastage estimates are contained in Gilroy and Stewart, 2016.

Recreational/Sport Fisheries: State and federal agencies provide IPHC with estimates of Pacific halibut sport fishery harvests. Management and data collection methods vary by area. For the sport fishery in IPHC Area 2A, dockside sampling by state agencies (Washington, Oregon, and California Departments of Fish and Wildlife) supplies information for catch estimation needed for in-season management and post-season harvest estimation. Harvest estimates for the Canadian sport fishery are based on a combination of reporting by some lodges, overflights conducted by the DFO, lodge logbooks, and creel monitoring programs conducted by DFO or First Nations. For the Alaska sport fishery, different methodologies are used for estimating harvests

¹²⁷ <https://alaskafisheries.noaa.gov/fisheries-catch-landings?tid=287>

¹²⁸ <https://elandings.alaska.gov/>

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 Dykstra, 2016, and in the ADF&G reports¹²⁹ on recreational fishing such as Myer (2014).

Subsistence and Personal Use Harvests: The removals of Pacific halibut include personal use categories as follows: (1) ceremonial and subsistence removals in the Area 2A treaty Indian fishery, (2) the sanctioned First Nations Food, Social, and Ceremonial (FSC) fishery conducted in British Columbia, (3) federal subsistence fishery in Alaska, and (4) U32 halibut retained in Areas 4D and 4E under IPHC regulations. Details on each of these components can be found in Gilroy, 2016. Including all components, total estimates of personal use halibut have been stable at around 1.2 mlb since 2009.

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. The Division of Subsistence at ADF&G was contracted by NMFS to estimate the subsistence harvest in Alaska through a data collection program¹³⁰. Each year, the data collection program included an annual voluntary survey of fishers conducted by mail or phone, with some onsite visits¹³¹.

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 (Erickson 2016).

Bycatch: IPHC relies upon information supplied by observer programs for bycatch estimates 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, 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. Estimates of bycatch off Alaska for 2015 in federally managed fisheries were provided by the NMFS Alaska Region (Williams, 2016). During 2015, NMFS Alaska Region staff developed a methodology which reapportions halibut discards to IPHC areas more accurately than in the past. In 2014, ADF&G provided IPHC with estimates of the halibut bycatch mortality in crab pots for southeast Alaska. Additional work in 2015 examined bycatch in crab and scallop fisheries in other regions.

¹²⁹ <http://www.adfg.alaska.gov/FedAidpdfs/ROP.SF.4A.2014.08.pdf>

¹³⁰ <http://www.fakr.noaa.gov/ram/subsistence/halibut.htm>

¹³¹ <http://www.ADF&G.alaska.gov/index.cfm?ADF&G=fishingSubsistenceByArea.main>

Discard mortality of halibut in all areas combined is substantial, and in 2015 totaled 7.8 million pounds (net weight), which was a decrease of 13% from 2014. Bycatch of Pacific halibut in the groundfish fisheries off Alaska is managed with Prohibited Species Catch (PSC) limits. The limits are established by the NPFMC and are subdivided by gear type, target fishery, time period, and among several management programs. Once a PSC limit has been reached, a fishery is closed to prevent further by-catch. Details on the estimation procedure NMFS uses to calculate PSC catch are contained in Cahalan et al. 2015. Discard mortality rates (DMRs) in the Alaskan groundfish fisheries are estimated from viability (injury and condition) data collected by fishery observers, and are the basis for setting multi-year PSC limits.

For full details on the issues around by-catch in the halibut fishery, see the five papers by Williams in the IPHC RARA for 2015¹³². By-catches in the directed halibut fishery are recorded by observers and reported through the NMFS CAS. Most of bycatches include Pacific cod, sharks, skates, sculpins, and rockfish species.

References:	<p>Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Comer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p.</p> <p>Dykstra, C. 2016. 2015 Halibut sport fishery review. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 36-46.</p> <p>Erikson, L. H. 2016. Retention of U32 halibut in the 2015 Area 4D/4E CDQ fishery. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 61-63.</p> <p>Gilroy, H.L., Erikson, L.M., and MacTavish, K.A. 2016. 2015 commercial fishery and regulation changes. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 23-35.</p> <p>Gilroy, H. L. 2016. The personal use harvest of Pacific halibut through 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 56-60.</p> <p>Gilroy, H. L. and Stewart, I. J. 2016. Incidental mortality of halibut in the commercial halibut fishery (Wastage). Commercial catch sampling. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 47-55.</p> <p>Williams, G.H. 2016. Incidental catch and mortality of Pacific halibut, 1962-2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 313-348.</p>
--------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹³² <http://www.iphc.int/library/raras/441-rara2015.html>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Timely and reliable statistics are compiled on P. 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 (Stewart, 2016). 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 entire 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, personal use, and wastage. These are updated on a regular basis and all accounted for and reported in the assessment and management of the halibut resource (Stewart, 2016). 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 1995¹³³.

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. These annual reports are available on line, for the period 1991-2015¹³⁴.

¹³³ <https://alaskafisheries.noaa.gov/fisheries-catch-landings?tid=287>

¹³⁴ <http://www.iphc.int/library/raras.html>

<p>References:</p>	<p>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.</p> <p>Stewart, I.J. 2016. Overview of data sources for the Pacific halibut stock assessment and related analyses. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 99-187.</p>	
<p>Non-Conformance Number (if relevant)</p>	<p>NA</p>	

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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 et al, 2016, 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.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

Supporting 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 <input type="checkbox"/>	Medium <input checked="" type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input checked="" type="checkbox"/> None <input type="checkbox"/>

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 is being introduced to the Observer Program. Vessels under 40 feet are excluded from observer coverage at present. Data from the observer program is used extensively in the stock assessments.

Evidence:

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. Details on the amended program can be found in Faunce (2013). Details on the sampling program, including biological data on halibut, carried out by the observers are extensively documented¹³⁵.

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 at the October and December meetings of NPFMC. Detailed information on the observer program can be found in the NOAA/NMFS North Pacific Groundfish and Halibut Observer Program Annual Reports website¹³⁶.

The NPFMC has 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 has 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. 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. A document describing the EM pre-implementation plan for 2016

¹³⁵ http://www.afsc.noaa.gov/FMA/Manual_pages/MANUAL_pdfs/manual2015.pdf

¹³⁶ <https://alaskafisheries.noaa.gov/sustainablefisheries/observers/annualrpt2014.pdf>

exists, and also noting other EM research and development that is scheduled to take place in 2016 is available on the NPFMC website¹³⁷.

No observer coverage in 2016 was scheduled (i.e. vessels in the “no-selection pool”) for catcher vessels less than 40 ft LOA, or vessels fishing with jig gear, or fixed gear vessels that have opted-into the EM selection pool. For 2016, 58 fixed-gear vessels 40-57.5 ft LOA will participate in the EM selection pool and will carry EM systems as described in the EM Plan. The Observer Program Annual Report (NMFS 2015a) and the Observer Program Supplement Environmental Assessment (NMFS 2015b) have highlighted the data gaps caused by not having any observer information on vessels less than 40 ft LOA. In 2014, vessels less than 40 ft took about 20% (in value) of the longline halibut catch in Alaska (Fissel et al. 2015). NMFS recommended in its 2016 Deployment Plan¹³⁸ that vessels less than 40ft LOA be considered for electronic monitoring in the future, and there are plans to partially implement EM in this sector in 2017.

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.

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 P. halibut fleet.

References:

- AFSC. 2015. 2015 Observer Sampling Manual. Fisheries Monitoring and Analysis Division, North Pacific Groundfish Observer Program. AFSC, 7600 Sand Point Way N.E., Seattle, Washington, 98115.
- Faunce, C.H. 2013. The Restructured North Pacific Groundfish and Halibut Observer Program. NOAA quarterly publication.
- 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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. <http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf>
- NMFS 2015a. North Pacific Groundfish and Halibut Observer Program 2014 Annual Report. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802.
- NMFS 2015b. Draft Supplement to the Environmental Assessment for Restructuring the Program for Observer Procurement and Deployment in the North Pacific. NMFS, Alaska Regional Office, Juneau. May 2015.

¹³⁷ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/2016EMpre-impPlanFinal0116.pdf

¹³⁸ <https://alaskafisheries.noaa.gov/sites/default/files/final2016adp.pdf>

Non-Conformance Number (if relevant)	#1
---------------------------------------------	-----------

Supporting Clause 4.3

Sub-regional or regional fisheries management organizations or arrangements shall compile data and make them available, in a manner consistent with any applicable confidentiality requirements, in a timely manner and in an agreed format to all members of these organizations and other interested parties in accordance with agreed procedures.

FAO CCRF (1995) 7.4.6/7.4.7

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
None <input checked="" type="checkbox"/>			
Summary Evidence: Data collected from surveys and halibut fisheries are analyzed and presented in peer reviewed meetings and/or in primary literature, following rigorous scientific protocols. Data are widely available on websites and results of analyses are disseminated in a timely fashion through numerous methods, including scientific publications, and as information on the various websites, in order to contribute to fisheries conservation and management. Confidentiality of commercial fishery information is fully respected where necessary.			
Evidence: NMFS, ADF&G, and IPHC have extensive scientific databases which include halibut. NPFMC has extensive information on management of halibut. These data are made widely available through websites, publications and at various publically-attended meetings. Data on certain aspects of commercial fishing are confidential, such as individuals or individual vessels in the analysis of fishery CPUE data, depending on the number of individuals or entities involved. The Commercial Fisheries Entry Commission ¹³⁹ is the designated records manager for ADF&G fish ticket records. Fish ticket records are retained by the Commission for 45 years, and are confidential as defined by AS 16.05.815 and 16.40.155.			
References:			
Non-Conformance Number (if relevant)			NA

¹³⁹ <https://www.cfec.state.ak.us/>

Supporting Clause 4.4

States shall stimulate the research required to support national policies related to fish as food.

FAO CCRF (1995) 12.7

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Alaska supports both a Seafood Marketing Institute and the Kodiak Seafood and Marine Science Center to stimulate research and to support and distribute the benefits of seafood in human diets.				
Evidence: State and national policies regarding seafood are guided by the Alaska Seafood Marketing Institute (ASMI), U.S. Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), and the U.S. National Institute of Health (NIH). ASMI ¹⁴⁰ is the state agency primarily responsible for increasing the economic value of Alaskan seafood through marketing programs, quality assurance, industry training and sustainability certification. ASMI’s role includes conducting or contracting for scientific research to develop and discover health, dietetic, or other uses of seafood harvested and processed in the state. The state of Alaska also operates the Kodiak Seafood and Marine Science Center (KSMSC), which works to discover better methods to preserve, process, and package seafood. KSMSC staff work closely with the fishing industry to convey research results and provide educational opportunities that help seafood workers improve efficiency and the quality of their products.				
References:				
Non-Conformance Number (if relevant)				NA

¹⁴⁰ <http://www.alaskaseafood.org>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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 2016¹⁴¹. 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 Alaska¹⁴².

¹⁴¹ <http://npfmc.legistar.com/gateway.aspx?M=F&ID=1353cf77-082b-4329-832a-e0c7691d4357.pdf>

¹⁴² http://ebooks.alaskaseafood.org/ASMI_Seafood_Impacts_Dec2015/#/0/

Economics of sport fishing in Alaska, including halibut, has also been analyzed, and includes the study by Southwick Associates et al. in 2008¹⁴³, as well as the survey and subsequent study by Lew et al. in 2015¹⁴⁴.

References:	<p>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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf</p> <p>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.</p> <p>McDowell Group. 2015. The economic value of Alaska’s seafood industry. 3960 Glacier Hwy. Suite 201. Juneau Ak.</p> <p>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.</p>
--------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁴³ <http://www.ADF&G.alaska.gov/FedAidpdfs/PP08-01.pdf>

¹⁴⁴ <http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-299.pdf>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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: A major component of small scale fisheries for Alaskan halibut is covered by ceremonial and subsistence fishing. The subsistence halibut fishery off Alaska was formally recognized in 2003 by the NPFMC and implemented by IPHC and National Marine Fisheries Service (NMFS) regulations. The fishery allows the customary and traditional use of halibut by rural residents and members of federally-recognized Alaska native tribes who can retain halibut for non-commercial use, food, or customary trade. Personal use categories include ceremonial and subsistence removals in the Area 2A treaty Indian fishery; the sanctioned First Nations Food, Social, and Ceremonial (FSC) fishery conducted in British Columbia; federal subsistence fishery in Alaska; and U32 halibut retained in Areas 4D and 4E under IPHC regulations. As noted in Section 4.1, details on each of these components have been reviewed in the 2015 RARA, (Gilroy 2016). 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 website ¹⁴⁵ . Including all components, total estimates of personal use halibut have been stable at around 1.2 mlb since 2009, and these catches are included and considered in the stock assessment and management processes.				
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. Gilroy, H. L. 2016. The personal use harvest of Pacific halibut through 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 56-60.			
Non-Conformance Number (if relevant)				NA

¹⁴⁵ <http://www.fakr.noaa.gov/ram/subsistence/halibut.htm>

Supporting Clause 4.7

States conducting scientific research activities in waters under the jurisdiction of another State shall ensure that their vessels comply with the laws and regulations of that State and international law.

FAO CCRF (1995) 12.14

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Scientific research carried out in the waters of USA and Canada, the only 2 countries involved in the science and management of this resource, is compliant with all relevant laws and regulations of those jurisdictions.				
Evidence: The major scientific activity for P. halibut is the annual setline survey conducted by IPHC, using commercial vessels from USA and Canada. In 2015 the survey encompassed both nearshore and offshore waters of southern Oregon, Washington, British Columbia, southeast Alaska, the central and western Gulf of Alaska, Aleutian Islands, and the Bering Sea continental shelf (Henry et al. 2016). Thus only the waters under jurisdiction of USA and Canada, the 2 countries involved in IPHC, were surveyed. Survey activities were compliant with all laws and regulations of those countries, registered commercial halibut vessels were chartered, and all catches in the survey were recorded and reported.				
References:	Henry, E., Soderlund, E., Henry, A. M., Geernaert, T., Ranta, A. M., and Kong, T. 2016. 2015 standardized stock assessment survey. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 490-529.			
Non-Conformance Number (if relevant)				NA

Supporting Clause 4.8

States shall promote the adoption of uniform guidelines governing fisheries research conducted on the high seas and shall, where appropriate, support the establishment of mechanisms, including, inter alia, the adoption of uniform guidelines, to facilitate research at the sub-regional or regional level and shall encourage the sharing of such research results with other regions.

FAO CCRF (1995) 12.15, 12.16

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Coordination and sharing of halibut research is accomplished through the IPHC, a bilateral, international treaty based organization, composed of representatives from the USA and Canada				
Evidence: Coordination and sharing of halibut research is accomplished through the IPHC, a bilateral, international treaty based organization, composed of representatives from the USA and Canada. Its mandate is research on halibut biology and assessment, as well as management (allocation between regulatory areas in US and Canada, developing various harvest regulations and setting annual harvest levels) of the stocks of Pacific halibut within the convention waters of both nations. Extensive annual reports (RARA) from IPHC show the level of research and stock assessment.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 4.9

States and relevant international organizations shall promote and enhance the research capacities of developing countries, inter alia, in the areas of data collection and analysis, information, science and technology, human resource development and provision of research facilities, in order for them to participate effectively in the conservation, management and sustainable use of living aquatic resources.

FAO CCRF (1995) 12.18

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
<p>None <input checked="" type="checkbox"/></p>			
<p>Summary Evidence: The eastern North Pacific halibut fishery is conducted exclusively within the EEZs of the U.S. and Canada and only U.S. and Canadian flagged vessels are permitted to access their respective portion of the fishery. Neither the U.S. nor Canada are developing countries.</p> <p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
<p>Evidence: This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
<p>References:</p>			
<p>Non-Conformance Number (if relevant)</p>			<p>NA</p>

Supporting Clause 4.10

Competent national organizations shall, where appropriate, render technical and financial support to States upon request and when engaged in research investigations aimed at evaluating stocks which have been previously un-fished or very lightly fished.

FAO CCRF (1995) 12.19

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence:			
<p>The eastern North Pacific halibut fishery has been extensively fished since the 1800s. The eastern North Pacific halibut stock is neither previously un-fished nor very lightly fished.</p> <p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
Evidence:			
<p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>			
References:			
Non-Conformance Number (if relevant)			NA

Supporting Clause 4.11

Relevant technical and financial international organizations shall, upon request, support States in their research efforts, devoting special attention to developing countries, in particular the least developed among them and small island developing countries.

FAO CCRF (1995) 12.20

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>The eastern North Pacific halibut fishery is conducted exclusively within the EEZs of the U.S. and Canada and only U.S. and Canadian flagged vessels are permitted to access their respective portion of the fishery. Neither the U.S. nor Canada are developing countries nor small island developing countries.</p> <p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>				
Evidence:				
<p>This Clause is NOT APPLICABLE to the eastern North Pacific halibut fishery.</p>				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	7
Supporting clauses applicable	7
Supporting clauses not applicable	0
Non-Conformances	0

Supporting Clause 5.1

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

FAO CCRF (1995) 12.2/12.6

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 P. halibut for conservation and management purposes. Appropriate processes exist to ensure proper planning of research projects, as well as ongoing peer review of stock assessment and research activities. The quality, quantity and relevance of IPHC’s publications are noteworthy. IPHC staff are involved in a number of collaborative projects with other researchers and institutions.

Evidence:

The International Pacific Halibut Commission (IPHC)¹⁴⁶ 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 annually to support both major mandates: stock assessment and basic halibut biology. 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 (IPHC 2016). A number of tagging experiments, along with analyses of existing tag return data are underway (Forsberg et al. 2016, Loher 2016). In conjunction with ongoing

¹⁴⁶ <http://www.iphc.int/about-iphc.html>,

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).

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) at the University of Miami, which is contracted to supply external reviewers for NMFS assessment reviews¹⁴⁷. The Center recruited Dr. Chris Francis and Dr. Paul Medley to review the halibut stock assessment. Their report were submitted and posted in the 2007 RARA IPHC website, along with the IPHC staff's response to the reviewers' comments and recommendations¹⁴⁸.

References:	<p>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.</p> <p>Forsberg, J., Sadorus, L., Logan, P., Kelleher, Z., and Pedersen, C. 2016. Wire tagging Pacific halibut on NMFS trawl surveys: 2015 pilot study. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 464-477.</p> <p>IPHC staff. 2016. 2016 Annual Research Plan - November 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 7-22.</p> <p>Loher, T. 2016. Deployment and reporting of pop-up archival transmitting (PAT) tags to study seasonal dispersal of Pacific halibut from the Southern Salish Sea. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 478-489.</p>
--------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁴⁷ <https://www.st.nmfs.noaa.gov/science-quality-assurance/cie-peer-reviews/index>

¹⁴⁸ <http://www.iphc.int/publications/rara/2007rara/2k7rara02.pdf>

Supporting Clause 5.1.1

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

FAO Eco (2011) 42

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Complete annual stock assessments are conducted coastwide on the exploited population of P. halibut and there is no use of less elaborate methods of stock assessment. As there is sufficient data for management of the P. halibut fishery, collected through regular stock assessment activities, this clause is scored with full conformance.				
Evidence: As there is sufficient data for management of the P. halibut fishery, collected through regular stock assessment activities, this clause is scored with full conformance (for further information see Clauses 5.1.2 and 5.2).				
References:				
Non-Conformance Number (if relevant)				NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 are 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 2016). 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: Stock identification, monitoring and assessment; 2: Harvest policy and management; 3: Biology, physiology, and migration; 4: Ecosystem interactions and environmental influences. All research and stock assessment activities, including planned research projects, management advice, and reports from the various Boards in IPHC, are fully and timely documented annually in its Reports of Research and Assessment Activities (RARA), accessible on the IPHC website¹⁴⁹.

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)¹⁵⁰.

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

¹⁴⁹ <http://www.iphc.int/library/raras.html>

¹⁵⁰ <http://project.nprb.org/view.jsp?id=c17f5c29-a9bd-4619-a239-b02b0464a23c>

of agencies and universities are involved. Ecosystem modelling, sound data management and education and outreach activities are included in the program¹⁵¹.

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. 2015) 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 economic data for the commercial Pacific Halibut fishery¹⁵².

Various studies have been conducted on the economic value of sport fishing in Alaska, including for halibut¹⁵³. 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 concerns¹⁵⁴.

The University of Alaska¹⁵⁵ 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 behavioral ecology. Facilities are located in Juneau, Seward, Kodiak and Fairbanks.

References:	<p>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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf.</p> <p>IPHC staff. 2016. 2016 Annual Research Plan - November 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 7-22.</p>
--------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁵¹ http://www.nprb.org/assets/images/uploads/01.10_bsag_web.pdf

¹⁵² <http://www.afsc.noaa.gov/refm/docs/2015/economic.pdf>

¹⁵³ https://www.ADF&G.alaska.gov/static/home/library/pdfs/sportfish/2007economic_impacts_of_fishing.pdf

¹⁵⁴ <http://www.uaf.edu/sfos/about-us/locations/kodiak/about-ksmsc/>

¹⁵⁵ <https://www.uaf.edu/sfos/research/fisheries/>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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:

As part of its annual setline survey, IPHC conducts an extensive oceanographic monitoring program. In 2015, the IPHC profiler project collected oceanographic data from the U.S. West Coast northward to British Columbia, into the Gulf of Alaska, Bering Sea, and Aleutian Islands during the IPHC Survey (Sadorus and Walker 2016). The IPHC has been operating profilers since 2000 on a limited basis and coastwide since 2009. A total of 1,240 successful casts were made in 2015, out of a possible 1,368. A primary goal of this project is to make the survey profiler data available to scientists worldwide. 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. The complete set of data from 2009-2013 is available on-line¹⁵⁶.

Alaska’s P. halibut stock assessment program is extensive and comprehensive. 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 discussed in Clause 5.1.2. The program to determine reference points and evaluate the stock against these in a precautionary approach is described in Clauses 6.1, 6.2 and 6.3.

In addition to the oceanographic monitoring done by IPHC, other data on ecosystem impacts are collected and presented in the annual RARA. These studies include data on seabird occurrence (Geernaert 2016), 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 (Gulf of Alaska and Bering Sea) at its SSC and Advisory Panel meetings (Zador (ed.) 2015). These are prepared and presented by NMFS scientists, and contain Report Cards which look at a wide range of environmental and ecosystem variables, such as physical and environmental trends, zooplankton biomass, seabird and marine mammal data, and predator and forage species biomass¹⁵⁷.

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

¹⁵⁶ http://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCData.shtml

¹⁵⁷ <https://www.afsc.noaa.gov/REFM/Docs/2015/ecosystem.pdf>

that looks at the physical and biological mechanisms that determine the survival of juvenile groundfish in the eastern and western Gulf of Alaska¹⁵⁸.

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 regional Fishery Management Councils such as 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 EFH¹⁵⁹. 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. The NOAA EFH Research Implementation Plan for Alaska (Sigler et al 2012.) is intended to guide research to meet EFH mandates in Alaska during the next several years.

References:	<p>Geernaert, T. O. 2016. Trends in seabird occurrence on stock assessment surveys (2002-2015). Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2014: 405-413.</p> <p>Sadorus, L. L. and Walker, J. 2016. IPHC Oceanographic monitoring program 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 398-404.</p> <p>Sigler, M. F., M. F. Cameron, M. P. Eagleton, C. H. Faunce, J. Heifetz, T. E. Helser, B. J. Laurel, M. R. Lindeberg, R. A. McConnaughey, C. H. Ryer, and T. K. Wilderbuer. 2012. Alaska Essential Fish Habitat Research Plan. AFSC Processed Rep. 2012-06, 21 p. Alaska Fish. Sci. Cent., NOAA, NMFS, 17109 Pt. Lena Loop Road, Juneau, AK 99801</p> <p>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.</p> <p>Zador, S. (ed.) 2015. Ecosystem Considerations 2015; Status of Alaska’s Marine Ecosystems. Presented to NPFMC, Nov, 2015.</p>
--------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁵⁸ <http://www.nprb.org/gulf-of-alaska-project>

¹⁵⁹ <http://www.npfmc.org/habitat-protections/essential-fish-habitat-efh>

Supporting Clause 5.3

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

FAO CCRF (1995) 12.7

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>IPHC ensures that there is extensive cooperation on various aspects of research, stock assessment, and management of P. halibut between the fisheries agencies (e.g. DFO and NMFS) of Canada and USA. There have been occasional cooperative research projects with other nations, and scientists from IPHC are in contact with scientists from Russia who work on the halibut stock in the western Bering Sea.</p>				
Evidence:				
<p>IPHC is, by definition, an international organization established in 1923 for the preservation of the Pacific halibut fishery in waters off Canada and the United States of America. Thus there is extensive cooperation on various aspects of research, stock assessment, and management of P. halibut between the fisheries agencies (e.g. DFO and NMFS) of these two nations. Declaration of the 200 mile EEZ's by both countries in the late 1970's drastically reduced and eventually eliminated halibut fishing in Alaskan waters by countries other than Canada and USA. There has been cooperative research and surveys carried out on the stock involving other nations, such as the 1984 US-Japan bottom trawl survey in the GOA (Brown 1986), but it has been quite limited. P. halibut caught in Russian areas of the Bering Seas are believed to be of a different stock, and are thus not included in the IPHC assessments. There is contact between IPHC and Russian scientists regarding halibut research in the Bering Sea area (B. Leaman, IPHC; pers. comm.).</p> <p>There is considerable discussion and exchange between IPHC and NPFMC on management issues related to Alaskan P. halibut. Currently, both organizations are cooperating to develop a Halibut Management Framework¹⁶⁰, designed to improve coordination between the Council and IPHC. One goal is for better alignment of the two management bodies when dealing with halibut needs among the various directed fishery and bycatch user groups.</p>				
References:	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.			
Non-Conformance Number (if relevant)				NA

¹⁶⁰ http://www.iphc.int/meetings/2015im/8b_C8_NPFMC_Halibut_Management_Framework.pdf

Supporting Clause 5.4

The fishery management organizations shall directly, or in conjunction with other States, develop collaborative technical and research programs to improve understanding of the biology, environment and status of trans-boundary aquatic stocks.

FAO CCRF (1995) 12.7, 12.17

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Any transboundary issues for the Alaskan P. halibut stock are between Canada and USA, and these are dealt with in the IPHC. Both countries have extensive scientific programs for halibut research and assessment, and extensive collaboration exists on various issues related to science and management.				
Evidence: The only relevant transboundary issues for the Alaskan P. halibut stock are between Canada and USA, and these are dealt with in the IPHC. Both countries have extensive scientific programs for halibut research and assessment, and collaborate on numerous topics related to science and management. Evidence for this is contained in the IPHC annual Reports of Assessment and Research Activities ¹⁶¹ .				
References:	http://www.iphc.int/library/raras.html			
Non-Conformance Number (if relevant)				NA

¹⁶¹ <http://www.iphc.int/library/raras.html>

Supporting Clause 5.5

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

FAO CCRF (1995) 12.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Scientific data from various sources are analyzed 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. Confidentiality 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 analyzed and presented in peer reviewed meetings and/or in primary literature, following rigorous scientific protocols. Results of these analyses are disseminated in a timely fashion through numerous methods, including scientific publications, and as information on IPHC, NMFS, ADF&G, and NPFMC websites, in order to contribute to fisheries conservation and management. 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), 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 ADF&G reports if the data for a time/area strata were obtained from a small number of participants.				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	4
Supporting clauses applicable	4
Supporting clauses not applicable	0
Non-Conformances	0

Supporting Clause 6.1

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

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>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.</p>				
Evidence:				
<p>Since 1985, the IPHC has followed a constant harvest rate policy to determine annual available yield, termed the Constant Exploitation Yield (CEY). A biological target level for total removals from each regulatory area is calculated yearly by applying a fixed area-specific harvest rate to the estimate of exploitable biomass in each IPHC regulatory area. The current area-specific target harvest rates are: 21.5% in Areas 2A, 2B, 2C and 3A, and 16.125% in Areas 3B, 4A, 4B, and 4CDE. 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.</p> <p>Based on the 2015 stock assessment (Stewart et al 2016), the median estimate of exploitable biomass from the ensemble of models suggest that the stock is currently at 43% of equilibrium unfished biomass. This is above the B30 (target) and B20 (limit) reference points, and therefore above any level where the harvest control rule needs to be applied to reduce harvest rates. All sources of estimated removals for 2015 correspond to a fishing intensity point estimate of <i>F</i>48%, which is considered to be at or below target rates for many similar stocks. In the past, harvest rates have generally exceeded target levels, but have been decreasing in recent years as management actions have reduced the harvest levels. Exploitation rates for the individual management areas are established separately to ensure that overfishing does not occur in local areas.</p>				

References:	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

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: IPHC has established safe limit reference point(s) for exploitation, consistent with the Precautionary Approach. 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.				
Evidence: The current IPHC policy for harvest of Pacific halibut is based on two targets: the distribution of harvest among regulatory areas, and the overall coastwide harvest (Stewart, 2016). IPHC’s policy is 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.				
References:	Stewart, I.J. 2016. Regulatory area harvest policy calculations and catch tables. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 220-237.			
Non-Conformance Number (if relevant)			NA	

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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). Current status of the stock is above the B30 threshold, and well above the B20 limit, and the current exploitation rate calculated from the 2015 assessment is close to the IPHC policy of 20% (coastwide). 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 presented to NPFMC annually (see Zador (ed). 2015), which look at various elements of the Alaskan Ecosystems ¹⁶² .				
References:	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.			
	Zador, S. (ed.) 2015. Ecosystem Considerations 2015; Status of Alaska’s Marine Ecosystems. Presented to NPFMC, Nov, 2015.			
Non-Conformance Number (if relevant)				NA

¹⁶² <http://www.afsc.noaa.gov/REFM/docs/2015/ecosystem.pdf>

Supporting 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

FAO Eco (2011) 36.2, 36.3, 37, 37.1, 37.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: IPHC has developed a Harvest Control Rule which calls for specific management actions when reference points have been exceeded.				
Evidence: The IPHC management of Pacific halibut includes a harvest control rule (HCR) based on the reference points described in the previous section. This HCR would trigger management actions to reduce catches below the B30 and B20 biomass reference points. At present, the stock is above the values that would trigger the management actions outlined in the HCR.				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	5
Supporting clauses applicable	5
Supporting clauses not applicable	0
Non-Conformances	0

Supporting Clause 7.1

The precautionary approach shall be applied widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. This should take due account of stock enhancement procedures, where appropriate. Absence of scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Relevant uncertainties shall be taken into account through a suitable method of risk assessment, including those associated with the use of introduced or translocated species.

FAO Eco (2009) 29.6
 FAO Eco (2011) 36.7

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence: Precautionary approach-based reference points are used in the management of this stock. Scientific information and stock assessments available are at a consistently high level, 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.			
Evidence: Precautionary approach-based reference points are used in the management of this stock, as described in Clause 6. The scientific information and stock assessments available (as described in Clauses 4 and 5) are at a consistently high level, and provide the necessary basis for conservation and management decisions. Scientific advice for management of the stock is presented for different harvest levels which explain the risk of biomass levels being below the adopted reference points. There are no stock enhancements, introduced or translocated species concerns.			
References:			
Non-Conformance Number (if relevant)	NA		

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 2015 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 2015 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 2016-18.

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 et al. 2016). 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 2015 assessment, and showed little pattern in the most recent years.

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.

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 2015 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 2016-18. For each catch level of the decision table, the total mortality of all sizes and from all sources, the total coastwide fishery CEY, and the associated level of fishing intensity (median value with the 95% credible range, measured via the Spawning Potential Ratio) are reported (see Table 3, Stewart et al. 2016).

References:	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

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>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.</p>				
Evidence:				
<p>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.</p> <p>Where data gaps or recommendations for improvements have been identified, the IPHC has ongoing research programs capable of addressing these needs. For 2016, IPHC has developed a series of research studies through its Annual Research Plan (IPHC 2016). Several studies will contribute towards greater understanding of several 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 our understanding of the scope and timing of migration.</p> <p>The Annual Research Plan does not describe all research activities conducted by IPHC. Various other studies are conducted, some in collaboration with other agencies. The research recommendations included in the Plan are based on identified research gaps, to supplement research already underway and advance the IPHC mission.</p>				
References:	IPHC staff. 2016. 2016 Annual Research Plan - November 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 7-22.			
Non-Conformance Number (if relevant)				NA

Supporting Clause 7.2

In the case of new or exploratory fisheries, States shall adopt as soon as possible cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures should remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment should be implemented. The latter measures should, if appropriate, allow for the gradual development of the fisheries.

FAO CCRF (1995) 7.5.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
Fisheries for P. halibut, including commercial and recreational/sport are well established, with catch and/or effort limits existing for all fleet sectors. Any new fisheries/entrants to the fishery are subject to the existing conservation and management measures, which are extensive. New measures governing gear types or operations are subject to public advisory processes and periods of experimental fishing before being implemented.				
Evidence:				
Virtually all fisheries for P. halibut, including commercial and recreational/sport are well established and have existed for many years. Catch and/or effort limits exist for all fleet sectors. Any new fisheries/entrants to the fishery are subject to the existing conservation and management measures, which are extensive. New measures governing gear types or operations are subject to a long public advisory process within IPHC, NPFMC, and NMFS and usually require periods of experimental fishing before being implemented. An example is the recent measure to allow retention of halibut in sablefish pots/traps, discussed further in Clause 8.11.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 7.2.1

Contingency plans shall be agreed in advance for the appropriate management response to serious threats to the resource as a result of overfishing or adverse environmental changes or other phenomena adversely affecting the fishery resource. Such measures may be temporary and shall be based on best scientific evidence available.
 FAO CCRF (1995) 7.5.5

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There are pre-agreed IPHC harvest control rules in place to ensure overfishing does not occur on the P. halibut stock. Provisions exist in the fishery regulations for in-season adjustments (e.g. gear modifications, fishery closures) where necessary to protect the resource from biological harm.				
Evidence: There are pre-agreed IPHC harvest control rules in place to ensure overfishing does not occur on the P. halibut stock, as noted in Clause 6. In addition, IPHC regulations contain a specific clause on in-season measures, which include establishment or modification, where necessary, of measures such as: closed areas, fishing periods, gear restrictions, recreational bag limits, and size limits. In its Alaskan Groundfish FMPs ¹⁶³ NPFMC notes that information and data relating to stock status may become available to the Council during the course of a fishing year which warrants in-season adjustments to a fishery. Certain changes warrant swift action by NMFS to protect the resource from biological harm by instituting gear modifications or adjustments through closures or restrictions. Other changes warrant action to provide greater fishing opportunities for the industry by instituting time or area adjustments through openings or extension of a season beyond a scheduled closure. Other in-season actions may be necessary for interim fishery closures to reduce prohibited species (e.g. halibut) bycatch rates and the probability of premature attainment of PSC limits.				
References:				
Non-Conformance Number (if relevant)				NA

¹⁶³ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfm.pdf>

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

No. Supporting clauses/sub-clauses	17
Supporting clauses applicable	16
Supporting clauses not applicable	1
Non-Conformances	0

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Conservation and management measures in place ensure the long-term sustainability of the resources. IPHC’s precautionary approach and harvest control rule have the objective of keeping the stock above 30% of its unfished level 80% of the time, based on scientific analyses. 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.

Evidence:

The current 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 0 at or below that point. The objective is to keep the stock above 30% of its unfished level 80% of the time.

The total constant exploitation yield (TCEY) for Pacific halibut in each of the regulatory areas is determined by apportioning estimated coastwide biomass by Area then multiplying that portion of the biomass by area specific harvest rates (constant levels if stock is above B30). Current policy requires the IPHC to account for sources of removals not under its control (e.g. bycatch in various Alaskan trawl fisheries) in order to achieve its conservation mandate, and what remains is allocated to the directed fishery for halibut. Further detail and discussion on the IPHC harvest policy can be found in Martell et al. 2016a.

The current harvest control rule reference points (B30, B20) have been reviewed by IPHC at various times (see Hare 2001; Stewart et al. 2015). They are aimed at producing a yield that is slightly less than MSY, but with greater stability (Martell et al. 2016b).

IPHC is developing a Management Strategy Evaluation (MSE) for the P. 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 developed five 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. Progress and results of the Board's meetings are posted on the IPHC/MSAB website¹⁶⁴ 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 website¹⁶⁵.

NPFMC determines the regulations for halibut taken as by-catch in the Alaskan fisheries under its management. Regulations require that all halibut caught incidentally in these groundfish fisheries must be discarded, regardless of whether the fish is living or dead. Halibut catch is controlled in the groundfish fisheries using prohibited species catch (PSC) limits. PSC limits are applied to specific target fisheries, gear types, and seasons, and in some fishing years, halibut PSC limits have resulted in the closure of specific groundfish fisheries prior to the fleet harvesting the available TAC. These PSC limits are calculated for various fisheries as part of the scientific advice for halibut, and IPHC is currently exploring various methods to improve the calculation of these limits (Martell et al. 2016a).

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 will be directly 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 are to be phased in by 2016. Based on discussions during site visits, and preliminary data, it appears that the targeted reductions are being met.

¹⁶⁴ <http://www.iphc.info/msab>

¹⁶⁵ <http://www.iphc.int/library/regulations.html>

Further details on halibut bycatch in groundfish fisheries under NPFMC management, including recent initiatives to reduce this bycatch, can be found on the NPFMC website¹⁶⁶.

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.

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

¹⁶⁶ <http://www.npfmc.org/halibut-bycatch-overview/>

Supporting 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 dependent predators.

FAO Eco (2009) 29.2

FAO Eco (2011) 36.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
<p>None <input checked="" type="checkbox"/></p>			
<p>Summary Evidence: The current harvest control rule reference points 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. Uncertainties in the dynamics of the stock were considered in determining the optimal harvest rate.</p>			
<p>Evidence: The current harvest control rule reference points (B30, B20) have been reviewed by IPHC at various times (see the details in Clause 6.2). They are aimed at producing a yield that is slightly less than MSY, but with greater stability. Although the IPHC harvest strategy does not use MSY as a management target, the analysis upon which the current area-specific harvest rates are based (Clark and Hare 2006) attempted to capture the dynamics of the halibut stock in establishing an optimal harvest rate. Numerous sources of biological uncertainty were explored in these analyses and included uncertainties in growth, recruitment level, distribution of recruitment among areas, environment – recruitment relationships, and effects of selectivity.</p>			
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.		
Non-Conformance Number (if relevant)			NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>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.</p>				
Evidence:				
<p>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. IPHC received a presentation from its Bycatch Project Team, which outlined progress on its four objectives: quantifying bycatch, documenting impacts to the fishery and resource, exploring options to mitigate impacts, and identifying options to reduce bycatch¹⁶⁷.</p> <p>In 2015 a new initiative has been created by IPHC to conduct a detailed study on the economic impact of the Pacific Halibut Fishery. This project has five integrated objectives, which are discussed in detail in Section 12.10, and include developing a quantitative analysis of the economic value and impact of all sectors of the directed halibut fishery, and analyzing the community impacts of the halibut fishery throughout its range.</p> <p>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, including halibut PSCs, are based on the best biological, ecological, and socioeconomic information available¹⁶⁸.</p>				
References:				
Non-Conformance Number (if relevant)				NA

¹⁶⁷ <http://www.iphc.int/research/245-bycatch.html>

¹⁶⁸ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfm.pdf>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
None <input checked="" type="checkbox"/>			
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 P. 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: 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. Since IFQ was implemented, the number of vessels declined 55% to 921 active in the halibut IFQ fishery in 2014 (Fissel et. al 2015). Detailed reports on fishing capacity, such as these, are completed annually by NMFS as part of their annual reporting practices, as noted in Clauses 4.5 and 5.1.2. 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 certain programs such as the Community Development Quota Program. Cost recovery began in 2000 for the halibut IFQ program. A Management Strategy Evaluation for P. 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.			
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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf		
Non-Conformance Number (if relevant)			NA

Supporting Clause 8.2

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

FAO CCRF (1995) 8.4.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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, P. halibut are permitted to be taken only by hook and line gear, or in sablefish pots or traps in certain areas ¹⁶⁹ . Incidental catch of halibut in trawl fisheries regulated by NPFMC must be discarded, regardless of whether the fish are alive or dead ¹⁷⁰ .				
References:				
Non-Conformance Number (if relevant)				NA

¹⁶⁹ <http://www.iphc.int/publications/regs/2016iphcregs.pdf>

¹⁷⁰ <http://www.npfmc.org/halibut-bycatch-overview/>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 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.

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 which proposed Council actions need a specific outreach plan and prioritize multiple actions when necessary. Initial priorities of the Committee included salmon PSC reduction¹⁷¹.

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

¹⁷¹ <http://www.npfmc.org/committees/rural-outreach-committee/>

diversified local economies in western Alaska. There are approximately 65 communities within a fifty-mile radius of the BS coastline who participate in the program¹⁷².

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. Currently, there are 84 advisory committees in the state. Of these, approximately 80% to 85% are “active”, meaning they regularly meet, write proposals, comment and attend BOF meetings. The enabling statute for the AC system is AS 16.05.260. Regulations governing the ACs are found in the Alaska Administrative Code (AAC) Title 5, Chapters 96 – 97¹⁷³

References:	North Pacific Fisheries Management Council. Accessed July, 2016. http://www.npfmc.org
--------------------	-----------------------------------------------------------------------------------------------------------------------------

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

¹⁷² <http://www.npfmc.org/community-development-program/>

¹⁷³ <http://www.boards.ADF&G.state.ak.us/bbs/what/prps.php>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>Under the individual fishing quota (IFQ) share program in the Alaskan fishery for P. 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. After IFQ was implemented, 921 vessels remained active in the halibut IFQ fishery in 2014, compared to 2060 in 1995.</p>				
Evidence:				
<p>The Pacific Halibut and Sablefish Individual Fishing Quota (IFQ) Program was adopted by the NPFMC Pacific Fishery Management Council under Amendment 15 to the Bering Sea and Aleutian Islands Fishery Management Plan and Amendment 20 to the Gulf of Alaska Fishery Management Plan in October 1992. The final rule was published in the Federal Register on November 9, 1993. Participation in the IFQ Program is limited to persons that hold Quota Share (QS), although there are several very limited provisions for “leasing” of annual IFQ. QS is a transferable permit that was initially issued to persons who owned or leased vessels that made legal commercial fixed-gear landings of Pacific halibut or sablefish in the waters off Alaska during 1988-1990. Annually, NMFS issues eligible QS holders an IFQ fishing permit that authorizes participation in the IFQ fisheries. Those to whom IFQ permits are issued may harvest their annual allocation at any time during the eight plus-month IFQ halibut and sablefish seasons. The IFQ program is a complex management program authorized by federal regulations, which, along with the various definitions required, may be viewed on a NOAA website¹⁷⁴.</p> <p>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 4%, with 921 active vessels in the halibut IFQ fishery in 2014, compared to 2060 in 1995 (Fissel et. al 2015). This demonstrates a clear ability to control and reduce capacity as necessary.</p>				
References:	<p>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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf</p>			

¹⁷⁴ <https://alaskafisheries.noaa.gov/fisheries-679regs>

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

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 P. halibut fisheries can be found on the IPHC website¹⁷⁵. 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 7¹⁷⁶. Separate dates and seasons exist for the sport fisheries in the various areas, as outlined in the IPHC regulations.

Areas closed to halibut fishing are defined in IPHC regulations, and include certain specific waters in the Bering Sea in Isanotski Strait. A number of areas in GOA and BSAI waters are closed to trawling (and thus to halibut bycatch outside the directed fisheries). Other areas require use of modified bottom trawls. These specific areas are defined in the NMFS regulations¹⁷⁷.

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

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

¹⁷⁵ <http://www.iphc.int/publications/regs/2016iphcregs.pdf>

¹⁷⁶ https://alaskafisheries.noaa.gov/sites/default/files/ifq_cdq_seasons.pdf

¹⁷⁷ <https://alaskafisheries.noaa.gov/sites/default/files/679b22.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 P halibut, including catch data, can be found in Gilroy 2016.

The full suite of NMFS fishery regulations for Alaskan waters can be found on their website¹⁷⁸.

References:	Gilroy, H. L. 2016. The personal use harvest of Pacific halibut through 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 56-60.
--------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁷⁸ <https://alaskafisheries.noaa.gov/fisheries-679regs>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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: From the IPHC regulations for P. halibut fishing, Section 19, Fishing Gear ¹⁷⁹ : (4) All setline or skate 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.				
References:				
Non-Conformance Number (if relevant)				NA

¹⁷⁹ <http://www.iphc.int/publications/regs/2016iphcregs.pdf>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>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.</p>				
Evidence:				
<p>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 -- IPHC¹⁸⁰). 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.</p> <p>NPFMC¹⁸¹ 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 law. This management approach takes into account the National Academy of Science’s recommendations on Sustainable Fisheries Policy. As noted in previous clauses, IPHC uses a precautionary harvest control rule in its management approach which is aimed at preventing overfishing of the resource and allowing stock rebuilding if/when necessary. The main fishing gear used to capture halibut is longline, which has minimal impact on seabed habitat.</p>				
References:				
Non-Conformance Number (if relevant)			NA	

¹⁸⁰ http://www.nmfs.noaa.gov/ia/agreements/regional_agreements/pacific/iphc.pdf

¹⁸¹ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfm.pdf>

Supporting 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 are 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 deploys 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 in 2016 to allow halibut deck sorting experiments, with the aim of reducing halibut (PSC) mortality. Vessels fishing halibut longline gear in Alaska are required by NMFS regulation to use streamer lines to avoid seabird bycatch.

Evidence:

IPHC regulations¹⁸² 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 recent WG report and list of publications considered by this WG¹⁸³, along with IPHC studies on hook type, size, bait, effect of fish size, etc. can be found on the IPHC website¹⁸⁴.

The groundfish trawl industry in Alaska can deploy halibut excluder devices in their gear with success. A project, implemented in Oregon and California, entitled “Improving the Selectivity of Bottom Trawls to Reduce Bycatch of Pacific Halibut in the West Coast Groundfish Trawl Fishery” responded to fishermen’s concern for Pacific halibut bycatch. 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 bycatch¹⁸⁵. The results showed that halibut bycatch was reduced numerically by 57% and by 62% by weight. Target species loss ranged from 9% to 22%.

Exempted Fishing Permits (EFPs) have been granted by NMFS to some trawler fleets in Alaskan waters in 2016 to allow halibut deck sorting experiments, 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

¹⁸² <http://www.iphc.int/publications/regs/2016iphcregs.pdf>

¹⁸³ <http://www.iphc.int/research/245-bycatch.html>

¹⁸⁴ <http://www.iphc.int/research/biology/hook.html>

¹⁸⁵ <http://marineconservationalliance.org/seafacts-the-development-of-halibut-excluders/>

on all vessels, and is supported by previous scientific study (Gauvin 2012). An example of an EFP for this fishery can be found on the NOAA Alaska fisheries website¹⁸⁶.

Vessels fishing longline gear in Alaskan waters (e.g. IFQ halibut fleet) are required by NMFS regulation to take measures to avoid seabird bycatch¹⁸⁷ Such measures include using hooks that when baited, sink as soon as they are put in the water; and use of streamer lines (Melvin 2000).

In the trawl flatfish fisheries in the Bering Sea and the central Gulf of Alaska, a trawl sweep gear modification has been required by NPFMC. Elevating devices (e.g., discs or bobbins) are required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor¹⁸⁸.

References:	<p>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</p> <p>Melvin, E.F. 2000. Streamer Lines to Reduce Seabird Bycatch Reduce Seabird Bycatch in Longline Fisheries in Longline Fisheries. Washington Sea Grant Program, University of Washington. https://wsg.washington.edu/wordpress/wp-content/uploads/publications/Streamer-Lines-Reduce-Seabird-Bycatch-Longliners.pdf</p>
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

¹⁸⁶ <https://alaskafisheries.noaa.gov/sites/default/files/efp2016-01-050616permit.pdf>

¹⁸⁷ <https://alaskafisheries.noaa.gov/sites/default/files/679b24.pdf>

¹⁸⁸ <http://www.npfmc.org/habitat-protections/gear-modifications/>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>Use of longline gear in the halibut fisheries substantially reduces the impact on bottom habitats and bycatch of many species. Longline is not associated with as much ghost fishing as some other fishing gears. Replacement of “derby-style fisheries” with IFQ quota shares has resulted in substantial reduction in the amount of fishing gear deployed, and consequently has diminished the effects of lost or abandoned fishing gear.</p>				
Evidence:				
<p>The previous clause contains information on several measures aimed at reducing bycatch/waste and improving the selectivity of fisheries for halibut. 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 lost gear and ghost fishing as some other fishing gears, such as gillnets and some types of traps¹⁸⁹ (NOAA 2015). 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. A recent IPHC analysis showed that the number of legal-sized halibut estimated to have been taken by lost or abandoned gear decreased by over 95% between 1985 and 2012¹⁹⁰.</p> <p>During the ‘derby’ fishery of the 1980s and early 1990s in Alaska, there were very short fishing periods which produced intense competition to catch as many halibut as quickly as possible. This often resulted in more gear being set than could actually be hauled during the brief fishing time allowed, and thus led to considerable amounts of lost or abandoned fishing gear. Since the implementation of the quota share (IFQ) fisheries, the amount of fishing gear deployed has been reduced significantly, and therefore lost gear is much less common in the fishery of recent years (Gilroy and Stewart 2016). 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,</p> <p>Under IPHC regulations, vessels fishing for halibut in Alaska must record the amount and location of all fishing gear deployed, including any lost gear. All fishing gear must be marked in accordance with IPHC regulations (see Clause 8.6 for details).</p>				
References:	<p>Gilroy, H. L. and Stewart, I. J. 2016. Incidental mortality of halibut in the commercial halibut fishery (Wastage). Commercial catch sampling. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 47-55.</p>			

¹⁸⁹ https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

¹⁹⁰ http://www.iphc.int/publications/rara/2012/rara2012053_commwastage.pdf

	NOAA Marine Debris Program. 2015. Report on the impacts of “ghost fishing” via derelict fishing gear. Silver Spring, MD. 25 pp
Non-Conformance Number (if relevant)	NA

Supporting Clause 8.10

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

FAO CCRF (1995) 8.5.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no evidence that regulations involving gear selectivity are being circumvented either by omission, or through the illegal use of gear technology. Advancements or developments in gear are made widely available to fishers through websites and public meetings and other forms of communication.				
Evidence: Information on gear regulations, including any and all amendments or modifications, as well as on gear technology is readily available to fishers and the general public through the websites of IPHC, NPFMC, and NOAA/NMFS, and through various meetings, mailshots etc. Fishing gear is regulated and monitored through these agencies, and data on compliance is recorded and published (see Clause 12.4). There is no evidence that regulations involving gear selectivity are being circumvented either directly by omission, or through the use of gear technology.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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 the recent proposal to allow a small number of fishers using sablefish pots and traps to retain halibut, a comprehensive review was conducted within NPFMC, which included extensive dialogue between NPFMC and IPHC ¹⁹¹ . 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.				
References:				
Non-Conformance Number (if relevant)				NA

¹⁹¹ <http://npfmc.legistar.com/gateway.aspx?M=F&ID=7d531a12-e2df-4f1c-b22f-29df93f5422a.pdf>

Supporting Clause 8.12

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

FAO CCRF (1995) 8.5.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Substantial cooperation on halibut research and management between Canada and USA occurs as part of the IPHC process.				
Evidence: IPHC is by definition an international organization, where cooperation on halibut research and management between Canada and USA occurs as part of the process. Examples include the MSE (DFO and NMFS participate in the MSAB), and fishery-specific cooperation between IPHC and DFO staff on data collection on halibut from particular fisheries in Canadian waters. See the 2015 IPHC RARA for details (IPHC 2016).				
References:	IPHC. 2016. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015.			
Non-Conformance Number (if relevant)				NA

Supporting Clause 8.13

States and relevant institutions involved in the fishery shall collaborate in developing standard methodologies for research into fishing gear selectivity, fishing methods and strategies, and on the behavior of target and non-target species in relation to such fishing gear as an aid for management decisions and with a view to minimizing non-utilized catches.

FAO CCRF (1995) 8.5.3/12.10

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There are numerous measures implemented in the halibut fishery to minimize non-utilized catches, such as the use of halibut excluder devices in groundfish trawl gear and use of streamers on longline gear to reduce seabird bycatch. Many of the studies and subsequent implementation have involved cooperative efforts between researchers at institutions in NMFS, DFO, IPHC, universities, and industry, and are introduced into regulations only after extensive testing has occurred.				
Evidence: As noted in Clause 8.8, there are a number of measures implemented in the halibut fishery to minimize non-utilized catches. These include deployment of halibut excluder devices in groundfish trawl gear, use of streamers on longline gear to reduce seabird bycatch, deck sorting of halibut to improve survival of live halibut returned to the sea, and work on hook selectivity and efficiency. These measures are typically implemented following rigorous scientific study and periods of allowed experimental fishing to test their effectiveness. Many of the studies and subsequent implementation have involved cooperative efforts between researchers at institutions in NMFS, DFO, IPHC, universities, and industry.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 8.14

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

FAO CCRF (1995) 8.11.1, 8.11.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no evidence to suggest that either Pacific halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Pacific halibut. There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE .				
Evidence: There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	3
Supporting clauses applicable	3
Supporting clauses not applicable	0
Non-Conformances	0

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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 competence¹⁹².

The State of Alaska, Department of Labor & 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 industry¹⁹³. 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, & 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

¹⁹² http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/ak_halibut_sablefish.pdf

¹⁹³ <http://www.avtec.edu/>

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 workshops¹⁹⁴. In addition, MAP conducts sessions of their Alaska Young Fishermen’s Summit (AYFS). Each Summit is an intense, 2/3-day course in all aspects of Alaska fisheries, from fisheries management & regulation, to seafood markets & marketing. The target audience for these Summits is young Alaskans from coastal communities. The 2013 AYFS was held in December 10 through December 15 in Anchorage¹⁹⁵. The conference aimed at providing crucial training and networking opportunities for fishermen entering the business or wishing to take a leadership role in their industry. Additional Summits were planned for 2016 and 2017.

The Alaska Marine Safety Education Association (AMSEA) provides courses on small boating safety, drill conductor training, stability and damage control, ergonomics, dredger safety and survival at sea training¹⁹⁶.

Mainly through face to face meetings and various organized events, Alaska Enforcement Division (AKD) of NOAA Fisheries Office of Law Enforcement (OLE) reaches out to many Alaskan fish harvesters and industry personnel, providing current regulatory information and guidance to promote compliance and responsible fisheries.

References:	
Non-Conformance Number (if relevant)	NA

¹⁹⁴ <http://seagrant.uaf.edu/map/fisheries/>

¹⁹⁵ <https://seagrant.uaf.edu/map/workshops/2013/ayfs/>

¹⁹⁶ <http://www.amsea.org/>

Supporting Clause 9.2

States, with the assistance of relevant international organizations, shall endeavor to ensure through education and training that all those engaged in fishing operations be given information on the most important provisions of the FAO CCRF (1995), as well as provisions of relevant international conventions and applicable environmental and other standards that are essential to ensure responsible fishing operations.

FAO CCRF (1995) 8.1.10

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: All regulations governing the halibut fisheries are available on the IPHC, NPFMC, and NMFS websites, and the results of any changes are widely discussed and communicated. AKD engages in outreach to fishers and industry personnel, providing current regulatory information and guidance to promote compliance and responsible fisheries.				
Evidence: To increase communications and understanding between the regulated users and enforcement personnel and to minimize harm to fishery resources, the Alaska Enforcement Division (AKD) of NOAA Fisheries Office of Law Enforcement (OLE) strives to maintain a positive and productive relationship with all harvesters and industry personnel. In addition to daily personal interactions on the water, docks, and in processing facilities, AKD contacts thousands of harvesters and industry personnel at organized events, including trade shows, and responds to email and telephone inquiries, providing current regulatory information and guidance to promote compliance and responsible fisheries. All regulations governing the halibut fisheries are available on the IPHC, NPFMC, and NMFS websites, as previously documented. Changes to regulations are considered only after detailed processes which include open and public discussions, and the results of any changes are widely communicated.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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 ¹⁹⁷ . Data on the number and location of Alaskan fishers, permits issued, etc. can be found in Fissel et al. 2015. These authors note that information on Alaska sport fish and crew license holders, from 2000 – 2010 has been compiled through the Alaska Fisheries Information Network for Alaska Fisheries (AKFIN) ¹⁹⁸ , although the URL for that particular study is not publicly available as some information is confidential. Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska’s Commercial Fisheries Entry Commission website ¹⁹⁹ .				
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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf			
Non-Conformance Number (if relevant)				NA

¹⁹⁷ http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/ak_halibut_sablefish.pdf

¹⁹⁸ <http://www.akfin.org/home/>

¹⁹⁹ 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

No. Supporting clauses/sub-clauses	6
Supporting clauses applicable	4
Supporting clauses not applicable	2
Non-Conformances	0

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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 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. The U.S. Coast Guard (USCG)²⁰⁰ and NMFS Office of Law Enforcement (OLE)²⁰¹ enforce Alaska fisheries laws and regulations, especially 50CFR679²⁰². 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 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. Of all those patrol boats 7 operate in Alaska²⁰³

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 cooperation with a variety of other agencies, the U.S. Coast Guard remains the OLE's closest partner in the protection of Federal fisheries.

In Fiscal Year 2015 alone, NOAA Office of Law Enforcement investigated more than 826 incidents. Most of the violations were on IFQ overages, quota sharing, and vessel cap overages. Especially in Charterboats fleets. In recent years, the OLE has also stepped up its presence in the international scene as more and more fish are imported into and exported 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.

²⁰⁰ <https://www.uscg.mil/d11/cgchalibut/default.asp#cgskipnav>

²⁰¹ http://www.nmfs.noaa.gov/ole/compliance_assistance/regions/alaska.html

²⁰² <https://alaskafisheries.noaa.gov/fisheries/regs-amds>

²⁰³ http://www.nmfs.noaa.gov/ole/docs/2015/ole_fy2015_annual_report.pdf

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 license for several years (3 years) are occurring penalties²⁰⁴ in this program.

Electronic Monitoring

EM has become an increasingly viable technology for monitoring some types of fishery activities and enhancing observers' ability to collect data. As early as 2002, NMFS began exploring the use of EM technology in Alaskan longline fisheries as a tool to ensure compliance with the use of seabird deterrence devices and as a management tool to identify seabirds caught on a longline²⁰⁵. In 2004, the Council assessed the range of EM being used in fisheries (MRAG 2004) and, by 2006, the National Marine Fisheries Service (NMFS) completed several EM projects that helped to assess the general efficacy of EM technology in commercial fisheries. These projects included evaluating the effectiveness of EM technology to monitor the discard of prohibited species catch (PSC) on a factory trawler and monitor and enumerate discard aboard rockfish catcher vessels in the Gulf of Alaska.

Description of VMS

VMS²⁰⁶ in Alaska is a relatively simple system involving a tamperproof VMS unit, set to report a vessel identification and location at fixed 30-minute intervals to the NOAA Fisheries Office of Law Enforcement (OLE). Some of these units allow NOAA OLE to communicate with the unit and modify the reporting frequency. The Alaska system is relatively simple, because it doesn't require the range of functions that are required for VMS in some other regions of the United States. Moreover, the Alaska system doesn't require the VMS unit to report on the status of other vessel sensors (in addition to the GPS units). VMS units on a vessel have the following components:

- A power source and power cabling
- A GPS antenna to pick up satellite signals
- The VMS itself – a box about the size of a car radio containing a GPS and VHF radio
- A VHF antenna to transmit the report to a satellite
- A battery
- Cabling between the VMS and both antennas

Operation of VMS

VMS units transmit position information to a communications satellite. From the communications satellite, the vessel's position is transmitted to a land-earth station operated by a communications service company. From the land-earth station, the position is transmitted to the communications service company, which in turn transmits the data to the NOAA OLE processing center. At the center, the information is validated and analyzed before being disseminated for surveillance, enforcement purposes, and fisheries management.

From the VMS data server, the rate at which VMS units send signals can be remotely programmed or altered. Units in Alaska are programmed to report every half hour but can be reprogrammed in response to pre-defined criteria. For example, a vessel can be monitored more frequently. Obviously, more frequent reports mean more data and therefore a more accurate picture of the vessel's activity. NOAA OLE may sometimes program a VMS to report a vessel's position more frequently, for example, if it appears to be operating near a no-transit or no-fishing zone.

²⁰⁴ http://deckboss-thebrig.blogspot.com/2010_04_01_archive.html

²⁰⁵ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/EM211.pdf

²⁰⁶ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/VMSdiscPaper1012.pdf

Position data²⁰⁷ is received and stored by NMFS. This data is also sent out to field offices for analysis of vessel activity. VMS is reviewed and analyzed daily, using a range of manual and automated checks. These checks identify such anomalies as vessels failing to send VMS signals or entering closed waters. Manual checks are completed by an operator monitoring the vessel movements on a computer screen. The operator examines vessel tracks, which are overlaid on digitized maps. Automated checks are run at various times over a 24-hour period. They detect instances of possible non-compliance and highlight them for later follow-up by VMS personnel. When an instance of non-compliance is detected, it is referred to field agents or officers for follow-up after assuring all components are functioning properly.

Access to VMS data is gained through a secure, web-based system and viewable on a color chart on a computer monitor. NOAA OLE Special Agents and Enforcement Officers can monitor vessel activity from their computers. In Alaska, there are also two Enforcement Technicians who are tasked with monitoring vessel activity using VMS. In-season managers in the NMFS Alaska Region Sustainable Fisheries Division and U.S. Coast Guard also have access to the VMS data. Information collected under a VMS program is considered confidential and is subject to the confidentiality protection of Section 402 of the Magnuson Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Benefits of VMS coverage to enforcement and management are as follows:

VMS can make it possible to leverage existing enforcement efforts. Knowledge about the location of the fleet can make it easier for the law enforcement personnel to enforce a wide range of fishery regulations. Given the increasing complexity of regulations and the need to add special management zones/closed areas, coupled with limited-access permits allowing vessels to fish in certain areas, VMS has become an important tool for enforcement personnel for monitoring vessel compliance with regulations. VMS can also play an important role in monitoring compliance with no-transit zones and no-fishing zones. VMS can help deter smuggling and misreporting of the type of quota share harvested in rationalized fisheries. VMS is used intensively by in-season managers to determine when to open and close fisheries. VMS provides in-season managers with useful information about the levels of effort active in particular areas at particular times. This has become very useful for gauging how much longer a given TAC will last, and therefore, how much longer a given fishery may be kept open without either exceeding the TAC, or leaving fish unharvested. Managers can also use VMS information to help determine locations of high incidental catch of prohibited species catch (PSC) and groundfish to inform the fleet where high incidental catch is occurring so the fleets can adjust fishing behavior to reduce incidental catch. Inseason managers also use VMS to assign catch to smaller spatial areas in the NMFS Catch Accounting system and to quality check spatial information reported on fish tickets.

A comprehensive use of VMS in Alaska could also be of considerable utility to NMFS and the Council in evaluating the coverage obtained through the restructured observer program. In short, VMS provides tracklines of the activity of fishing vessels polled on some established schedule. Observers, in turn, collect the start and stop locations of all fishing activity when they are on board a vessel. VMS, when available, is currently used to validate the fishing positions provided by observers as a quality control check. In addition, and more importantly, the fishing positions obtained from observed boats can be compared with a comprehensive set of VMS tracklines to evaluate coverage in relation to overall fleet activity. Thus, the spatial and temporal distribution of observer coverage could be evaluated, and gaps in coverage readily identified. This would aid the tuning of observer coverage rates to better meet the information needs of NMFS and the Council.

²⁰⁷ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/VMSdiscPaper1012.pdf

Electronic monitoring on North Pacific Halibut Fisheries

Over the past decade, there have been several studies evaluating the potential use of EM in the halibut longline fishery in Alaska. In 2002, the IPHC, under contract to NMFS, investigated options for monitoring bycatch of endangered seabirds in the longline fleet (Ames et al, 2005). That study suggested that EM could produce accurate data and enable compliance evaluation for seabird avoidance devices. Specifically, the EM video observations were successful in detecting streamer line deployment and relative position on 100 percent of the daytime sets when 2 cameras were used.

In 2007, NMFS, the IPHC, and Pacific States Marine Fisheries Commission initiated a study²⁰⁸ to evaluate the potential of EM as an alternative tool to monitor bycatch on Pacific halibut longline vessels. Specifically, estimates of bycatch (numbers of fish) based on dedicated fishery observer documentation (census) were compared with estimates of bycatch based on review of EM video recordings and, where possible, with estimates based on standard Alaska Fisheries Science Center (AFSC) Observer monitoring (Cahalan et al. 2010). This study was conducted on commercial fishing vessels under normal fishing conditions, building upon the previous studies (Ames 2005; Ames et al. 2007) which were conducted on chartered vessels.

Comparison of species identification of catch between standard observer monitoring methods (monitoring a sample of each set), complete observed-based documentation of catch (a nominal census of catch), and EM-based documentation of catch (a nominal census of catch) showed statistically unbiased and acceptable comparability for almost all species except for some that could not be identified beyond the species grouping levels used in management. Similarly, comparisons of total species-specific numbers of fish estimated using EM-collected and observer-collected data showed few statistically significant differences. Although this study was limited in scope and data collection using standard observer monitoring methods was lacking, catch and bycatch estimates could be estimated from both the EM and observer data collected.

Monitoring of Small fleet

In October 2010, the NPFMC passed a motion to restructure the observer program (BSAI Amendment 86 and GOA Amendment 76) whereby all vessels and processors in the groundfish and halibut fisheries off Alaska, regardless of size, would be placed into one of two observer coverage categories. With this motion approved, NMFS had the authority to place observers on small boats and halibut vessels that were previously not covered under the observer program. However, NMFS recognized that some smaller vessels were not suitable for observer coverage but could potentially carry EM as an alternative. As a consequence the Council has asked its Observer Advisory Committee to consider EM and suggested the small hook and line fleet should be their initial focus.

Immediately following the 2010 Council action, a coalition of industry associations representing small fixed gear vessels went to work to ensure a workable alternative to human observers would be available upon program implementation²⁰⁹. With funding from the National Fish and Wildlife Foundation, longline organizations launched a two year pilot program in 2011 to field test Electronic Monitoring (EM) as an at-sea monitoring tool for the halibut and sablefish fisheries. The results were positive and provided evidence that EMS would be a sound suitable alternative to monitor fishery vessels

The Council has identified 2016 as the target date for deploying EM systems in a way that will allow the data collected to be used in catch accounting. The Council EM working group recommended focusing an initial EM effort on the 40' – 60' longline IFQ sector, recognizing that information resulting from the initial design will be

²⁰⁸ http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/EM211.pdf

²⁰⁹ <http://www.alfafish.org/new-page/>

key to potentially expanding EM to other sectors. Vessels carrying these EM systems in 2016 will receive a release from observer requirements.

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

Supporting Clause 10.2

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

FAO CCRF (1995) 7.6.2 Other 8.1.2, 8.2.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: All vessels harvesting halibut must be authorized and permitted to fish, in accordance with federal regulations, 50CFR679. Further, all halibut harvesting must be conducted in accordance with the NPFMC’s IFQ program.				
Evidence: All vessels harvesting halibut must be authorized and permitted to fish, in accordance with federal regulations, 50CFR679 ²¹⁰ . Further, all halibut harvesting must be conducted in accordance with the NPFMC’s IFQ program ²¹¹ .				
References:				
Non-Conformance Number (if relevant)				NA

²¹⁰ <https://alaskafisheries.noaa.gov/fisheries-679regs>

²¹¹ <https://alaskafisheries.noaa.gov/fisheries/ifq>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
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 ²¹² . 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 ²¹³ , and USCG ²¹⁴ .				
References:				
Non-Conformance Number (if relevant)				NA

²¹² <https://alaskafisheries.noaa.gov/fisheries-679regs>

²¹³ www.nmfs.noaa.gov/ole/compliance_assistance/regions/alaska.html

²¹⁴ <https://www.uscg.mil/d11/cgchalibut/default.asp#cgskipnav>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Halibut fishery is not prosecuted in international waters. The Halibut fishery takes place entirely and exclusively within domestic waters (USA or Canada).				
Evidence: Halibut fishery is not prosecuted in international waters. The Halibut fishery takes place entirely and exclusively within domestic waters (USA or Canada).				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 10.4

Flag States shall ensure that no fishing vessels entitled to fly their flag fish on the high seas or in waters under the jurisdiction of other States unless such vessels have been issued with a Certificate of Registry and have been authorized to fish by the competent authorities. Such vessels shall carry on board the Certificate of Registry and their authorization to fish.

FAO CCRF (1995) 8.2.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .			
Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .			
References:			
Non-Conformance Number (if relevant)			NA

Supporting Clause 10.4.1

Fishing vessels authorized to fish on the high seas or in waters under the jurisdiction of a State other than the flag State shall be marked in accordance with uniform and internationally recognizable vessel marking systems such as the FAO Standard Specifications and Guidelines for Marking and Identification of Fishing Vessels.

FAO CCRF (1995) 8.2.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .				
Evidence: The fishery does not occur in the high seas; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	3
Supporting clauses applicable	3
Supporting clauses not applicable	0
Non-Conformances	0

Supporting Clause 11.1

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

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>	
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary of Evidence:				
<p>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.</p>				
Evidence:				
<p>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. The maximum civil penalty under the Northern Pacific Halibut Act is \$200,000 for each violation. 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).</p>				
References:				
Non-Conformance Number (if relevant)	NA			

Supporting Clause 11.2

Sanctions applicable in respect of violations and illegal activities shall be adequate in severity to be effective in securing compliance and discouraging violations wherever they occur. Sanctions shall also be in force that affects authorization to fish and/or to serve as masters or officers of a fishing vessel, in the event of non-compliance with conservation and management measures.

FAO CCRF (1995) 7.7.2/8.1.9/8.2.7

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The Magnuson-Stevens Act (50CFR600.740 Enforcement policy) provides four basic enforcement remedies for violations: 1) Issuance of a citation (a type of warning), usually at the scene of the offense, 2) Assessment by the Administrator of a civil money penalty, 3) for certain violations, judicial forfeiture action against the vessel and its catch, 4) Criminal prosecution of the owner or operator for some offenses. In some cases, the Magnuson-Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. The 2011 Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions issued by NOAA Office of the General Counsel – Enforcement and Litigation, provides guidance for the assessment of civil administrative penalties and permit sanctions under the statutes and regulations enforced by NOAA.

Evidence:


The Northern Pacific Halibut Act governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. 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. The maximum civil penalty under the Northern Pacific Halibut Act is \$200,000 for each violation.

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

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

In some cases, the MSA requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine (Figure 15). In summary, the MSA treats sanctions against the fishing vessel permit to be the carrying out of a purpose separate from that accomplished by civil and criminal penalties against the vessel or its owner or operator.

NOAA’s OLE 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 may be levied by the United States Attorney’s Office.



Magnuson-Stevens Penalty Matrix

Harm to the Resource or Regulatory Program, Offense Level	Level of Intent			
	A Unintentional	B Negligent	C Reckless	D Willful
I	Written warning-\$1,000	Written warning-\$1,500	Written warning-\$2,000	Written warning-\$2,500
II	Written warning-\$2,000	\$2,000-\$5,000	\$5,000-\$10,000	\$10,000-\$15,000
III	\$2,000-\$5,000	\$5,000-\$10,000	\$10,000-\$15,000	\$15,000-\$25,000
IV	\$5,000-\$15,000	\$15,000-\$25,000	\$25,000-\$50,000 and permit sanction of 10-20 days*	\$50,000-\$80,000 and permit sanction of 20-60 days*
V	\$15,000-\$25,000	\$25,000-\$50,000 and permit sanction of 10-20 days*	\$50,000-\$80,000 and permit sanction of 20-60 days*	\$60,000-\$100,000 and permit sanction of 60-180 days*
VI	\$25,000-\$50,000	\$50,000-\$80,000 and permit sanction of 20-60 days*	\$60,000-\$100,000 and permit sanction of 60-180 days*	\$100,000-statutory maximum and permit sanction of 1 year-permit revocation*

Figure 15. Magnuson Steven Penalty Matrix

There are very few repeat offenders. Sanctions include the possibility of temporary or permanent revocation of fishing privileges. Withdrawal or suspensions of authorizations to serve as masters or officers of a fishing vessel are also among the enforcement options. Within the USA EEZ, penalties can range up through forfeiture of the catch to forfeiture of the vessel, including financial penalties and prison sentences.

Finally, the cooperation of citizens and industry is cultivated through programs such as AWT's Fish & Wildlife Safeguard program, which encourages the reporting of violations, and "leverages" the range of enforcers.

References:	
Non-Conformance Number (if relevant)	NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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 inland 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.

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.

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

No. Supporting clauses/sub-clauses	16
Supporting clauses applicable	13
Supporting clauses not applicable	3
Non-Conformances	1

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

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.

Evidence:

The impacts of environmental factors on halibut and other fish or non-fish species associated or dependent upon them have been and are being appropriately assessed by the IPHC, NMFS/NPFMC and ADFG.

IPHC compared long-term changes in Pacific halibut recruitment and growth with long-term changes in climate and stock size²¹⁵. IPHC scientists found that environmental variability—both interdecadal and interannual—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, appear 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).

²¹⁵ <http://www.iphc.int/papers/clim.pdf>

Since 2009 the IPHC has deployed water column profilers at each of its survey stations, from the western Aleutian Islands to southern Oregon to assess environmental change in the ecosystem and effects on migration and recruitment of Pacific halibut²¹⁶.

IPHC staff is currently doing research on the climate impacts of density-dependence and fishing on long-term and large-scale changes in recruitment, growth, maturity and distribution of Pacific halibut (Martell et al 2015). Scientists with the NMFS have conducted numerous studies and continue research on the impacts of acidification in the North Pacific Ocean²¹⁷. 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 Sea²¹⁸. 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 limits²¹⁹. 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)²²⁰

The NPRB 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 Program²²¹

The Bering Sea Integrated Ecosystem Research Program 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)²²²

The Gulf of Alaska Integrated Ecosystem Research Project (IERP) 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 (UTL)

The overall goal of this component focuses on identifying and quantifying the major ecosystem processes that regulate recruitment strength of key groundfish species (arrowtooth flounder, Pacific cod, Pacific ocean perch, sablefish, and walleye pollock) in the GOA. The focus is on a functional group of five predatory fish species that are commercially important and account for most of the predatory fish biomass in the GOA. Taken

²¹⁶ <http://www.iphc.washington.edu/publications/scirep/SciReport0082.pdf>

²¹⁷ <http://www.afsc.noaa.gov/Publications/ProcRpt/PR2008-07.pdf>

²¹⁸ <http://www.afsc.noaa.gov/Quarterly/jas2012/jas12featurelead.htm>

²¹⁹ <http://access.afsc.noaa.gov/reem/ecoweb/>

²²⁰ <http://www.nprb.org/>

²²¹ <http://www.nprb.org/bering-sea-project>

²²² <http://gulfofalaska.nprb.org/>

together they encompass a range of life history strategies and geographic distributions that provide contrast to explore regional ecosystem processes.

Forage Base

To focus on forage base and resources which influence the productivity of the top level predator(s) chosen. The type, quality and quantity of food, and its timing and location, are critical to understanding higher trophic level responses.

Lower Trophic Level and Physical Oceanography

To focus on biological and physical oceanographic parameters on which this portion of the ecosystem is based. This includes euphausiids, fish eggs, and larval fishes.

Ecosystem Modeling

To describe and predict the responses (and variability therein) of this portion of the GOA ecosystem to environmental and anthropogenic processes, including climate change.

Also, the Pacific States Marine Fisheries Commission²²³ 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.

Non-Conformance Number (if relevant)

NA

²²³ <http://psmfc.org>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The IPHC, NPFMC and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the benthic longline fishery has minimal or temporary impacts on halibut habitat.

Various studies have applied ecosystem models to food webs and impacts of climate change. Halibut have low discard rates, but high PSC rates in other fisheries and discussions are underway between the agencies to put in place additional regulatory measures to avoid halibut and further minimize halibut bycatch mortality. Bycatches in the directed halibut fishery are recorded by observers and reported through the NMFS CAS. Most of bycatches include sharks, skate, sculpins, and rockfish species, but the fishery does not pose a threat to bycatch species. Management measures limit interactions with seabirds and the fishery has minimal impact on the short-tailed albatross, the only seabird listed as endangered under the ESA. Interactions with whales remain a problem as they take fish off longline gear, but the fishery does not adversely affect whale populations.

Evidence:

Impacts of fishing gear on the habitat

The IPHC, NPFMC and NOAA/NMFS conduct assessments and research related to fishery impacts on ecosystems and habitats and how environmental factors affect the fishery. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the benthic longline fishery has minimal or temporary impacts on halibut habitat. This conclusion have been supported by more recent studies on the US/Canada East Coasts for other halibut species (DFO 2010, Grabowski et al 2014) A more recent review of the effects of gear on seabed habitats in Alaska will be included on the latest EFH 5 year revision expected to be released on 2017²²⁴.

The effects of lost/abandoned gear on legal O32 halibut have been presented in a recent IPHC paper. The numbers have decreased from 1600 thousand pounds (net weight) in 1985 to 68 thousand pounds (net weight) in 2012²²⁵. In a NMFS report on a working group reviewing ghost fishing, the group determined that longline gear garnered a “Low Priority Recommendations” when compared to pot and net gears²²⁶.

Impact of fishing gear on seabirds

²²⁴ <https://npfmc.legistar.com/LegislationDetail.aspx?ID=2877826&GUID=321F4FF1-E3C5-4543-87FC-2E055F215263>

²²⁵ http://www.iphc.int/publications/rara/2012/rara2012053_commwastage.pdf

²²⁶ https://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-154_TOC.PDF

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. Previously the limit set by NMFS under the current ESA biological opinion was a maximum of four birds in a two- year cycle. 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. However, beginning with 2016-2017, up to 6 short-tailed albatrosses are allowed in the BSAI and GOA groundfish hook-and-line or trawl fisheries every two years. Furthermore up to 2 short-tailed albatrosses are allowed in the Pacific halibut fishery off Alaska. If either take limit were to be exceeded, NMFS would immediately re-initiate consultation with USFWS to consider possible modifications of the reasonable and prudent measures established to minimize the impacts of the incidental take. New regulations and further avoidance measures can be placed on the fishery by NMFS.

Bycatch of halibut in other fisheries (the GOA and BSAI groundfish fishery)

The Pacific halibut longline fishery was one of the first fully domestic fisheries to become established off Alaska²²⁷. As the groundfish fisheries developed, regulations were implemented to limit bycatch of halibut, so as to minimize impacts on the domestic halibut fisheries. Halibut are taken as incidental catch in federally managed groundfish trawl, hook-and-line, and pot fisheries in the Gulf of Alaska and Bering Sea/Aleutian Islands areas. Interception of juvenile and adult halibut (~30 cm and greater) occurs in trawl fisheries targeting groundfish species (such as rock fish, flatfish, pollock, and Pacific cod). Incidental catch of halibut also occurs in groundfish hook-and-line and pot fisheries that typically focus on Pacific cod. Regulations require that all halibut caught incidentally in these groundfish fisheries must be discarded, regardless of whether the fish is living or dead. Halibut catch is controlled in the groundfish fisheries using prohibited species catch (PSC) limits. PSC limits are applied to specific target fisheries, gear types, and seasons. During some fishing years, halibut PSC limits have resulted in the closure of specific groundfish fisheries prior to the fleet harvesting the available TAC.

In June 2015²²⁸, the Council took final action to reduce halibut PSC mortality limits in the BSAI groundfish fisheries overall from 4,426 mt to 3,515 mt, a 21% reduction. PSC limits in the BSAI groundfish fisheries are apportioned among sectors and gear types (currently to all trawl fisheries and longline fisheries for all targets except IFQ sablefish), and a different reduction was applied to each. In June 2012, the Council took action to reduce halibut bycatch limits by 15% in the Gulf of Alaska (GOA) trawl fisheries and longline catcher vessel fisheries and 7% in the GOA freezer longline fisheries.

References:	
Non-Conformance Number (if relevant)	NA

²²⁷ <http://www.npfmc.org/halibut-bycatch-overview/>

²²⁸ <http://www.npfmc.org/bsai-halibut-bycatch/>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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), and other seabird species in 1998, then revised in 2008. None have been taken in the commercial halibut fishery in 2011, 2012 or 2013. 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.

Seabird occurrence data have been collected during the 2013 IPHC annual setline survey. Bycatch data were also collected this year, indicating that the majority of the bycatch is made up by Pacific cod and spiny dogfish. These species are managed by the NPFMC under tier 3 and 5 respectively, using OFL and ABC recommendations and catch limits. 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.

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), and other seabird species in 1998, then revised in 2008. None have been taken in the commercial halibut fishery in 2011, 2012 or 2013. 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.

Seabird occurrence data have been collected during the 2013 IPHC annual setline survey. Bycatch data were also collected this year, indicating that the majority of the bycatch is made up by Pacific cod and spiny dogfish.

These species are managed by the NPFMC under tier 3 and 5 respectively, using OFL and ABC recommendations and catch limits. 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.

Impacts of fishing gear on the habitat

Benthic longline is a passive gear (not towed). There are no serious, irreversible concerns of halibut gear interaction on the habitat that are presented by management.

Ghost Fishing

The effects of lost/abandoned gear on legal O32 halibut have been documented in IPHC studies. The numbers have decreased from 1600 thousand pounds (net weight) in 1985 to 68 thousand pounds (net weight) in 2012²²⁹. In a NMFS report on a working group reviewing ghost fishing, the group determined that longline gear garnered a “Low Priority Recommendations” when compared to pot and net gears²³⁰.

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. Previously the limit set by NMFS under the current ESA biological opinion was a maximum of four birds in a two- year cycle. 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. However, beginning with 2016-2017, up to 6 short-tailed albatrosses are allowed in the BSAI and GOA groundfish hook-and-line or trawl fisheries every two years. Furthermore up to 2 short-tailed albatrosses are allowed in the Pacific halibut fishery off Alaska. If either take limit were to be exceeded, NMFS would immediately re-initiate consultation with USFWS to consider possible modifications of the reasonable and prudent measures established to minimize the impacts of the incidental take. New regulations and further avoidance measures can be placed on the fishery by NMFS.

Sub-legal catches of halibut:

The mortality due to sublegal bycatch of halibut is now incorporated into the population model that is used to evaluate alternative exploitation rates, so an allowance for sublegal bycatch is contained in the chosen rate. There is no explicit adjustment for sublegal bycatch in the quota-setting process²³¹.

TEP (Threatened, Endangered, Proposed) fish species

As described in federal regulation, there are no threatened or endangered species of fish in Alaska²³². However, several ETP species are managed by the NMFS (Table 5).

²²⁹ http://www.iphc.int/publications/rara/2012/rara2012053_commwastage.pdf

²³⁰ https://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-154_TOC.PDF

²³¹ http://www.iphc.int/publications/rara/2015/RARA2015_11Assessmenddatasources.pdf

²³² <http://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=AK&status=listed>

Table 5. Species managed by National Marine Fisheries Service (NMFS), species and status.

Common Name	Scientific Name	Status	Critical Habitat in Alaska?
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered	No
Fin Whale	<i>Balaenoptera physalus</i>	Endangered	No
Bowhead Whale	<i>Balaena mysticetus</i>	Endangered	No
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered	No
Blue Whale	<i>Balaenoptera musculus</i>	Endangered	No
North Pacific Right Whale	<i>Eubalaena japonica</i>	Endangered	Yes
Sei Whale	<i>Balaenoptera borealis</i>	Endangered	No
Cook Inlet Beluga Whale	<i>Delphinapterus leucas</i>	Endangered	Yes
Western North Pacific Gray Whale	<i>Eschrichtius robustus</i>	Endangered	No
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered	Yes
Bearded Seal	<i>Erignathus barbatus</i>	Threatened	No
Ringed Seal	<i>Phoca hispida</i>	Threatened	No
Harbor Seal	<i>Phoca vitulina</i>	Candidate	No
Upper Columbia River Spring Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Endangered	No
Snake River Sockeye Salmon	<i>Oncorhynchus nerka</i>	Endangered	No
Upper Columbia River Steelhead*	<i>Oncorhynchus mykiss</i>	Endangered	No
Snake River Fall Chinook Salmon*	<i>Oncorhynchus tshawytscha</i>	Threatened	No
Snake River Spring/Fall Chinook Salmon*	<i>Oncorhynchus tshawytscha</i>	Threatened	No
Puget Sound Chinook Salmon*	<i>Oncorhynchus tshawytscha</i>	Threatened	No
Lower Columbia River Chinook Salmon*	<i>Oncorhynchus tshawytscha</i>	Threatened	No
Upper Willamette River Chinook Salmon*	<i>Oncorhynchus tshawytscha</i>	Threatened	No
Lower Columbia River Coho Salmon*	<i>Oncorhynchus kisutch</i>	Threatened	No
Hood Canal Summer Run Chum Salmon*	<i>Oncorhynchus keta</i>	Threatened	No
Snake River Basin Steelhead*	<i>Oncorhynchus mykiss</i>	Threatened	No
Leatherback Turtle	<i>Dermochelis coracea</i>	Endangered	No
Green Sea Turtle	<i>Chelonias mydas</i>	Threatened	No
Loggerhead Turtle	<i>Caretta Caretta</i>	Threatened	No
Ridley Turtle	<i>Lepidochelys olivacea</i>	Threatened	No
Lower Columbia River Steelhead*	<i>Oncorhynchus mykiss</i>	Threatened	No
Upper Willamette River Steelhead*	<i>Oncorhynchus mykiss</i>	Threatened	No
Middle Columbia River Steelhead*	<i>Oncorhynchus mykiss</i>	Threatened	No
Green Sturgeon (Southern DPS)*	<i>Acipenser medirostris</i>	Threatened	No

Bycatch

In the directed longline fisheries for Pacific halibut, bycatch of other fish species is not well documented on any sized vessel. Halibut long-line fisheries can be highly selective depending on the area they are fishing. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline.

Seabirds

The Alaska Region (AKR) has been actively addressing seabird incidental take in longline (hook-and-line) fisheries off Alaska since 1989. AKR seabird-related responsibilities and activities include: consultations under the Endangered Species Act, data collection by fishery observers, public and industry outreach and education, research, regulatory action, and participation in the development of actions to reduce the incidental take of seabirds in Alaska fisheries. The Alaska Region plays a proactive role in its coordination with local, regional, national, and international agencies, organizations, and experts in its efforts to reduce seabird incidental take in hook-and-line fisheries²³³.

Bycatch of seabirds have been addressed by specific regulations that were put in place that intended to reduce the incidental mortality of the short-tailed albatross and other seabird species²³⁴. The short-tailed albatross is a listed species under the Endangered Species Act (ESA).

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. To date, reports state that bycatch mitigation measures by the freezer longline fleet in Alaska have resulted in a 90% reduction in takes of seabirds²³⁵.

Since 2002 the IPHC permanently incorporated the seabird data collection protocols into its survey program. Sampling seabird occurrence after the haul addresses the question of where and when certain seabird species occur, and aids in the assessment of individual species at risk by providing information that may reflect population trends over time²³⁶.

Marine Mammals

Although marine mammals are known to interact with halibut longline gear, bycatch is virtually non-existent. Whales, sea lions and fur seals) may selectively eat hooked groundfish species such as Greenland turbot, Pacific halibut, sablefish, or Pacific cod 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. The Alaska Region (AKR) has been actively addressing marine mammal incidental take in federal and state commercial fisheries off Alaska since 1989 and in foreign fisheries since the early 1980s. AKR responsibilities and activities include: authorization of incidental takes, monitoring and data collection by fishery observers, public and industry outreach and education, consultations under the Endangered Species Act, research, regulatory action, and participation in the development national and regional plans and policies to reduce the incidental take of marine mammals in commercial fisheries. The Alaska Region coordinates with local, regional, national agencies, organizations, and experts in its efforts to reduce incidental takes²³⁷.

A recent NMFS report on marine mammal interactions in the groundfish fisheries recounts that no Steller sea lion (eastern and western stock) were accidentally by-caught by the halibut commercial longline fishery between 2000 and 2004. No other otariids species were documented in the report. In the same, similar non-harmful interaction with whales were documented between 1998 and 2004: 82 fishing days where Killer

²³³ <https://alaskafisheries.noaa.gov/pr/seabird-bycatch>

²³⁴ <https://alaskafisheries.noaa.gov/pr/seabird-bycatch-regs>

²³⁵ <http://www.fishwatch.gov/profiles/pacific-halibut>

²³⁶ http://www.iphc.int/publications/rara/2015/RARA2015_23Seabirds.pdf

²³⁷ <https://alaskafisheries.noaa.gov/pr/mm-fishery-interactions>

whales had predatory interactions (plucking fish from hooks) with the BSAI halibut longline fishery; and 17 fishing days where Sperm whales had predatory interactions with the GOA halibut fishery²³⁸.

In Alaska, depredation primarily affects the economically significant halibut and sablefish fisheries²³⁹. Depredation can have negative consequences to whales, fishermen, and the management of the fishery. Whales engaging in depredation have a higher risk of injury due to vessel strikes or entanglement with fishing gear. They can also become habituated to the presence of these food sources, altering their foraging behaviors and increasing their dependence on longline fisheries. Fishermen can be severely impacted by the reduction in a season's catch due to depredation and the near complete loss of individual hauls in the presence of whales. The measures they take to avoid or mitigate for depredation, like increasing set times or moving to different fishing areas, can further increase the costs of operation.

Depredation also affects efforts to sustainably manage these high valued fisheries. Without fully quantifying the losses due to depredation or incorporating this factor into measures of catch per unit effort (CPUE, a commonly used measure in fisheries management), the ability of fishery managers to accurately assess the stocks is diminished. While sperm whale depredation occurs primarily in the central and eastern Gulf of Alaska and in southeast Alaska, killer whale depredation is more likely to take place in the western Gulf of Alaska, the Aleutian Islands, and the Bering Sea.

Recent analyses done by UAF on a long-term longline survey data set collected by NMFS and found that, when depredating, killer whales removed or damaged an estimated 54 – 72% of sablefish catches across all regions and 51% of Pacific halibut catches in the western Gulf of Alaska. Furthermore, the researchers found that the frequency of depredation has increased in recent years in both the western Gulf and the Aleutian Islands.

Bycatch data from the IPHC stock assessment surveys

IPHC provides ADFG and NMFS staff detailed halibut and other-species catch data from the IPHC stock assessment survey and summarized commercial halibut catch and effort data by depth strata to assist them in estimating bycatch in the halibut fishery, particularly for bycatch of rockfish species, skates, and sharks. The 2015 stock assessments results are as follows:

Approximately 129 species of fish and invertebrates were caught as bycatch during the survey. Though skippers on survey vessels take precautions to avoid marine mammal and bird bycatch, four black-footed albatross (*Phoebastria nigripes*) were captured in 3A and were provided to the Oikonos organization for genetic sampling. No marine mammals were caught on survey. Hook occupancy of species-groups varied by regulatory area. Halibut was the most commonly-caught species coastwide. The most frequent incidentally-captured species category overall was sharks, followed by Pacific cod. The most common bycatch in Areas 2A, 3A, and 2B was sharks, primarily dogfish. The most frequent bycatch in Areas 3B, 4A, 4C, and 4D was Pacific cod. In Areas 2C, 4B, and 4E the "other species" category was most common, and was comprised primarily of arrowtooth flounder (*Atheresthes stomias*), lingcod (*Ophiodon elongates*), longnose skates (*Raja rhina*), redbanded rockfish (*Sebastes babcocki*), white-blotched skates (*Bathyraja maculata*), yellow Irish lord sculpins (*Hemilepidotus jordani*), and yelloweye rockfish (*Sebastes ruberrimus*).

Dogfish were the largest component of the shark species category in Areas 2A (97%), 2B (98%), 2C (89%), 3A (99%), and 4A (57%). Sleeper sharks (*Somniosus pacificus*) were the largest component of the shark species category in Areas 3B (58%), 4B (100%), and 4D (100%).

²³⁸ <http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-167.pdf>

²³⁹ <http://www.igert.org/highlights/756>

Bocaccio (*Sebastespaucispinis*), canary rockfish (*S. pinniger*), and yelloweye rockfish (*S. ruberrimus*) populations are considered species of concern in Areas 2A, 2B, and 2C, and their numbers often drive catch regulations. Catch rates of bocaccio and canary rockfish are so low on IPHC surveys that it is difficult to make any inferences from them. Trends in bycatch NPUE over the last ten years for the other major incidentally-captured species and species groups show that the encounter rate for most remained relatively constant over time.

There are no directed fisheries for sharks in the BSAI or in the GOA, but some sharks are caught incidentally in other directed commercial fisheries. These sharks are generally not retained. They are currently included as part of the "Other Species" complex in the BSAI and GOA Groundfish Fishery Management Plans. A total allowable catch is set annually for the Other Species management category.

There is no evidence to suggest that overfishing is occurring for any shark species in the BSAI²⁴⁰ or GOA²⁴¹. Similarly, for skates in GOA and BSAI overfishing is not occurring^{242 243}.

Bait fisheries

Most bait is purchased frozen, and thawed before using. Beside salmon, herring, cod and octopus or squid are typically purchased for bait²⁴⁴ These bait species are well managed by either the State of Alaska or the NMFS, and none are classified as endangered or threatened.

References:

Non-Conformance Number (if relevant)

NA

²⁴⁰ <http://www.afsc.noaa.gov/REFM/Docs/2015/BSAIntro.pdf>
²⁴¹ <http://www.afsc.noaa.gov/REFM/Docs/2015/GOAIntro.pdf>
²⁴² <http://www.afsc.noaa.gov/REFM/Docs/2015/GOAskate.pdf>
²⁴³ <http://www.afsc.noaa.gov/REFM/Docs/2015/BSAIskate.pdf>
²⁴⁴ <http://www.iphc.int/publications/techrep/tech0048.pdf>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
<p>Summary Evidence: Halibut size-at-age has been declining since the mid-1980s. 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 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. IPHC have been trying to stop the decline by reducing harvest rate and the harvest levels.</p>				
<p>Evidence: Halibut size-at-age has been declining since the mid-1980s²⁴⁵. Reasons behind the ongoing decline are not well understood. The timing of the decline in size-at-age correlates very strongly with the increase in halibut numbers that began following the environmental regime shift of the late 1970s. At the same time, increased numbers of other flatfish, in particular arrowtooth flounder (<i>Atherestes stomias</i>), also occurred in the GOA and Bering Sea. It may be possible that the decline in size-at-age has been a density-dependent decline in growth rate resulting from the greatly increased numbers, and biomass, of flatfish. The biomass of arrowtooth flounder, estimated to be several times greater than the halibut biomass, has remained very high. The GOA population is 198% of its target level. The Bering Sea Aleutian Islands population is estimated at 3 times its target level²⁴⁶.</p> <p>Fisheries managers (IPHC, PFMC, and NMFS)²⁴⁷ have been focusing on understanding the declining size at age (IPHC, PFMC, NMFS). In recent years, IPHC reduced both the harvest rate (Area 3B) and the harvest levels of GOA halibut (Areas 3A and 3B) as the stock biomass has not responded to management measures based on the harvest policy. IPHC’s action to reduce harvest rates in Area 3B is based on a lack of response to these mitigative management measures.</p> <p>Environmental factors (i.e. temperature, salinity) as well as diet changes, fishery induced evolution, and size-selective fishing have been considered in contributing to the decline at size at age. However, no strong environmental correlate has been found. Fishery induced evolution,(Halibut capable of producing fast growing progeny that have been “fished out” of the population) is unlikely due to the short time frame and because of up and down cycles on size at age throughout the years. The current halibut size-at-age is similar to that of the 1930s. This is a period where there were increases in size-at-age followed by low halibut abundance.</p>				

²⁴⁵ http://www.iphc.int/publications/rara/2014/rara2014_11stockassessment.pdf

²⁴⁶ <http://www.fishwatch.gov/profiles/arrowtooth-flounder>

²⁴⁷ <https://www.fishwatch.gov/profiles/pacific-halibut>

Another theory that could explain size at age decline is size selective fishing rate. For example as larger halibut are fished out, smaller size-at-age would result in a fishery that systematically removed the larger individuals.

Most recent management actions have consisted of revisions of harvest rates as a consequence of the outcome of the stock assessment taking into account declines at size at age. Although projections based on actual estimated age compositions suggesting increases of exploitable and spawning biomass over the next several years due to strong year classes recruitment, ongoing decreases in size-at-age as well as higher harvest rates above target levels may weaken those increases.

References:

Non-Conformance Number (if relevant)

NA

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary 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 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 tiered, precautionary procedure for setting annual catch limits provides a high likelihood that stocks will be maintained at levels above their reference points, 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 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 tiered, precautionary procedure for setting annual catch limits provides a high likelihood that stocks will be maintained at levels above their reference points, and clear procedures exist for restricting catch limits if stock rebuilding is necessary.

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 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 in 1998, then revised in 2008. None have been taken in 2013. 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.

Bycatch data were also collected this year, indicating that the majority of the bycatch is made up by Pacific cod, rockfish species as well as sharks and skates. These species are managed by the NPFMC under tier 3 (Pacific cod) and 5 (rockfish species, sharks and skates) respectively, using OFL and ABC recommendations and catch limits. 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

Supporting Clause 12.5.1

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

FAO ECO (2011) 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Several federal policies and associated law establish management guidelines and legal protections for endangered species that might be affected by the Alaskan commercial halibut fishery. These policies include the Magnuson-Stevens Act, the Marine Mammal Protection Act and the U.S. Endangered Species Act. ADF&G provides additional protections for species and stocks of concern.

Evidence:

The purpose of the ESA²⁴⁸ is to conserve threatened and endangered species and their ecosystems. There are more than 1,900 species listed under the ESA. A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become endangered in the future. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. NMFS is responsible for 94 marine species, from whales to sea turtles and salmon to Johnson’s sea grass.

The listing of a species as endangered makes it illegal to "take" (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to do these things) that species. Similar prohibitions usually extend to threatened species. Federal agencies may be allowed limited take of species through interagency consultations with NMFS or USFWS. Non-federal individuals, agencies, or organizations may have limited take through special permits with conservation plans. Effects to the listed species must be minimized and in some cases conservation efforts are required to offset the take. NMFS’ Office of Law Enforcement works with the U.S. Coast Guard and other partners to enforce and prosecute ESA violations.

The Protected Resources program conserves and recovers marine resources by doing the following:

- Listing species under the ESA and designating critical habitat (section 4);
- Developing and implementing recovery plans for listed species (section 4);
- Developing cooperative agreements with and providing grants to States for species conservation (section 6);
- Consulting on any Federal actions that may affect a listed species to minimize the effects of the action (section 7);
- Partnering with other nations to ensure that international trade does not threaten species (section 8);
- Investigating violations of the ESA (section 9);
- Cooperating with non-federal partners to develop conservation plans for the long-term conservation of species (section 10); and
- Authorizing research to learn more about protected species (section 10).

²⁴⁸ http://www.nmfs.noaa.gov/pr/pdfs/esa_factsheet.pdf

U.S. fisheries management, including that of Alaskan groundfish fisheries, must be consistent with the Magnuson-Stevens Act, the Marine Mammal Protection Act and the U.S. Endangered Species Act. Each of these establishes management guidelines, objectives and legal protections for threatened and endangered species.

Interactions between Alaskan commercial halibut fisheries with marine mammals and birds have been documented through NMFS' Alaska Marine Mammal Observer Program, which reports on these interactions, including incidental take of endangered species. Under the Marine Mammal Protection Act (MMPA), all Category I and II fisheries must be registered in the Marine Mammal Avoidance Program and report any injuries or mortalities of marine mammals to NMFS within 48 hours. All MMPA category fisheries are liable for incidental take of any ESA-listed species.

References:

Non-Conformance Number (if relevant)

NA

Supporting 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 <input type="checkbox"/>	Medium <input checked="" type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input checked="" type="checkbox"/> None <input type="checkbox"/>
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.			
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.			
Non-Conformance #2* Non-target catches, including discards, of stocks other than P. halibut are monitored and likely do not threaten these non-target stocks with serious risk of extinction, recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible. However, there is a lack of observer coverage on vessels < 40ft LOA, as such the observer scheme does not sufficiently monitor and account for non-target catches by the <40ft LOA sector of the commercial P. halibut fleet.”			
* The second minor NC on subclause 12.6 was closed following review of additional information submitted by FVOA (See Section 9).			
References:			
Non-Conformance Number (if relevant)			#2

Supporting Clause 12.7

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

FAO Eco (2009) 31.2

FAO Eco (2011) 41.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>Pacific Halibut are not typically categorized as a key prey species for any single marine predator. Several comprehensive studies of the food web in various regions of the northern Pacific Ocean have not indicated that halibut are heavily utilized by any predator. Predation on halibut, especially by marine mammals, is apparently low, except in cases where the fish were attached to fishing gear. This is understandable, because adult halibut are large, active animals that would be difficult to capture in open water. Also, their bottom dwelling habits, generally in offshore areas, make them less accessible to predation than schooling, pelagic species.</p> <p>Pacific Halibut are not a key prey species; as such this Clause is NOT APPLICABLE.</p>				
Evidence:				
<p>Pacific Halibut are not a key prey species; as such this Clause is NOT APPLICABLE.</p> <p>Pacific Halibut are not typically categorized as a key prey species for any single marine predator. Several comprehensive studies of the food web in various regions of the northern Pacific Ocean have not indicated that halibut are heavily utilized by any predator. Predation on halibut, especially by marine mammals, is apparently low, except in cases where the fish were attached to fishing gear. This is understandable, because adult halibut are large, active animals that would be difficult to capture in open water. Also, their bottom dwelling habits, generally in offshore areas, make them less accessible to predation than schooling, pelagic species</p>				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 12.8

States shall introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).

FAO CCRF (1995) 8.7.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>MARPOL 73/78 (the "International Convention for the Prevention of Pollution From Ships") is one of the most important treaties regulating pollution from ships. Six Annexes of the Convention cover the various sources of pollution from ships and provide an overarching framework for international objectives. In the U.S., the Convention is implemented through the Act to Prevent Pollution from Ships (APPS).</p> <p>Under the provisions of the Convention, the United States can take direct enforcement action under U.S. laws against foreign-flagged ships when pollution discharge incidents occur within U.S. jurisdiction.</p>				
Evidence:				
<p>MARPOL 73/78^{249, 250}(the "International Convention for the Prevention of Pollution From Ships") is one of the most important treaties regulating pollution from ships. Six Annexes of the Convention cover the various sources of pollution from ships and provide an overarching framework for international objectives. In the U.S., the Convention is implemented through the Act to Prevent Pollution from Ships (APPS).</p> <p>Under the provisions of the Convention, the United States can take direct enforcement action under U.S. laws against foreign-flagged ships when pollution discharge incidents occur within U.S. jurisdiction. When incidents occur outside U.S. jurisdiction or jurisdiction cannot be determined, the United States refers cases to flag states, in accordance with MARPOL. These procedures require substantial coordination between the Coast Guard, the State Department, and other flag states, and the response rate from flag states has been poor. Different regulations apply to vessels, depending on the individual state.</p>				
References:				
Non-Conformance Number (if relevant)				NA

²⁴⁹ <https://www.law.cornell.edu/uscode/text/33/1901>

²⁵⁰ <http://www.gao.gov/assets/230/228813.pdf>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

Summary Evidence:

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

While much of the halibut harvest takes place in the Gulf of Alaska, the waters of Bristol Bay and the southeast Bering Sea shelf are nursery grounds important to the overall health of the Pacific halibut population. Young halibut spend two or three years growing in these rich, nursery areas, after which they migrate to other parts of the Bering Sea, through the Aleutian passes and into the North Pacific where they live out their adult lives. IPHC as well as NPFMC don't have a specifically fishery a management plan for Pacific Halibut. However each Council has approved provisions that supplement protection of essential habitats for Pacific Halibut for its completion of its life cycle .

Evidence:

There is considerable knowledge of the essential habitats for the Pacific Halibut and potential fishery impacts on them. Pacific halibut are common inhabitants of shallow estuarine waters. Pacific Halibut spend a portion of their life cycles in the estuarine ecosystem complex²⁵¹. Seasonal ocean circulation and stratification patterns, health of species (levels of contaminants, size and weight), population numbers, and food quality all contribute to fish population levels.

Spawning occurs during the winter in deep water (180-450 m) along the continental slope at a number of well-known locations in the Bering Sea, Aleutian Islands, and Gulf of Alaska south to British Columbia. Adult halibut migrate to the continental shelf edge in winter (November through March) to spawn. Major spawning grounds are thought to be concentrated in the central and western Gulf of Alaska (GOA) and the southern Bering Sea shelf edge²⁵².

Females spawn repeatedly over the season, producing as many as 2 million eggs. Eggs are laid in deep water along the slope and are then left to drift in the ocean currents as they mature through the hatching and larval phases. The eggs develop at depth and larvae remain in the water column for as long as 7 months. As they

²⁵¹ http://www.seakfhp.org/wp-content/uploads/2013/03/estuaries_cap_final_03_30_11.pdf

²⁵² http://www.iphc.int/publications/rara/2014/rara2014_24juveniledist.pdf

develop, the larvae move to shallower water and young-of-the-year juveniles (30 mm and larger) are common in shallow, near-shore waters 2-50 m deep in Alaska and British Columbia.

In terms of their general distribution in the first year after settlement. Pacific halibut are found extensively in coastal nursery areas and have been shown to prefer small-grain sandy sediment²⁵³. Small juveniles consume small crustaceans and other benthic organisms, and become largely piscivorous by 30 cm during their second year. With increasing age and size, the fish move to deeper water and migrate south to the fishing grounds. Halibut are usually on or near the bottom over mud, sand, or gravel banks. Most are caught at depths of 90 to 900 feet, but halibut have been recorded at depths up to 3,600 feet. As halibut mature, they migrate in a clockwise direction in the Gulf of Alaska, countering the drift of eggs and larvae

Important Fisheries Nursery Grounds

Bristol Bay Fish Nursery²⁵⁴

While much of the halibut harvest takes place in the Gulf of Alaska, the waters of Bristol Bay and the southeast Bering Sea shelf are nursery grounds important to the overall health of the Pacific halibut population. Young halibut spend two or three years growing in these rich, nursery areas, after which they migrate to other parts of the Bering Sea, through the Aleutian passes and into the North Pacific where they live out their adult lives. The importance of these nursery grounds has been recognized by fishery managers for decades. In 1967, the IPHC closed a significant area of the southeast Bering Sea to halibut fishing in order to protect young fish during this sensitive life stage (IPHC Bering Sea Closed Area – Closed Area for Juvenile Pacific Halibut. Figure 16).

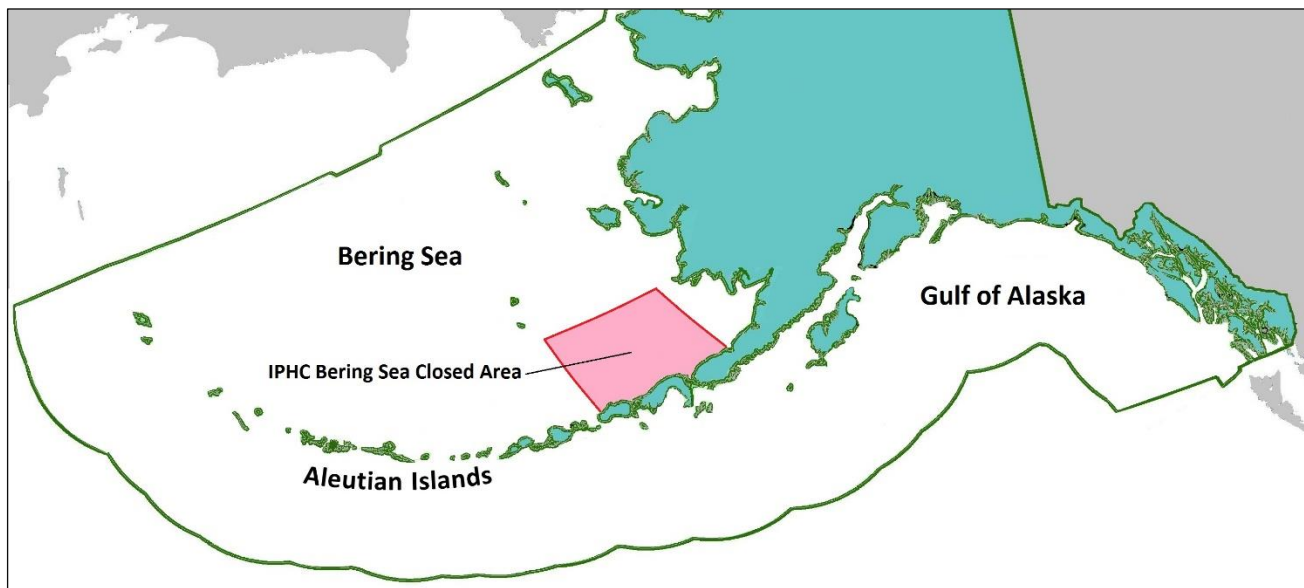


Figure 16. IPHC Bering Sea Closed Area – Closed Area for Juvenile Pacific Halibut.

Habitat Management

The Pacific halibut stock is managed under the Pacific Halibut treaty between Canada and the United States²⁵⁵. The International Pacific Halibut Commission (IPHC) is responsible for assessing the status of the stocks and

²⁵³ http://alaska-halibut-fishing-charters.com/halibut_biology.html

²⁵⁴ http://www.akmarine.org/wp-content/uploads/2014/06/AMCC_bristol-bay-report-01-01-12.pdf

²⁵⁵ <http://www.adfg.alaska.gov/index.cfm?adfg=halibut.management>

setting harvest strategies and catch limits that provide for optimum yield. Within the United States, the North Pacific Fishery Management Council (NPFMC) is responsible for allocating the halibut resource among users and user groups fishing off Alaska. The National Marine Fisheries Service (NMFS) is responsible for developing, implementing, and enforcing regulations pertaining to management of halibut fisheries in U.S. waters. The State of Alaska participates in management through the ADF&G Commissioner’s seat on the North Pacific Fishery Management Council.

The IPHC have not developed a specific FMP for Pacific halibut; however, Article III of the Convention requires IPHC to ‘make recommendations as to the regulation of the halibut fishery of the North Pacific Ocean, including the Bering Sea, which may seem desirable for its preservation and development²⁵⁶’.

Nearly all of the research done by the IPHC staff is directed toward one of three continuing objectives of the Commission: i) improving the annual stock assessment and quota recommendations; ii) developing information on current management issues; and iii) adding to knowledge of the biology and life history of halibut.

NPFMC also does not have a specific FMP for Pacific halibut; however, the groundfish FMPs for BSAI and GOA have supplemental measures for halibut given that it is a prohibited species. Because significant interactions occur between the Pacific halibut fishery and the BSAI and GOA groundfish fisheries, numerous management measures in the FMPs were established for the expressed purpose of mitigating possible adverse effects of the groundfish fisheries on the halibut resource.

For groundfish, the BSAI²⁵⁷ and GOA FMPs²⁵⁸ have 46 short- and long-term objectives divided into nine categories: (1) Prevent Overfishing; (2) Promote Sustainable Fisheries and Communities; (3) Preserve Food Web; (4) Manage Incidental Catch and Reduce By-Catch and Waste; (5) Avoid Impacts to Seabirds and Marine Mammals; (6) Reduce and Avoid Impacts to Habitat; (7) Promote Equitable and Efficient Use of Fishery Resources; (8) Increase Alaska Native Consultation; and (9) Improve Data Quality, Monitoring and Enforcement.

The North Pacific Fishery Management Council identifies priorities for research, over the next 1 to 5 years, as those activities that are the most important for the conservation and management of fisheries in the Gulf of Alaska, Aleutian Islands, eastern Bering Sea, and the Arctic²⁵⁹. Specific to Pacific halibut, the current list of NPFMC research priorities have some research items on habitat issues. For example one of the research priorities for NPFMC is to “evaluate the biological effects of establishing spatial protections of juvenile halibut From fishing gear on BSAI halibut stock health”.

References:	
Non-Conformance Number (if relevant)	NA

²⁵⁶ <http://www.iphc.int/about-iphc.html>

²⁵⁷ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/BSAI/BSAIfmp.pdf>

²⁵⁸ <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmfp.pdf>

²⁵⁹ <http://www.npfmc.org/research-priorities>.

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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.

Previous studies have examined aspects of the economic impact of the halibut fishery. However, not all sectors of the fishery have been examined together in a comprehensive way and most of the direct economic data do not reach beyond the ex-vessel or wholesale price level. In addition, the value of the community, social, and cultural impacts of the fishery have generally not been assessed. As a result, the IPHC and other policy makers are unable to meaningfully compare the economic and social impact of the different sectors of the halibut fishery to each other, to other fisheries, or to other industries. In 2015 a new initiative has been set by IPHC to conduct a study on the economic impact of the Pacific Halibut Fishery. Results will be published in 2017.

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. On 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 Alaska²⁶⁰

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

²⁶⁰ <http://www.afsc.noaa.gov/refm/Socioeconomics/Default.php>

- 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.

Previous studies have examined aspects of the economic impact of the halibut fishery²⁶¹. For example the AFSC have been collaborating with IPHC in different projects.

Previous AFSC Research Related to Pacific Halibut:

- **Sport Fishing Economics:**

AFSC surveyed Alaska saltwater anglers in 2007 and 2012 and estimated (1) demand for and economic value of saltwater sport fishing trips for halibut, salmon, and other primary sport fish species, (2) the value of charter boat fishing trips targeting halibut under alternative harvest restrictions for halibut (e.g., bag/possession and size limits). Economic impacts associated with changes to angler harvest restrictions were estimated.

- **Economic Impacts of IFQs:**

The AFSC and UC Davis researched the economic efficiency impacts resulting from features of the Alaskan halibut and sablefish individual fishing quota (IFQ) program, such as blocking and vessel class restrictions on quota share.

- **Charter Boat Economics:**

AFSC conducted surveys of Alaska charter boat businesses to study the economics of the guided sport sector. Collected costs, earnings, and employment information were collected for the 2011-2013 fishing seasons. Population-level estimates for total costs, revenues, and employment were generated to provide information about the sector; firm-level modeling is expected to provide insights into how behavior may change under alternative management actions.

- **Catch share evaluation:**

An extensive set of economic data tables on halibut was reported in the 2013 Economic SAFE. (Section 4, Tables 51-63); economic performance metrics for the halibut IFQ program were calculated and reported in the 2013 Economic SAFE (Section 7.2).

Current Research Related to Halibut by AFSC and IPHC

- **Socioeconomics of quota leasing market:**

Under the Halibut Catch Sharing Plan (CSP) that formalizes the process of allocating catch between the commercial and charter sectors, there is now an allowance for leasing commercial halibut quota by eligible charter businesses to relax harvest restrictions for their angler clients. A survey developed by the AFSC will be fielded in 2015, collecting data from the eligible participants in this market to determine their attitudes towards, and behavior in, the lease market and attitudes and preferences towards alternative programs.

²⁶¹ <http://www.iphc.int/documents/contract/RFPiPHCEconomicStudy2015.pdf>

▪ **Socioeconomics of charter boat fisheries:**

The AFSC is conducting an ongoing survey of anglers who utilize the for-hire charter boat recreational fishing sector in Alaska that is being subjected to new bag/possession and halibut size limits. The goal is to provide insights into how economic values for charter boat fishing trips are affected by these regulations.

▪ **Impacts of active participation measures:**

The AFSC is assessing the impacts of active participation measures in the Alaskan halibut and sablefish individual fishing quota (IFQ) program, including a prohibition on IFQ leasing, limitations on the acquisition of quota shares by non-individual entities (corporations, partnerships, etc.), and restrictions on the use of hired skippers

However²⁶², not all sectors of the fishery have been examined together in a comprehensive way and most of the direct economic data do not reach beyond the ex-vessel or wholesale price level. In addition, the value of the community, social, and cultural impacts of the fishery have generally not been assessed. As a result, the Commission and other policy makers are unable to meaningfully compare the economic and social impact of the different sectors of the halibut fishery to each other, to other fisheries, or to other industries. In 2015 the IPHC hired an external company to conduct a detailed study on the economic impact of the Pacific Halibut Fishery.

The objectives of the study are as follows:

1. To survey previous studies and existing information. This survey should evaluate relevant work in this field as well as ongoing regular data collection programs, noting differences in methodology or emphasis, complementary or conflicting data and conclusions, and gaps in available information.
2. Develop a comprehensive qualitative structural description of the current economics of the halibut resource. This description should encompass all directed halibut fishery sectors in Canada and the US, including commercial, sport, subsistence, ceremonial, and research. It may extend or incorporate relevant information identified under the first objective, and it should identify developments or trends which have led to the current state or may influence future changes.
3. Develop a quantitative analysis of the economic value and impact of all sectors of the directed halibut fishery, from the hook to the retail or end-user level, including recreational and subsistence use. This analysis should include the operation of the fishery itself as well as the products it generates. It should detail the geography of the fishery’s economic impact and its effect on local, regional, and national economies, as well as the basis and rationale for any economic effect multipliers used in the analysis.
4. Analyze the community impacts of the halibut fishery throughout its range. This analysis should include all user groups, and should be expressed as quantitatively as possible.
5. Summarize the methodology and results of this study in comparison to other economic data and reports for the halibut fishery, other regional fisheries, and comparable seafood industry sectors.

It is expected that the results of the study will be presented in 2017²⁶³.

References:

Non-Conformance Number (if relevant)

NA

²⁶² http://www.iphc.int/documents/contract/RFP_IPHC_Economic_Study_2015.pdf

²⁶³ http://www.iphc.int/publications/bluebooks/IPHC_bluebook_2016.pdf

Supporting Clause 12.11

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

FAO ECO (2011) 41.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

Management of non-target species which consists of:

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

This system is expected to keep bycatch species at levels that are highly likely to be within biological limits and minimize impacts to habitat. Among some of outcome indicators consistent with inferring on the status of bycatch species are Acceptable Biological Catch ABC, as well as Overfished and Overfishing status which are included on the Amendments to the BSAI and GOA Groundfish FMPs, which were implemented in 1999.

There is no overfishing occurring in Alaskan waters based on these outcome indicators.

Evidence:

There is a strategy in place to manage the non-target species which consists of

1. a catch accounting system,
2. observer program to estimate catches of non-target species, that was heavily restructured in 2013 to better sample the full groundfish fleet, including halibut vessels which previously had minimal coverage,
3. fishery independent surveys conducted by NOAA-Fisheries and IPHC,
4. statistical stock assessments for most non-target species,
5. a tiered system of assessments that provides for more precautionary annual catch limits when assessments use less precise methods and clear procedures exist for restricting catch limits if stock rebuilding is necessary,
6. mandatory use of seabird avoidance devices on all vessels larger than 55', and
7. a spatial management strategy that prohibits or restricts vessels from fishing in sensitive habits.

This system is expected to keep bycatch species at levels that are highly likely to be within biological limits and minimize impacts to habitat. The evidence for successful implementation of this management strategy is manifest by regular (often annual or bi-annual) stock assessment, in season catch accounting and the healthy stock status for most non-target species relative to reference points.

Some of outcome indicators consistent with the status of bycatch species are included in the Amendments to the BSAI and GOA Groundfish FMPs, which were implemented in 1999.

Acceptable Biological Catch (ABC)

ABC is a preliminary description of the acceptable harvest (or range of harvests) for a given stock or complex. Its derivation focuses on the status and dynamics of the stock, environmental conditions, other ecological factors, and prevailing technological characteristics of the fishery. The fishing mortality rate used to calculate ABC is capped as described as shown in the text box below.

Overfishing

Overfishing is defined as any amount of fishing in excess of a prescribed maximum allowable rate. This maximum allowable rate is prescribed through a set of six tiers which are listed below in descending order of preference, corresponding to descending order of information availability. The SSC will have final authority for determining whether a given item of information is reliable for the purpose of this definition, and may use either objective or subjective criteria in making such determinations. For Tier (1), a pdf refers to a probability density function. For Tiers (1-2), if a reliable pdf of BMSY is available, the preferred point estimate of BMSY is the geometric mean of its pdf. For Tiers (1-5), if a reliable pdf of B is available, the preferred point estimate is the geometric mean of its pdf. For Tiers (1-3), the coefficient ‘α’ is set at a default value of 0.05, with the understanding that the SSC may establish a different value for a specific stock or stock complex as merited by the best available scientific information. For Tiers (2-4), a designation of the form “FX%” refers to the F associated with an equilibrium level of spawning per recruit (SPR) equal to X percent of the equilibrium level of spawning per recruit in the absence of any fishing. If reliable information sufficient to characterize the entire maturity schedule of a species is not available, the SSC may choose to view SPR calculations based on a knife-edge maturity assumption as reliable. For Tier (3), the term B40% refers to the long-term average biomass that would be expected under average recruitment and F=F40%.

Overfished or approaching an overfished condition

Overfished or approaching an overfished condition is determined for all age-structured stock assessments by comparison of the stock level in relation to its MSY level according to harvest scenarios 6 and 7 described in the next section (for Tier 3 stocks, the MSY level is defined as B35%). For stocks in Tiers 4-6, no determination can be made of overfished status or approaching an overfished condition as information is insufficient to estimate the MSY stock level. Based on this indicators it has been shown that there is no overfishing occurring in AK²⁶⁴.

References:

Non-Conformance Number (if relevant)

NA

²⁶⁴ <http://www.afsc.noaa.gov/REFM/Docs/2015/GOAintro.pdf>

Supporting Clause 12.12

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

FAO ECO (2011) 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Summary Evidence:

The U.S. Endangered Species Act is intended to protect species that are in danger of extinction throughout all or a significant portion of their range. The U.S. Fish and Wildlife Service (USFWS) and NMFS maintain lists of species threatened or endangered with extinction. These species receive legal protections that prohibit their “take” (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or attempt any of these) or destruction of habitat critical to their survival. Impacts from Alaska commercial halibut fisheries on threatened and endangered species is monitored and regulated by NMFS with cooperation by ADF&G. Exceedance of allowable take by participants in Alaskan commercial halibut fishery is subject to prosecution and severe penalties.

Regulations are in place to address endangered species interactions in the halibut fisheries. The IPHC, the NMFS, and ADFG promulgate these regulations through the Commission, the NPFMC, and the Alaska Board of Fisheries.

Evidence:

The U.S. Endangered Species Act is intended to protect species that are in danger of extinction throughout all or a significant portion of their range. The U.S. Fish and Wildlife Service (USFWS) and NMFS maintain lists of species threatened or endangered with extinction. These species receive legal protections that prohibit their “take” (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or attempt any of these) or destruction of habitat critical to their survival. Impacts from Alaska commercial halibut fisheries on threatened and endangered species is monitored and regulated by NMFS with cooperation by ADF&G. Exceedance of allowable take by participants in Alaskan commercial halibut fishery is subject to prosecution and severe penalties. Regulations are in place to address endangered species interactions in the halibut fisheries through promulgation of these regulations through IPHC, NOAA Protected Resources Division and ADFG.

The NOAA Alaska Regional Office Protected Resources Division (PRD)²⁶⁵ is responsible for implementing marine mammal conservation and recovery programs under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in close coordination with the State of Alaska and other partners.

PRD develops and implements conservation programs for marine mammals including whales, ice seals, harbor seals, northern fur seals, and Steller sea lions; develops and implements recovery programs for threatened and endangered species including Cook Inlet beluga whales, bowhead whales, North Pacific right whales, western Steller sea lions, and Arctic ringed seals; coordinates the Alaska Marine Mammal Stranding Network to respond to stranded or entangled marine mammals; consults with federal agencies to minimize the effects of proposed actions on threatened and endangered marine mammals and their critical habitat, such as oil and

²⁶⁵ <https://alaskafisheries.noaa.gov/pr>

gas development and coastal construction projects; develops and implements co-management agreements with Alaska Native organizations to cooperatively manage subsistence use of marine mammals; works collaboratively with stakeholders to implement guidelines and practices for marine mammal viewing to avoid harassment; conducts reviews to determine if species warrant protection under the ESA or if ESA-listed species no longer need such protection; and analyzes interactions between marine mammals and commercial fisheries to minimize adverse effects.

The Alaska Region (AKR) has also been actively addressing seabird incidental take in longline (hook-and-line) fisheries off Alaska since 1989. AKR seabird-related responsibilities and activities include: consultations under the Endangered Species Act, data collection by fishery observers, public and industry outreach and education, research, regulatory action, and participation in the development of actions to reduce the incidental take of seabirds in Alaska fisheries. The Alaska Region plays a proactive role in its coordination with local, regional, national, and international agencies, organizations, and experts in its efforts to reduce seabird incidental take in hook-and-line fisheries.

The short-tailed albatross (*Phoebastria albatrus*) is a listed species under the Endangered Species Act (ESA)²⁶⁶. Because the endangered short-tailed albatross (*Phoebastria albatrus*) occurs in areas where commercial fisheries occur off Alaska, NMFS engages in required section 7 Endangered Species Act (ESA) consultations with the U.S. Fish & Wildlife Service (USFWS), the federal agency with trust responsibility for seabirds. Short-tailed albatrosses have been observed from commercial fishing vessels off Alaska and several have been reported taken. The USFWS has issued Biological Opinions that address the potential effects of the Pacific halibut hook-and-line fishery and the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) hook-and-line groundfish fisheries on the endangered short-tailed albatross. The USFWS Biological Opinions state that these fisheries are not likely to jeopardize the continued existence of the short-tailed albatross. But because incidental take in the fisheries is possible, an incidental take limit has been established for each fishery. Every 2 years, beginning with 2016-2017, up to 6 short-tailed albatrosses are allowed in the BSAI and GOA groundfish hook-and-line or trawl fisheries. Up to 2 short-tailed albatrosses are allowed in the Pacific halibut fishery off Alaska. If either take limit were to be exceeded, NMFS would immediately re-initiate consultation with USFWS to consider possible modifications of the reasonable and prudent measures established to minimize the impacts of the incidental take.

Specific regulations to reduce the incidental mortality of, the endangered short-tailed albatross now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, have been shown to reduce seabird interactions when setting or retrieving gear.

References:	
Non-Conformance Number (if relevant)	NA

²⁶⁶ <https://alaskafisheries.noaa.gov/pr/seabird-bycatch-reduction-history>

Supporting 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 <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

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.

In 2010, an EFH 5-year Review evaluated new information on EFH since the EFH²⁶⁷ EIS, assessed information gaps and research needs, and identified whether any revisions to EFH were needed or suggested. Acting on this report, the Council initiated FMP amendments for all six Council FMPs, which updated several species descriptions, changed the HAPC process timing to occur simultaneously with each 5-year review, and revised EFH research priorities (implemented Oct 2012). The EFH review also identified that further investigation is needed for red king crab habitats, which the Council has been following up on a separate track.

Currently, the 2015 EFH 5-year Review is developing new analytical methods to describe EFH, updating the 2005 EFH Fishing Effects Model, and investigating non-fishing effects on EFH. EFH descriptions for all managed species within the Council’s six FMPs will be re-evaluated as part of the 5-year review. Since the 2010 EFH review, new habitat information is available that may allow EFH descriptions to be refined for some stocks. The EFH final rule identified four types of information on which to base EFH descriptions, categorized into levels:

- Level 1 – distribution data are available for some or all portions of the geographic range of the species
- Level 2 – Habitat-related densities of the species are available
- Level 3 – Growth, reproduction, or survival rates within habitats are available
- Level 4 – Production rates by habitat are available

Currently, stocks managed in the Council FMPs are all described either using Level 1 distribution data, or are stocks for which no EFH information is available at all. The technical subgroup for EFH description methodology is tasked with developing a methodology to apply level 2 and/or level 3 data to stocks that have additional information available. The subgroup will determine whether a different methodology is warranted for different FMPs, for example, groundfish, salmon, crab, or scallop species.

If the review indicates that substantial new information is available, the report will recommend potential revisions for each relevant FMP. For example, this could take the form of revised EFH descriptions for certain

²⁶⁷ <http://www.npfmc.org/habitat-protections/essential-fish-habitat-efh/>

stocks, or an update to the analysis of the effects of fishing or non-fishing on EFH. The Council will then consider this information, and initiate action (proposed FMP amendments) if it is warranted, or conclude that no further action is needed.

Potential outcomes of the 2015 5-year review

- New methodology for describing EFH with data other than distribution data
- New EFH descriptions for some stocks, for which more habitat information is available
- Updated habitat information on stocks in the FMPs
- A priority list of stocks habitat assessment
- Updated fishing effects model, may provide new information as to whether or not fishing may be having more than minimal and less than temporary effects on EFH
- A Council discussion of whether to identify HAPC priorities, and initiate a call for HAPC proposals
- Improved means to assess non-fishing effects on EFH
- Protection of vulnerable Habitats²⁶⁸

Structural habitat includes boulders, corals, anemones, kelp, and other living organisms attached to the ocean bottom. Because fishing gear has the potential to disturb structural habitat, regulations have been implemented to protect areas where this habitat type is known to occur. Vast areas of the North Pacific have been permanently closed to groundfish trawling and scallop dredging to reduce potential adverse impacts on sensitive habitat and to protect benthic invertebrates. These marine protected areas comprise a relatively large portion of the continental shelf, and in many respects, serve as marine reserves. In addition, fishery closures established in nearshore areas to reduce interactions with Steller sea lions have ancillary benefits of reducing habitat impacts as well.

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

Aleutian Islands

In February 2005, the Council adopted several new closure areas to conserve EFH. To minimize the effects of fishing on EFH, and more specifically to address concerns about the impacts of bottom trawling on benthic habitat (particularly on coral communities) in the Aleutian Islands, the Council took action to prohibit all bottom trawling in the Aleutians, except in small discrete “open” areas. Over 95% of the management area is closed to bottom trawling (277,100 nm²). Additionally, six Habitat Conservation Zones with especially high density coral and sponge habitat were closed to all bottom-contact fishing gear (longlines, pots, trawls). These “coral garden” areas, which total 110 nm², are essentially marine reserves. To improve monitoring and enforcement of the Aleutian Island closures, a vessel monitoring system is required for all fishing vessels in the Aleutian management area.

VMS in Alaska is a relatively simple system involving a tamperproof VMS unit, set to report a vessel identification and location at fixed 30-minute intervals to the NOAA Fisheries Office of Law Enforcement (OLE). VMS units transmit position information to a communications satellite. From the communications satellite, the vessel’s position is transmitted to a land-earth station operated by a communications service company. From the land-earth station, the position is transmitted to the communications service company, which in turn transmits the data to the NOAA OLE processing center. At the center, the information is validated and analyzed before being disseminated for surveillance, enforcement purposes, and fisheries management. Access to VMS

²⁶⁸ <http://www.npfmc.org/habitat-protections/>

data is gained through a secure, web-based system and viewable on a color chart on a computer monitor. NOAA OLE Special Agents and Enforcement Officers can monitor vessel activity from their computers. VMS can make it possible to leverage existing enforcement efforts. Knowledge about the location of the fleet can make it easier for the law enforcement personnel to enforce a wide range of fishery regulations.

Additionally, the Council adopted several new HAPCs. The Alaska Seamount Habitat Protection Area encompasses all 16 seamounts in Federal waters off Alaska, named on NOAA charts, of which one occurs in the Aleutian Islands (Bowers). Bottom-contact fishing is prohibited in this HAPC. The Aleutian Islands Coral Habitat Protection Area designates six areas where submersible observations of high density coral have been made. All bottom-contact gear (longlines, trawls, pots, dinglebar gear, etc.) is prohibited in these areas. The relatively unexplored Bowers Ridge is also identified as a HAPC. As a precautionary measure, the Council prohibited mobile fishing gear that contacts the bottom within this 5,286 nm² area.

Bering Sea

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

Gulf of Alaska

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

Additionally, the Council adopted several new HAPCs. The Alaska Seamount Habitat Protection Area encompasses all 16 seamounts in Federal waters off Alaska, named on NOAA charts, fifteen of which are in the Gulf of Alaska (Brown, Chirkikof, Marchand, Dall, Denson, Derickson, Dickins, Giacomini, Kodiak, Odessey, Patton, Quinn, Sirius, Unimak, and Welker). Bottom-contact fishing is prohibited in all of these HAPCs, an area which totals 5,329 nm².

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

Arctic

In 2009, an Arctic Fisheries Management Plan was implemented. The plan covers the Arctic waters of the United States in the Chukchi and Beaufort seas. Warming ocean temperatures, migrating fish stocks and shifting sea ice conditions from a changing climate may potentially favor the development of commercial fisheries. The plan establishes a framework for sustainably managing Arctic marine resources. It initially prohibits commercial fishing in the Arctic waters of the region until more information is available to support sustainable fisheries management (an area roughly 150,000 sq. nm²).

References:		
Non-Conformance Number (if relevant)		NA

Supporting Clause 12.14

There shall be outcome indicator(s) consistent with achieving management objectives that seek to avoid severe adverse impacts on dependent predators resulting from the unit of certification fishing on a stock under consideration that is a key prey species.

FAO ECO (2011) 41.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input type="checkbox"/>
Summary Evidence:				
<p>Pacific Halibut are not typically categorized as a key prey species for any single marine predator. Several comprehensive studies of the food web in various regions of the northern Pacific Ocean have not indicated that halibut are heavily utilized by any predator. Predation on halibut, especially by marine mammals, is apparently low, except in cases where the fish were attached to fishing gear. This is understandable, because adult halibut are large, active animals that would be difficult to capture in open water. Also, their bottom dwelling habits, generally in offshore areas, make them less accessible to predation than schooling, pelagic species.</p> <p>Pacific Halibut are not a key prey species; as such this Clause is NOT APPLICABLE.</p>				
Evidence:				
<p>Pacific Halibut are not a key prey species; as such this Clause is NOT APPLICABLE.</p> <p>Pacific Halibut are not typically categorized as a key prey species for any single marine predator. Several comprehensive studies of the food web in various regions of the northern Pacific Ocean have not indicated that halibut are heavily utilized by any predator. Predation on halibut, especially by marine mammals, is apparently low, except in cases where the fish were attached to fishing gear. This is understandable, because adult halibut are large, active animals that would be difficult to capture in open water. Also, their bottom dwelling habits, generally in offshore areas, make them less accessible to predation than schooling, pelagic species.</p>				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 12.15

There shall be outcome indicator(s) consistent with achieving management objectives that seek to minimize adverse impacts of the unit of certification, including any enhancement activities, on the structure, processes and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible. Any modifications to the habitat for enhancing the stock under consideration must be reversible and not cause serious or irreversible harm to the natural ecosystem’s structure, processes and function.

FAO ECO (2011) 36.9, 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence:				
<p>There is no evidence to suggest that either Pacific halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Pacific halibut.</p> <p>There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.</p>				
Evidence:				
<p>There is no evidence to suggest that either Pacific halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Pacific halibut.</p> <p>There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.</p>				
References:				
Non-Conformance Number (if relevant)				NA

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

No. Supporting clauses/sub-clauses	19
Supporting clauses applicable	0
Supporting clauses not applicable	19
Non-Conformances	0

Supporting Clause 13.1

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

FAO CCRF (1995) 9.1.2
 FAO Eco (2011) 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .			
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .			
References:			
Non-Conformance Number (if relevant)			NA

Supporting Clause 13.1.1

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

FAO CCRF (1995) 9.3.1
 FAO Eco (2011) 36.9, 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.2

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

FAO CCRF (1995) 9.1.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.2.1

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

FAO CCRF (1995) 9.1.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery and as a result there are no aquaculture developments; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery and as a result there are no aquaculture developments; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.3

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

FAO CCRF (1995) 9.1.5/9.2.5

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.4

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

FAO Eco (2011) 43

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery so there is no need to consider the separate contributions from aquaculture and natural production; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery so there is no need to consider the separate contributions from aquaculture and natural production; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.5

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

FAO Eco (2011) 41

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no evidence to suggest that either Pacific halibut, or species with similar biological characteristics, have benefitted from the use of artificial structures. The use of artificial structures is neither practical nor appropriate for Pacific halibut. There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE .				
Evidence: There is no use of artificial structures for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.5.1

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

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no introduction program for (including non-native species or genetically altered stocks) for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.				
Evidence: There is no introduction program for (including non-native species or genetically altered stocks) for the benefit of the north Eastern Pacific halibut stock; as such this Clause is NOT APPLICABLE.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.5.2

Steps shall be taken to minimize adverse genetic disease and other effects of escaped farmed fish on wild stocks.
 FAO CCRF (1995) 9.3.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Alaska Pacific halibut is not a farmed fish. There is no farming of Alaskan Pacific halibut with the potential to impact wild stocks; as such this Clause is NOT APPLICABLE .				
Evidence: Alaska Pacific halibut is not a farmed fish. There is no farming of Alaskan Pacific halibut with the potential to impact wild stocks; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.5.3

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

FAO CCRF (1995) 9.3.5

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: Alaskan Pacific halibut is not an endangered species. There is no need for research to develop culture techniques for the protection, rehabilitation and enhancement of the stock; as such this Clause is NOT APPLICABLE.				
Evidence: Alaskan Pacific halibut is not an endangered species. There is no need for research to develop culture techniques for the protection, rehabilitation and enhancement of the stock; as such this Clause is NOT APPLICABLE.				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.6

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

FAO CCRF (1995) 9.2.1

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: No aquaculture practices occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: No aquaculture practices occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.7

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

FAO CCRF (1995) 9.2.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: No aquaculture activities occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: No aquaculture activities occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.8

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

FAO CCRF (1995) 9.2.3

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.9

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

FAO CCRF (1995) 9.2.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: No aquaculture activities occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: No aquaculture activities occur for Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.10

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

FAO CCRF (1995) 9.3.2

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.11

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

FAO CCRF (1995) 9.3.3, 9.3.4

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
Evidence: There is no introduction of non-indigenous species for enhancement of Alaskan Pacific halibut; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.12

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

FAO Eco (2011) 36.8, 40

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.13

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

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

FAO Eco (2011) 38

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

Supporting Clause 13.14

In the case of enhanced fisheries, “stock under consideration” may comprise naturally reproductive components and components maintained by stocking. In the context of avoiding significant negative impacts of enhancement activities on the natural reproductive components of “stock under consideration”:

- naturally reproductive components of enhanced stocks shall not be overfished;
- naturally reproductive components of enhanced stocks shall not be substantially displaced by stocked components. In particular, displacement shall not result in a reduction of the natural reproductive stock component below abundance-based target reference points (or their proxies) defined for the regulation of harvest.

FAO Eco (2011) 39

Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Summary Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
Evidence: The Alaska Halibut Commercial fishery is not an enhanced fishery; as such this Clause is NOT APPLICABLE .				
References:				
Non-Conformance Number (if relevant)				NA

8. External Peer Review

8.1. Summary and Recommendation Peer Reviewer 1

I have reviewed the full assessment peer review report (hereafter the 're-assessment report') by Global Trust Certification Ltd for the Alaska Pacific Halibut Commercial Fishery (200nm EEZ). In general, I found that the re-assessment report was comprehensive, evidence-based, clearly written and thoroughly referenced. My specific comments, questions, and issues of concern are detailed in the following sections of this peer review report. However, none of the matters that I have identified are likely to amount a 'critical' shortcoming in the re-assessment process. Therefore, notwithstanding the concerns as detailed below, based on the evidence presented in the re-assessment report, I would concur with the conclusion of the assessment team that this fishery is in general conformity with the requirements of the RFM Standard v1.3.

8.1.1. Full Summary of Comments – Peer Reviewer 1

Background Section

Peer Review Comments:

Overall, the material presented in the Background Section of the report provides sufficient information to support a broad understanding of the Alaska Pacific halibut fishery. The Background Section adequately describes the development of the fishery and it serves to introduce the main management entities that are involved in managing the fishery. Management systems are adequately described. The illustrations, maps and tables given in the Background Section were informative. It would be helpful to also include a map showing relevant closure/preservation areas.

Assessment team response: Maps describing relevant closure/preservation areas in AK and specifically for Pacific Halibut are included in supporting evidence for subclauses 3.2.5 and 12.9 respectively.

It is suggested that the authors should update the list of acronyms to better reflect those that were used in the main body of the re-assessment report (many of the acronyms used in Section 7 do not appear in the list).

Assessment team response: List of acronyms was updated

It is also recommended that the authors should clarify the current status of the two non-conformities raised during the re-assessment (Are they both open or is the second one closed?). At a minimum, Section 'i' should be aligned with Section 6.1 and Section 9.

Assessment team response: Report was rewritten specifying that one non-conformance was closed (subclause 12.6) and one remains open: subclause (4.2).

In Section 6, the re-assessment report indicates that the objective of IPHC's harvest control rule is keeping the stock above 30% of its unfished level 80% of the time. The objective, as indicated in the rationale for clause 3.1, is to maintain a minimum female spawning stock biomass above 30% of the unfished biomass in each year in 75 out of 100 trials (i.e. 75% of the time).

Assessment team response: Sentence should be "IPHC's precautionary approach and harvest control rule have the objective of keeping the stock above 30% of its unfished level 80% of the time, based on scientific analyses. NPFMC determines the regulations for halibut". The 75% referred to in clause 3.1 pertains specifically to the Management Strategy Evaluation being conducted.

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.
<p>Peer Review Comments:</p> <p>Supporting clause 1.7: the RFM requirement is that procedures be 'in place' to keep CMMs under continual review. As noted in the rationale, the MSA specifies that reviews of LAPPs should occur no less frequently than once every 7 years. However the information presented indicates that the first formal review of the Halibut IFQ Program since its implementation in 1995 is only now being initiated by the NPFMC. This shortcoming would seem to be an information gap that could prevent the team from assigning the highest level of confidence to clause 1.7. Please explain why it was not the more appropriate to conclude "medium" confidence. [Note: the hyperlink provided does not redirect to a Council document showing scope of the proposed review of the IFQ Program]</p> <p>Additional text added to;</p> <ol style="list-style-type: none"> 1) explain why the IFQ program has not until now been subject to the formal review process specified under MSA and 2) to illustrate the fact that while this will be the first formal and comprehensive review of the IFQ program there have been numerous reviews and reports that provide relevant information with respect to specific provisions in the program (footnotes to five such reports added). 	
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.
<p>Peer Review Comments:</p> <p>Supporting clause 2.1: the rationale mentions that the Coastal Management Program for Alaska was not renewed in 2012. Since Fundamental Clause 2 speaks directly to participation of the fishery in an institutional framework for coastal management, and a Coastal Zone Management Program is typically one of the central institutions in such a framework, it seems important for the team to briefly expand here. Could the team explain why Alaska's CMP was not renewed? Are there any potential ramifications (or lack thereof) of non-renewal with respect to planning and permitting processes as they may affect sustainable development in the coastal zone in the context of the Alaska Pacific Halibut fishery?</p> <p>Text added to explain why Alaska's CMP was not renewed and to further clarify other state and federal environmental and resource laws that facilitate management organizations participation in coastal area management, decision-making processes and activities, in support of sustainable and integrated resource use.</p> <p>Supporting clause 2.2: It seems this clause is intended to focus on whether the fishery is represented in discussions about coastal issues that lie outside of the fishery under assessment. For example, RFM Guidance to 2.2 indicates that high confidence is expressly tied to "other activities related to coastal area management, planning and development." It is not clear from the rationale if/how the fishery itself would be represented in consultations relating to, for example, coastal zone planning and permitting of non-fishery developments.</p> <p>Text added for clarification: <i>"Representatives of the fisheries sector and fishing communities are consulted in the decision-making processes and in other activities related to coastal area management planning and development. This happens through the NEPA processes, and especially through the NPFMC as well as through public review processes organized by the NMFS. Please refer to previous Clauses in this section for further information and evidence."</i></p>	

Supporting clause 2.5: See comments on clause 8.1.2.

It is noted that the RFM requirement states that social impacts shall be considered during the evaluation of CMMs. If IPHC is the body vested with the authority to formulate CMMs (i.e. setting regulations; see clause 8.1) for Pacific halibut, then it stands to reason that IPHC is the agency that should be tasked with evaluating the cost-effectiveness and social impacts of proposed CMMs. However the rationale explains that NPFMC (and by extension NMFS) have an outsized role in evaluating potential impacts of CMMs. The evidence section may not adequately consider the extent of IPHC's mandate in the context of this clause. For example, there is no mention of the fact that IPHC currently lacks an economic evaluation of a scope which is sufficient to encompass the breadth of IPHC's charge. Does this undermine the arguments presented here which focus on national-level valuations? (also see related comments on clauses 2.5 and 12.10). Is this level of IPHC involvement sufficient to attain the 'high' confidence level of scoring?

[In the Alaskan halibut fishery there are systems that allow for socio-economic and cultural value assessments to be carried out. These assessments effectively assist decision making on resource allocation and use. According to "Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries in Alaska" v 1.3 the processes in place are sufficient to justify a high confidence level in this instance.](#)

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

Peer Review Comments:

Supporting clause 3.1: The requirement here is that long term objectives for the fishery are translated into a plan. However the rationale indicates that IPHC itself has not formulated a fishery management plan for Pacific halibut. Rather, planning was inferred by the team to be subsumed under the GoA and BSAI groundfish FMPs as put forward by NPFMC. But if the Commission is the entity with vested authority for fishery management planning and for the setting long-term objectives for the fishery, then is it reasonable/appropriate for the IPHC to defer those responsibilities to subsidiary bodies (i.e. NPFMC or NMFS)? Doesn't this situation create a gap in the planning process for management of Alaska Pacific halibut?
[Text added to supporting evidence for clarification.](#)

A related point - the rationale for clause 3.1 indicates that IPHC has formulated 'overarching objectives' and a set of working management objectives. IPHC will undertake a management strategy evaluation (MSE) with input from a Management Strategy Evaluation Board (MSAB). The ongoing nature of this work, however, implies that IPHC has not yet implemented clear, long-term objectives for management of the Alaska Pacific Halibut fishery. Elsewhere, the re-assessment report makes it explicit that IPHC's management objectives are interim "candidate" objectives (e.g. see evidence section for clause 8.1.3). Please explain how this situation meets a scoring level of 'high' rather than 'medium' confidence.

[Text added to supporting evidence for clarification.](#)

Supporting clause 3.2.4: The evidence section relies heavily on a line of reasoning that CMMs which derive from the BSAI and GoA groundfish FMPs will ensure that the biodiversity of aquatic habitats and ecosystems are conserved. However those FMPs do not directly encompass the Pacific halibut fishery. Can we safely assume that the beneficial conservation impacts from groundfish FMPs will be extended to halibut? (Also see clause 8.1.2).

[Text added for clarification. NPFMC's BSAI and GOA groundfish FMPs identify aquatic habitats and ecosystems and endangered species with the potential to be adversely impacted by fishing activity in Alaskan waters. Where relevant, the FMPs include objectives, and as necessary, management measures to protect vulnerable habitats, ecosystems and species. While the BSAI and GOA FMPs do not directly encompass the Pacific halibut fishery, objectives within them relating to the conservation of aquatic habitats, ecosystems and endangered](#)

species apply equally to all fisheries. For example while the specific impacts of halibut fishing on a HAPC might not be incorporated in either FMP, the prohibition of all bottom contact gears including longlines, in an area imparts *de facto* protection from potential impacts by the halibut fishery.

Supporting clause 3.2.5: Regarding the objective to avoid, minimize or mitigate impacts on essential habitats, the evidence clearly supports the Council pursuing this objective in a general sense (i.e. for groundfish fisheries via the implementation of groundfish FMPs). But it is unclear from the evidence provided that this requirement has been met for the stock under consideration (i.e. the eastern north Pacific stock of Pacific halibut). From the rationale, it would appear that no EFH has been formally identified or defined for Pacific halibut in US waters off Alaska. Area closures and designated HAPCs may benefit halibut, but it is unclear whether or not and to what extent halibut EFH falls within those closed areas.

Text added for clarification.

Additionally, the evidence section of 3.2.5 notes that EFH is not explicitly defined for halibut but “halibut could be expected to benefit from the protection afforded to other species with similar life histories or occupying similar habitats.” Please provide further detail on the quantity/extent of EFH that would fulfil this expectation of being afforded protection owing to an association of species with similar life histories to Pacific halibut.

Figures and text added for clarification and text modified to remove “with similar life histories or occupying similar habitats”.

Also, the reference in 3.2.5 to Figure 5 is incorrect. The figure does not show a crab savings area or a halibut no-take area. It does show a “Closed Area” but gives no further explanation.

Figure title updated to clarify the fact that the closed area depicted in the map is the IPHC Bering Sea Closed Area, an area closed to directed fishing for halibut.

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:

Supporting clause 4.1: the rationale identifies giant grenadier as “one of the key by-catch species in halibut longline fisheries” but this species is not discussed in the evidence section of supporting clause 12. 4 or other clauses relating to impacts on non-target species. Nor was giant grenadier identified as a significant component in the list of bycatch species presented by FVOA or NOAA (Section 9 of the re-assessment report). Please reconcile using quantitative information.

Text was revised to: By-catches in the directed halibut fishery are recorded by observers and reported through the NMFS CAS. Most of bycatches include sharks, skate, sculpins, and rockfish species. More information on bycatch species is contained in Clause 12.2.

Supporting clause 4.2, Minor non-conformity #1: The assessment team’s finding seems justified based on the evidence (or rather the lack thereof) that was available to them at the time of audit. The grading of the nonconformity appears to be consistent with RFM Guidance on Scoring. The proposed corrective actions (Section 9) seem reasonable and appropriate. Therefore no changes are recommended by the reviewer.

Supporting clause 4.6: The rationale provided speaks to the inclusion of data derived from Small Scale/Personal use fisheries. Without doubt this information is needed for stock assessments. But the

<p>rationale does not focus on the central matter of the clause: if/how agencies have considered traditional fisheries knowledge or technologies as they might apply to fishery management practices themselves. Addressed with additional text in Section 4.6.</p>	
5.	<p>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.</p>
<p>Peer Review Comments: None</p>	

C. The Precautionary Approach	
6.	<p>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.</p>
<p>Peer Review Comments: None</p>	
7.	<p>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.</p>
<p>Peer Review Comments: None</p>	

D. Management Measures	
8.	<p>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.</p>
<p>Peer Review Comments: Supporting clause 8.1.2: It is noted that the RFM requirement states that social impacts shall be considered during the evaluation of CMMs. If IPHC is the body vested with the authority to formulate CMMs (i.e. setting regulations; see clause 8.1) for Pacific halibut, then it stands to reason that IPHC is the agency that should be tasked with evaluating the cost-effectiveness and social impacts of proposed CMMs. However the rationale explains that NPFMC (and by extension NMFS) have an outsized role in evaluating potential impacts of CMMs. The evidence section may not adequately consider the extent of IPHC’s mandate in the context of this clause. For example, there is no mention of the fact that IPHC currently lacks an economic evaluation of a scope which is sufficient to encompass the breadth of IPHC’s charge. Does this undermine the arguments presented here</p>	

<p>which focus on national-level valuations? (also see related comments on clauses 2.5 and 12.10). Is this level of IPHC involvement sufficient to attain the 'high' confidence level of scoring? Re-arranged text of 8.1.2 to emphasize IPHC involvement, and included some detail on the IPHC economic study announced in 2015 (also covered in detail in Clause 12.10). This should provide supporting evidence to justify the "high" rating here.</p> <p>Supporting clause 8.9: The rationale relies on evidence that longline gear is not associated with as much ghost fishing as some other fishing gears. While it is accurate that lost longline gear is less problematic than some other types (e.g. pots and traps), the rationale provided does not address the core issue of the requirement: what technologies and methods are used to minimize gear loss? And what precautions are taken to minimize a potential ghost fishing effect should longline gear become lost or abandoned? Added some text here to discuss effects of eliminating derby fisheries on reducing amount of gear used, and thus the amount of lost gear. Added some additional text as well.</p>	
9.	<p>Fishing operations shall be carried out by fishers with appropriate standards of competence in accordance with international standards and guidelines and regulations.</p>
<p>Peer Review Comments: None</p>	

E.	<p>Implementation, Monitoring and Control</p>
10.	<p>An effective legal and administrative framework shall be established and compliance ensured through effective mechanisms for monitoring, surveillance, control and enforcement for all fishing activities within the jurisdiction.</p>
<p>Peer Review Comments: Supporting clause 10.1: The rationale does not adequately consider/describe the effectiveness of VMS as a mechanism for monitoring, surveillance, control and enforcement of conservation and management measures (e.g. area closures). Which agency is tasked with collecting and reviewing VMS data and how does this relate to the Alaskan Pacific halibut fishery? Are compliance levels reasonable? New test was added to explain the VMS program on clause 10.1</p> <p>Supporting clause 10.1: As evidence for effective monitoring, surveillance and enforcement, the report indicates that OLE has 19 patrol boats around the country. Of greater relevance here, how many OLE patrol vessels are operating within Alaskan waters? Additional information was added: There are currently 9.</p>	
11.	<p>There shall be a framework for sanctions for violations and illegal activities of adequate severity to support compliance and discourage violations.</p>
<p>Peer Review Comments: None</p>	

F.	Serious Impacts of the Fishery on the Ecosystem
12.	<p>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.</p>
<p>Peer Review Comments:</p> <p>Supporting clause 12.2: In the evidence section for habitat impacts, it is stated that “In a NMFS report on a working group reviewing ghost fishing, the group determined that longline gear garnered a “Low Priority Recommendations” when compared to pot and net gears.” It is noted that this citation refers to a NMFS workshop held in 1989. Does this “low priority classification still reflect current NMFS views on the subject? Have more recent studies assessed impacts of lost longline gear in more quantitative terms? Additional text included reference to more recent studies.</p> <p>Supporting clause 12.2: The evidence section indicates that “The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the benthic longline fishery has minimal or temporary impacts on halibut habitat.” Has this EIS been reviewed/updated since 2005? Additional text included reference on the latest status of the 2015 EFH 5 year review. Around the time of this report was completed the document is still under review.</p> <p>Supporting clause 12.3: The list of species does not include grenadiers as mentioned under clause 4.1. Please reconcile.</p> <p>Supporting clause 12.3: The rationale says that “There is no evidence to suggest that overfishing is occurring for any shark species in the BSAI or GOA.” Please provide a source reference for this statement. Also please clarify whether the same can be said for skates (e.g. longnose, Alaska, big skates) which are taken as bycatch in the directed halibut longline fishery. References were provided using the links from the NPFMC page on the stock assessments.</p> <p>Supporting clause 12.5: The last paragraph of the evidence section focuses on management of non-target species in the directed halibut fishery. The team concludes is that the majority of bycatch is comprised of Pacific cod and spiny dogfish. However available data from IPHC surveys indicates that sleeper sharks (<i>Somniosus pacificus</i>) are likely to be a significant component of bycatch of the longline fishery in some areas (3B, 4B, and 4D). Skates (longnose, Alaska) may also comprise a significant proportion of the bycatch. Please provide additional discussion of the status of these taxa and how they are managed by NPFMC in relation to overfishing limits (OFLs), allowable biological catch (ABCs), or comparable limits. References were provided using the links from the NPFMC page on the stock assessments.</p> <p>Supporting clause 12.6: The team raised a minor non-conformity against clause 12.6 because there is a lack of observer coverage on vessels <40ft LOA, and as such the observer scheme does not sufficiently monitor and account for non-target catches by this sector of the commercial Pacific halibut fleet. Subsequently, the team closed the minor NC after reviewing additional information that was submitted by FVOA and NOAA. It would be helpful for the reader if the report made a reference to the supplementary material (i.e. see appended material in Section 9). References were provided using the links from the NPFMC page on the stock assessments.</p> <p>Supporting clause 12.9: The evidence section concludes with a listing of six protection/ conservation/closure areas in Alaskan waters that were reportedly established “to protect halibut EFH from fishing threats”. Some of these areas closures were enacted to protect corals (e.g. the AI Coral Habitat Protection Areas). Please</p>	

clarify what is meant by 'halibut EFH', and how this relates to habitat types encompassed within the aforementioned protection areas.

The whole section was deleted and rewritten again emphasizing on adding information on Pacific halibut most important habitats for their entire life history and effort to conserve their most important habitats.

Supporting clause 12.10: The evidence section summarizing studies of socioeconomic impacts includes a passage (2nd paragraph) which indicates that not all sectors of the halibut fishery have been examined together in a comprehensive way and most of the direct economic data do not reach beyond the ex-vessel or wholesale price level. Based on the rationale presented in this paragraph, one could conclude that Clause 12.10 has not been met with high confidence. The apparent gap has prompted IPHC to initiate a socio-economic study. Given this situation, is it appropriate to conclude that research into social impacts of the halibut fishery on coastal fishing communities is sufficient?

The Assessment team does not agree with the conclusions of the reviewer. There have been a plethora of previous studies on the socio-economic impacts of the halibut fishery from academia:

- C. Carothers. 2013. A survey of US halibut IFQ holders: Market participation, attitudes, and impacts Marine Policy. 38:515-522.
- M. J. Peterson and C. Carothers. 2013. Whale interactions with Alaskan sablefish and Pacific halibut fisheries: Surveying fishermen perception, changing fishing practices and mitigation Marine Policy. 42:315-324.
- C. Carothers, D. K. Lew and J. Sepez. 2010. Fishing rights and small communities: Alaska halibut IFQ transfer patterns Ocean & Coastal Management. 53(9):518-523. doi: 10.1016/j.ocecoaman.2010.04.014 <Go to ISI>://000283018800003
- Carothers, C. 2007. Harvesting the future: Alaska's fishing communities. Impacts of halibut IFQs and changing Kodiak communities. Ed. Cullenberg, Paula. Alaska Sea Grant College Program.

And from IPHC and AKFSC Socio-economic studies group.

Previous AFSC Research Related to Pacific Halibut

- *Sport Fishing Economics*: AFSC surveyed Alaska saltwater anglers in 2007 and 2012 and estimated (1) demand for and economic value of saltwater sport fishing trips for halibut, salmon, and other primary sport fish species, (2) the value of charter boat fishing trips targeting halibut under alternative harvest restrictions for halibut (e.g., bag/possession and size limits). Economic impacts associated with changes to angler harvest restrictions were estimated.
- *Economic Impacts of IFQs*: The AFSC and UC Davis researched the economic efficiency impacts resulting from features of the Alaskan halibut and sablefish individual fishing quota (IFQ) program, such as blocking and vessel class restrictions on quota share.
- *Charter Boat Economics*: AFSC conducted surveys of Alaska charter boat businesses to study the economics of the guided sport sector. Collected costs, earnings, and employment information were collected for the 2011-2013 fishing seasons. Population-level estimates for total costs, revenues, and employment were generated to provide information about the sector; firm-level modeling is expected to provide insights into how behavior may change under alternative management actions.
- *Catch share evaluation*: An extensive set of economic data tables on halibut was reported in the 2013 Economic SAFE. (Section 4, Tables 51-63); economic performance metrics for the halibut IFQ program were calculated and reported in the 2013 Economic SAFE (Section 7.2).

Current Studies by AKFSC and IPHC

- *Socioeconomics of quota leasing market*: Under the Halibut Catch Sharing Plan (CSP) that formalizes the process of allocating catch between the commercial and charter sectors, there is now an allowance for leasing commercial halibut quota by eligible charter businesses to relax harvest restrictions for their angler

clients. A survey developed by the AFSC will be fielded in 2015, collecting data from the eligible participants in this market to determine their attitudes towards, and behavior in, the lease market and attitudes and preferences towards alternative programs.

- *Socioeconomics of charter boat fisheries:* The AFSC is conducting an ongoing survey of anglers who utilize the for-hire charter boat recreational fishing sector in Alaska that is being subjected to new bag/possession and halibut size limits. The goal is to provide insights into how economic values for charter boat fishing trips are affected by these regulations.
- *Impacts of active participation measures:* The AFSC is assessing the impacts of active participation measures in the Alaskan halibut and sablefish individual fishing quota (IFQ) program, including a prohibition on IFQ leasing, limitations on the acquisition of quota shares by non-individual entities (corporations, partnerships, etc.), and restrictions on the use of hired skippers

The IPHC is overseeing a comprehensive study on the economic impact of the halibut fishery which started on 2015 and will be completed on 2017. Therefore the assessment team believes there is enough evidence to support subclause 12.10

Supporting clause 12.11: The RFM requires evidence of ‘outcome indicators’. The evidence section elaborates on a strategy for managing non-target species but it does clearly identify ‘outcome indicators’ (e.g. reference points, abundance indices, overfishing limits, TACs, etc) for the relevant non-target species.

[Information on most common outcome indicators for status of bycatch species](#)

Supporting clause 12.11: Please provide a citation for the statement which appears twice in the rationale “There is no overfished species and overfishing is not occurring in Alaskan waters.”

[Citation was provided using some links of the Stock assessments summary found on the NPFMC website](#)

Supporting clause 12.12: The rationale says “Every 2 years, beginning with 2016-2017, up to 6 short-tailed albatrosses are allowed in the BSAI and GOA groundfish hook-and-line or trawl fisheries” and “Up to 2 short-tailed albatrosses are allowed in the Pacific halibut fishery off Alaska.” This seems to be inconsistent with supporting clauses 12.2 and 12.3 which indicate that there is a limit on takes of ST Albatross of four per two year cycle.

[Paragraph was revised on clauses 12.2 and 12.3 reflecting changes for the 2016-2017 fishing season.](#)

Supporting clause 12.13: The rationale indicates that a vessel monitoring system (VMS) is used to improve monitoring of closures in the Aleutian Islands. However there is no indication of how the VMS data are utilized, by whom, and whether those data indicate generally acceptable levels of compliance with area closures. Also see comments under supporting clause 10.1 regarding the use of VMS to ensure compliance with CMMs

[More detailed information was included on VMS and their current utilization on enforcement of fisheries resources in AK.](#)

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

Peer Review Comments:

None

8.2. Summary and Recommendation Peer Reviewer 2

Overall the assessment team was thorough and documented the performance of the Alaska Pacific Halibut Commercial Fishery (200 nm EEZ) for compliance and justified the recommendation of continuing certification. My response below will document my general and specific comments to each of the criteria of conformance. The assessment team provided a rigorous and sufficiently critical analysis of the Alaska Pacific Halibut Commercial Fishery (200 nm EEZ). I was especially impressed with the depth of investigation for each of the six focus areas – Mateo et al. had a keen attention to detail and their knowledge of the dynamics of the stock, the ecosystem ramifications, the management setting, and history and conditions of the stock and fishery were clear and well communicated. Because of the thorough nature of the review, no additional clarification was needed by me and no additional supporting information was needed. Given the information provided to me in the report, the appropriate conclusion has been reached and the Alaska Pacific Halibut Commercial Fishery (200 nm EEZ) should be recertified.

The corrective action plan for the non-conformance is reasonable and will be implemented in a reasonable time frame.

8.2.1. Full Summary of Comments – Peer Reviewer 2

Background Section

Peer Review Comments:

The background section provided was thorough and concise. The review team outlined the positive aspects of the fishery including the strong management system which is supported by local, state, federal and international conventions. The fishery is assessed and managed through a variety of agreements at various levels of jurisdiction and stakeholders, including rural and native peoples, are included in the process. With the exception of two minor conformance issues addressed by the assessment team the fishery and management system show compliance at the level of “High” for each of the assessment criteria, and I agree with the assessment team that this is the case. The fishery management system, the International Pacific Halibut Commission and the Magnuson-Stevens Fishery Conservation and Management Act are legitimate and internationally recognized entities for fishery management. These systems incorporate ecological, social, and economic impacts of the fishery into their management paradigm. Although the stock has witnessed reduction in spawning stock biomass, management has responded in a precautionary way to reduce harvest of the stock. The assessment that the harvest control rules are based on are rigorous and use a novel multi-model approach that is peer reviewed by NOAA fisheries personnel and from international experts. These aspects of the dynamics of management were well presented and provided sufficient evidence to make an informed judgement about the recertification of the stock.

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.
<p>Peer Review Comments:</p> <p>The fishery management system for the Alaska Pacific Halibut Commercial Fishery (200 nm EEZ) is an internationally recognized model for multijurisdictional management. The federal management of the stock must comply with state and federal regulations, notably the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The primary facets of the MSA are to prevent overfishing, rebuild overfished stocks, increase long-term economic and social benefits, and to ensure a safe and sustainable supply of seafood. The hallmarks of this management process, at the federal level and through the North Pacific Fishery Management Council is that the decision making process is transparent to stakeholders, uses peer-reviewed and “best available” science and models for assessment, and engages with fishing sector stakeholders in order to make robust and enforceable management decisions. Similarly, the Canadian-United States trans boundary management entity, the International Pacific Halibut Commission is mandated to conduct research and implement management of the Pacific halibut stock in the region of certification and the wider trans boundary region. There is high conformance and high confidence in the fishery management system for this stock.</p> <p>No response required.</p>	
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.
<p>Peer Review Comments:</p> <p>The nine applicable supporting causes provide sufficient evidence to conclude that the management organizations concerned with management of the Alaska Pacific Halibut Commercial Fishery (200 nm EEZ) are active and effective in to support sustainable use of the resource, engage with fishers and stakeholders regarding decision-making, avoid conflicts (especially trans boundary conflicts), and is a critical participant in coastal area management. NOAA Fisheries, the North Pacific Fishery Management Council (the Council) and International Pacific Halibut Commission act cooperatively to assess, direct research, and manage the resource. Like all US EEZ fisheries, the Alaska Pacific Halibut stock is subject to the mandates of the MSA which mandates the council system. A key aspect of the MSA is ensuring that the stock is sustainably managed and mandates, through federal statute, that management serves to prevent overfishing and if the stock is overfished, to rebuild them. The management process of the Council is open to the public and fishery managers, assessment scientists, fishing organizations and their representatives are actively involved and engaged in the management process. Information is disseminated a variety of outlets. There is an established dispute resolution system at the Council level and when necessary resolution to intractable disputes can be sought in the U.S. federal court system. The assessment team notes that the advent of the IFQ has served to Regarding the support of sustainable and integrated use, state and federal programs including the Western Alaska Community Development Quota System, subsistence halibut fishing by rural and Alaska native persons (for non-commercial use) and coordination with tribal authorities are in place to ensure that historical and established claims by stakeholders are respected. Each of the management system are effectively resourced through monies received from their respective governments. Assessment of the economic status of the fishery is a major research effort by NOAA Fisheries’ scientists. Of primary interest is the socioeconomic impact of management to stakeholders and to understand this efforts have been undertaken to understand</p>	

the social and economic status of coastal and rural communities and to inform managers about the reliance of the community members to fishing

[No response needed by the Assessment Team](#)

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

Peer Review Comments:

The Council system, under the directive of the MSA, serves to establish fishery management plans for all stocks under its purview. Fishery management plans include scientifically and stakeholder supported management objectives. The long term management objectives for the Gulf of Alaska and Bearing Sea and Aleutian Islands ground fish (taxa that includes Pacific Halibut) are generally consistent with those of other Councils; that is to prevent overfishing, consider ecosystem effects of directed and incidental removal, promote equitable use among stakeholders, and continually improve the data collection and monitoring systems. These objectives, in terms of stock sustainability for the Pacific Halibut have been developed using a risk-based approach where simulation is performed. Manage. Management serves to balance the risk to the stock with the desire of the stakeholders. A major step for ensuring sustainability and to reduce user conflicts was the imposition of the IFQ system in the fishery, this has led to a reduction of capacity and eliminated the de facto promotion of the “race to fish”. The economic conditions of the fishery are evaluated frequently to ensure that they are not in conflict with the sustainability of the stock. A unique feature of the geographic setting of the Pacific Halibut fishery is the variety of stakeholders, including subsistence and native fishers. A major focus of management is to ensure access to fishing to these groups. The fishery management system is comprehensive and includes ecosystem-level targets including protection of marine mammals and sea birds and protection of habitat from damage by derelict or active fishing gears

[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 assessment team outlined ten supporting clauses to support effective data collection and analysis and in general, with the exception of one non-conformance, these data are adequate for determination of the fishery and stock status. Fishery removals are documented in each sector of the stock and includes the recreational, commercial, “wastage”, bycatch, and personal use and subsistence. The methods of data collection include log books, trip tickets, dealer reports, portside sampling, and participant supported electronic monitoring. Bycatch is monitored though an observer program. These data are compiled into accessible (by the relevant management agencies) data bases following international standards. Although some data are confidential they are available upon request. Data collection and analysis of the stock is coincident with the geographic range of the stock – the Pacific Halibut is a unit stock and data are collected throughout its range. Although the observer program is adequate for on portion of the sector it neglects to monitor small vessels (those < 40’) and this is a recognized non-conformity. This portion of the commercial sector comprises about 20% of the commercial fishery.

In addition to the data collection activity, research and support has been made to promote Pacific Halibut and to understand the social and economic aspects of the fishery, and efforts have been made to understand the economic impact of the fishery to the state of Alaska.

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:

The assessment team at the IPHC is regarded as a world class assessment agency that employs a number of talented scientists to conduct their peer review. The assessment framework employed is rigorous, robust and peer reviewed. Data are sufficient for assessment (using four separate models) and assessment efforts inform the necessary research recommendations such that the research directed by the assessment efforts help to inform future assessment. Research effort and funds are administered by a variety of federal efforts concentrating on the ecosystem and the stock under consideration and include understanding the role of climate change and variability and the role of Pacific Halibut in the ecosystem. The research produced is subject to review and in the case of scientific literature, peer-reviewed.

The assessment efforts have led to the implementation of harvest control rules are consistent with a precautionary approach and are defined such that the effort controls are imposed when the limit reference points are approached. The associated risks have been evaluated using simulation models and currently the stock is managed at fishing mortalities considered to be at or below target levels. If the stock is reduced below limit reference point of 20% unfished biomass, the fishery will be closed.

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:

The harvest control rule implemented by the IPHC is to keep the stock at 30% above its unfished level, 80% of the time. Closure of the fishery is triggered if the stock is reduced below limit reference point of 20% unfished biomass. The stated goal of the harvest control rule is to manage the stock at catch levels below MSY but promote inter-annual catch stability through a principal of “constant exploited yield”. This management policy, with appropriate triggers and rules, is sufficiently cautionary for sustainable management of the stock. The precautionary approach is implemented in IPHC and also at the ecosystem level in the two fisheries management plans. These plans address the role of the stock in the ecosystem, the deleterious impact of removal, and damage to habitats (not an issue in the gear employed in this fishery) that may occur due to long line activity this includes incidental mortality to seabirds and mammals. Alternative management, to the current IFQ system, is in review.

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:
 The multi-model approach used for assessment and to direct management of the stock admits to the inherent uncertainty in the data and the processes that determine the population dynamics of the stock. These models inform the fishery status and determine if the stock has exceeded the limit reference point. Closure of the fishery is triggered if the stock is reduced below limit reference point of 20% unfished biomass.
[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:
 The IPHC assessment is peer-reviewed, robust and well informed. By objective standards the harvest control rule is well supported by sufficiently complex and adequate scientific advice that takes into consideration uncertainties associated with data and model selection.
[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:
 The IPHC imposes a barrier to entry such that fishers applying for an IFQ must have sufficient experience (minimum 150 days). Additionally, fishers make use of safety and skills workshop offered to them through outreach efforts by the state of Alaska and University outlets.
[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:
 Compliance to regulations through monitoring, enforcement, and surveillance are adequate in the fishery. Federal (NMFS Office of Law Enforcement and the Coast Guard) and state (Alaska Wildlife Troopers) law enforcement agencies are tasked with ensuring compliance by the participants in the fishery. IFQ and applicable size limits are enforced through these agencies, which are sufficiently funded and have as their priority the enforcement of fishery regulations.

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.
<p>Peer Review Comments: The enforcement policy of the MSA is tiered and enforcement actions coincide with the severity of the violation. Penalties may include fines, revocation of licence, asset forfeiture, or criminal prosecution. The state of Alaska and the federal government of the United States enforces fishing regulations. No response required.</p>	

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.
<p>Peer Review Comments: The impact of harvest of Pacific Halibut from the Gulf of Alaska and Bearing Sea and Aleutian Island ecosystem as well as the impact of climate variability and change is assessed through a variety of research programs that are documented in the assessment. These research efforts serve to understand the trophic, climatic, ecological, and climate influences on the Pacific Halibut stock. A primary threat to the ecosystem in some fisheries is the impact on the habitats, non-targeted species, and marine mammals. The impacts to species of concern are minimal in this fishery given the type of gear employed and the use of streamers and night setting for example. These potential impacts to endangered mammals and birds are well monitored by on-board observers. The issue of incidental capture and non-monitoring of the portion of the commercial sector from small boats (< 40') remains an outstanding need to be addressed by the fishery. A major recent focus of conservation efforts has been assessing the stock under consideration as forage – it is likely not except for depredation events by marine mammals. Habitat damage by the gear is considered minimal. No response required.</p>	
13.	Where fisheries enhancement is utilized, environmental assessment and monitoring shall consider genetic diversity and ecosystem integrity.
<p>Peer Review Comments: None</p>	

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.

Low Confidence Rating (Critical Non-Conformance level)

Information/evidence is completely absent or contradictory to demonstrating compliance of an element of a fishery to the given requirements of a supporting clause. In these cases, a low confidence rating, equivalent to a critical non-conformance is assigned. Alternatively, any non-conformance assigned to any Section A to F, above the designated maximum permitted of 1 major non-conformance or 3 minor non-conformances will also result in the assignment of a critical non-conformance (at Section level). A critical non-conformance will essentially stop the assessment (not allowing for certification) unless the applicant is able to provide information/evidence that demonstrates a better state of the fishery than previously assessed. The Validation Report activities are designed to determine if critical non-conformances within the Applicant Management System are likely before proceeding with the assessment. Notwithstanding this, the option of assigning critical non-conformances remains available to the Assessment Team if there is merit for this decision to be taken.

Medium Confidence Rating (at Major Non-Conformance level)

Information/evidence is limited that demonstrates compliance of an element of the fishery to the given requirements of a supporting clause. In these cases a major improvement is needed to achieve high conformance and for a medium confidence rating at this level, a "major non-conformance" is assigned.

Medium Confidence Rating (at Minor Non-Conformance level)

Information/evidence is broadly available that demonstrates conformity to a clause although there are some gaps in information/performance that if available would clarify aspects of conformity and allow the Assessment Team to assign a higher level of confidence. In these cases a minor improvement is needed to achieve high conformance and for a medium confidence rating at this level, a "minor non-conformance" is assigned.

High Level of Confidence

Where the Assessment Team agrees that sufficient information/evidence is available to demonstrate conformance/performance to a given supporting clause, a high level of confidence is assigned. Sufficient evidence is that which allows, through expert opinion of the collective team, substantiation that a given element of a fishery, complies fully with the Alaska Responsible Fisheries Management Standard Conformance Criteria.

9.1. Non-conformances

In the course of the reassessment 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.

As a result, two **MINOR** non-conformances were issued:

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

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

A corrective action plan from the client shall detail;

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

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

Non-target catches, including discards, of stocks other than Pacific halibut are monitored and likely do not threaten these non-target stocks with serious risk of extinction, recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently monitor and account for non-target catches by the <40ft LOA sector of the commercial Pacific halibut fleet.

9.2. Corrective Actions

Letter from FVOA in response to non-conformance #1.

October 20, 2016

Mr. Ivan Mateo, Ph.D.
Lead Assessor & Team Leader
SAI Global Assurance Services
3rd Floor, Block 3
Quayside Business Park, Mill Street
Dundalk, County Louth, Ireland

RE: **Corrective Action Plan for Pacific Halibut off Alaska**

Dear Dr. Mateo:

The following are Eat on the Wild Side's (EOWS) administered by Fishing Vessel Owners' Association (FVOA) comments and corrective actions to address concerns your team has identified with the "gap on data information from the under 40 foot class size of vessels" in the halibut fishery.

Both the National Oceanic and Atmospheric Administration (NOAA) and the North Pacific Fishery Management Council (NPFMC) have acknowledged this same data gap. These agencies are developing strategies to address this data gap with the use of Electronic Monitoring (EM) requirements. NOAA/NPFMC would like to move forward with coverage on the under 40' size class of vessels for the 2018 fishing season. They are currently deploying EM units for the first year on approximately 90 vessels in 40' to 57.5' class. Expansion plans for the under 40 foot fleet are next.

Representatives of the Client, EOWS/FVOA, are members and/or attend the Observer Advisory Committee (OAC) for the NPFMC. They will promote this goal of EM usage for the under 40' fleet and report back to Global Assurance on the progress towards EM implementation on the under 40' fleet. The NPFMC/NMFS will provide to the public by June 2017 their annual report for the 2016 season as well as updates on EM implementation for 2017. The client will provide a synopsis of the report relative to EM implementation for 2017. The NPFMC will conduct a fall 2017 review for changes and new coverage limits on the different fleets as well as EM requirements for 2018. The client will provide a synopsis of the meeting and reports relative to fleets EM usage following the fall Observer Advisory Committee meeting. The client will also provide a synopsis of the spring 2018 annual report relative to EM.

With respect to concerns that without EM or observer coverage on the under 40' halibut fleet that there could be undue risks to bycatch species, we provide the following comments.

Dr. Ivan Mateo
 October 20, 2017
 Page 2

We are attaching from the NMFS observer records that show the groundfish bycatch, which occurs in the directed halibut fishery in the Bering Sea and Aleutian Islands, and separately the same for the Gulf of Alaska. The NMFS bycatch numbers are inclusive of estimates for the under 40' halibut fleet. We are also attaching the Bering Sea/Aleutians and Gulf of Alaska species that have Over Fishing Limits (OFL); Allowable Biological Catch (ABC's) levels, and Total Allowable Catch amounts (TAC's. These are from the 2013, 2014 and 2015 fishing seasons. The groundfish catches in the Bering Sea & Aleutians by the directed halibut fleet are very low relative to the OFL, ABC's and TAC levels. For example, we have listed the five fish species of most concern caught by the directed halibut fleet for each geographical area. Clearly, there is no risk to these resources from undue harm from the directed halibut fleet. The unobserved under 40 foot fleet harvests approximately 20% of the halibut off Alaska and we have assumed they account for 20% of the bycatch of groundfish species in the tables that follows.

2016 Examples from BSAI	Arrowtooth Flounder	Pacific Cod	Skates	Sharks	Octopus
OFL	94,035 Mt	390,000 Mt	50,215 Mt	1363 Mt	3452 Mt
ABC	80,701 Mt	255,000 Mt	42,134 Mt	1022 Mt	2589 Mt
TAC	14,000 Mt	258,680 Mt	26,000 Mt	125 Mt	400 Mt
*Observed Bycatch Amt.	11 Mt	302 Mt	502 Mt	11 Mt	12 Mt
**Attributed from the <40' fleet	2.2 Mt	60 Mt	100 Mt	2.2 Mt	2.4 Mt

The bycatch amounts associated with the directed halibut fleet and the directed halibut fleet under 40' in length are many magnitudes of order under any potential harvest level that would cause undue injury to any groundfish resource in the Bering Sea and Aleutians.

2016 Examples From GOA	Pacific Cod	Longnose Skate	Sablefish	Big Skate	Sharks
OFL	116,700 Mt	4,274 Mt	10,326 Mt	5,086 Mt	6020 Mt
ABC	98,600 Mt	3,206 Mt	9,087 Mt	3,814 Mt	4514 Mt
TAC	71,925 Mt	3,206 Mt	9,087 Mt	3,814 Mt	4514 Mt
*Observer Amt 2015	451 Mt	503 Mt	723 Mt	338 Mt	537 Mt
**Amount from <40' Fleet	90 Mt	100 Mt	144 Mt	68 Mt	107 Mt

The Gulf of Alaska bycatch in the <40' fleet is also magnitudes of order below any harvest number that would put these groundfish fisheries at risk. The bycatch of rockfish species and sablefish are kept for sale by the vessels. Due to the Urea and market price, skates and sharks are not retained. Pacific Cod and octopus are retained and used as bait.

*NMFS Observer Numbers

**Amount for <40' directed halibut fleet catch 20% of directed halibut fishery

Sincerely,

A handwritten signature in blue ink, appearing to read "R. D. Alverson", with a long horizontal flourish extending to the right.

Robert D. Alverson
Manager

RDA:cb

Summary of Tasks from Corrective Action Plan for non-conformance #1 (Clause 4.2)

Non-Conformance #1 (MINOR non-conformance Clause: 4.2)	
Non-Conformance Rationale	<p>Non-Conformance #1 (MINOR non-conformance Clause: 4.2) An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures is established for the Alaskan Pacific halibut fishery. However, there is a lack of observer coverage on vessels <40ft LOA, as such the observer scheme does not sufficiently account for the risk posed by the <40ft LOA sector of the commercial Pacific halibut fleet.</p>
Client Corrective Action Plan	
Year 1 Actions	<p>Both the National Oceanic and Atmospheric Administration and the North Pacific Fishery management Council have acknowledged a gap on information pertaining coverage of fisheries operations from the under 40' fleet .</p> <p>These agencies are developing strategies to address this data gap with the use of Electronic Monitoring (EM requirements). NOAA/NPFMC would like to move forward with coverage on the under 40' feet size class of vessels for the 2018 fishing season. They are currently deploying EM units for the first year on approximately 90 vessels in 40' to 57.5 'class. Expansion plans for the under 40 foot are next.</p> <p>Year 1: Representatives of the Client, EOWS/FVOA are members and attend regularly the Observer Advisory Committee (OAC) for the NPFMC. They will promote this goal of usage for the under 40" fleet and report back to Global Trust on the progress towards EM implementation on under the 40"fleet.</p> <p>The NPFMC /NMFS will provide to the public by June 2017 their annual report for the 2016 season as well as updates on EM implementation for 2017</p> <ul style="list-style-type: none"> ▪ <u>The client will provide a synopsis of the report relative to EM implementation for 2017</u>
Year 2 Actions	<p>Year 2: The NPFMC will conduct a fall 2017 review for changes and new coverage limits on the different fleets as well as EM requirements for 2018.</p> <ul style="list-style-type: none"> ▪ <u>The client will provide a synopsis of the meeting and reports relative to fleets EM usage following Observer Advisory Committee meeting.</u> ▪ <u>The client will also provide a synopsis of the spring 2018 annual report relative EM</u>
Year 3 Actions	<p>Year 3:</p> <ul style="list-style-type: none"> ▪ <u>Evidence in the form of combined data or summary of reports from the work on year 2 and 3 will be provided to the CAB that shows that EM program has been implemented by year 2019 (3rd year).</u>

Letter from FVOA providing further clarification relating to non-conformance #2

Note to reader: Global Trust has noted the error in the correspondence letter referring to an MSC Certification and not Alaska RFM and this has been communicated to the Client. This arose since the fishery is also MSC certified. The Assessment Team has accepted the client acknowledgment since the substance of the letter is appropriate and consistent with addressing non-conformance 2 for Alaska RFM re-assessment purposes.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
7600 Sand Point Way N.E. Bldg 4
Seattle, Washington 98115-6349
(206) 526-4000

September 19, 2016

Bob Alverson
Fishing Vessel Owner's Association
4005 - 20th Ave. West, Room 232
Seattle, WA 98199

Dear Mr. Alverson:

Thank you for your email regarding the Marine Stewardship Council's (MSC) certification of the Alaska Pacific halibut fishery. In your email, you included a letter from a team at Global Trust that is conducting the MSC certification assessment in which they expressed concerns about the lack of observer coverage on vessels less than 40 feet length overall (LOA). The team requested more information on the spatial effects in the estimation of catch by this portion of the fleet and they had several specific questions.

The first question from the Global Trust team is whether the <40ft sector of the halibut fleet fishes in the same areas and times as the >40ft vessels. Vessels in the halibut fishery complete logbooks that contain specific information on fishing locations and times. The detailed information from logbooks would enable a spatial comparison of fishing effort for vessels less and greater than 40 ft. LOA. However, NMFS does not have any logbook or observer data from vessels <40 ft. to address this question. As a result, NMFS does not have the ability to analyze the spatial overlap of the >40ft vessels with <40ft vessels. The International Pacific Halibut Commission (IPHC) does collect logbook data from the entire halibut fleet. We understand that IPHC is providing you with logbook information and this may be an appropriate way to answer the question from Global Trust.

NMFS has evaluated changes in the spatial distribution of observer data from the >40ft halibut fleet that has occurred since 2013 when the new observer program was put into place. The analysis was conducted as part of a Supplement to the Environmental Assessment (SEA) for Restructuring the Program for Observer Procurement and Deployment in the North Pacific¹ and found that there have been important improvements in the spatial distribution of observer data relative to the overall fishery footprint. Although this analysis doesn't answer Global Trust's specific question regarding the <40ft vessels, it does demonstrate that inclusion of halibut vessels >40ft LOA in the observer sampling pool improved the representativeness of the data and resulted in new information from nearshore areas. The improved data allowed estimation of discards of sensitive species such as skates, sharks, and rockfish, which had not been possible prior to 2013.

¹ https://alaskafisheries.noaa.gov/sites/default/files/analyses/finalea_restructuring0915.pdf



The second question from Global Trust's team involves the methods that NMFS uses to estimate discards in the <40ft fleet of halibut vessels in the North Pacific. In a previous correspondence to you in May 2016, we provided an explanation of our estimation methods and the team asks for clarification on the spatial scale that NMFS uses to designate haul-specific observer data to post-strata. The post-stratification is done at the scale of the NMFS reporting area (e.g., areas 610, 620, or 630 in the Gulf of Alaska). If observer data are not available at the reporting area level, then estimation of discarded catch still occurs at the spatial scale of the Fishery Management Plan (FMP) area (e.g., Bering Sea Aleutian Islands or Gulf of Alaska).

The last two questions from Global Trust are: 1) whether the spatial scale of reporting area used in estimation is appropriate to ensure discrepancies in areas fished between vessels less and greater than 40 ft. LOA are accounted for; and 2) if NMFS' ability or inability to accurately estimate discarded catch from vessels <40ft LOA is appropriate to the potential risk posed by this sector of the fleet.

These are both valid questions and the agency does not have specific analysis nor documentation to address either of them. However, we can provide some information that can shed light on these aspects of spatial effects. When the new Observer Program was put into place, NMFS and the North Pacific Fishery Management Council (NPFMC) recognized the challenging logistics of putting observers on small vessels and sought ways to reduce that impact in the initial years of the program. An analysis was conducted evaluating the exclusion of smaller vessels from coverage which concluded that setting a limit of 40 ft. LOA for vessels to be included in observer coverage resulted in 41% of fixed-gear fishing trips, but only 9.2% of the catch, having no possibility of being observed². NMFS recently provided similar information specifically for the halibut fleet and in 2015, 53% of trips but 17% of catch occurred on vessels <40 ft. that are not subject to observer coverage³.

An analysis of the potential gaps in observer data and the impact those would have on discard estimation was completed as part the SEA for Restructuring the Observer Program. The analysis evaluated the risk of not having enough observer data to estimate discarded catch at the two spatial scales where estimation occurs (reporting area and FMP area) under varying observer coverage rates. Many of the estimation gaps illustrated in the analysis were related to vessels <40 ft. LOA not being in the observer sampling frame. However, the analysis acknowledged that there was low potential risk associated with some of these gaps. For example, at observer coverage rates of 10%, the potential estimation gaps at the FMP-level were only likely to develop for 5-6% of all trips in the small vessel stratum.

Overall, the restructured Observer Program has dramatically reduced the proportion of trips in the halibut fleet that are not subject to coverage and improved discard estimates by providing data that better represents the fishery. However, NMFS does agree that the lack of observer data from vessels <40 ft. LOA is a gap. NMFS and the NPFMC have been working on incorporating Electronic Monitoring (EM) into the Observer Program and NMFS has recommended that vessels less than 40 ft. be incorporated into EM cooperative

² https://alaskafisheries.noaa.gov/sites/default/files/analyses/amd86_amd76_eairirfa0311.pdf

³ NMFS report to the EM workgroup July 26-28, 2016: http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/EMunder40FixedGearFleetProfile072516.pdf

We are attaching from the NMFS observer records that show the groundfish bycatch, which occurs in the directed halibut fishery in the Bering Sea and Aleutian Islands, and separately the same for the Gulf of Alaska. The NMFS bycatch numbers are inclusive of estimates for the under 40' halibut fleet. We are also attaching the Bering Sea/Aleutians and Gulf of Alaska species that have Over Fishing Limits (OFL); Allowable Biological Catch (ABC's) levels, and Total Allowable Catch amounts (TAC's. These are from the 2013, 2014 and 2015 fishing seasons. The groundfish catches in the Bering Sea & Aleutians by the directed halibut fleet are very low relative to the OFL, ABC's and TAC levels. For example, we have listed the five fish species of most concern caught by the directed halibut fleet for each geographical area.

Clearly, there is no risk to these resources from undue harm from the directed halibut fleet. The unobserved under 40 foot fleet harvests approximately 20% of the halibut off Alaska and we have assumed they account for 20% of the bycatch of groundfish species in the tables that follows.

2016 Examples from BSAI	Arrowtooth Flounder	Pacific Cod	Skates	Sharks	Octopus
OFL	94,035 Mt	390,000 Mt	50,215 Mt	1363 Mt	3452 Mt
ABC	80,701 Mt	255,000 Mt	42,134 Mt	1022 Mt	2589 Mt
TAC	14,000 Mt	258,680 Mt	26,000 Mt	125 Mt	400 Mt
*Observed Bycatch Amt.	11 Mt	302 Mt	502 Mt	11 Mt	12 Mt
**Attributed from the <40' fleet	2.2 Mt	60 Mt	100 Mt	2.2 Mt	2.4 Mt

The bycatch amounts associated with the directed halibut fleet and the directed halibut fleet under 40' in length are many magnitudes of order under any potential harvest level that would cause undue injury to any groundfish resource in the Bering Sea and Aleutians.

2016 Examples From GOA	Pacific Cod	Longnose Skate	Sablefish	Big Skate	Sharks
OFL	116,700 Mt	4,274 Mt	10,326 Mt	5,086 Mt	6020 Mt
ABC	98,600 Mt	3,206 Mt	9,087 Mt	3,814 Mt	4514 Mt
TAC	71,925 Mt	3,206 Mt	9,087 Mt	3,814 Mt	4514 Mt
*Observer Amt 2015	451 Mt	503 Mt	723 Mt	338 Mt	537 Mt
**Amount from <40' Fleet	90 Mt	100 Mt	144 Mt	68 Mt	107 Mt

The Gulf of Alaska bycatch in the <40' fleet is also magnitudes of order below any harvest number that would put these groundfish fisheries at risk. The bycatch of rockfish species and sablefish are kept for sale by the vessels. Due to the Urea and market price, skates and sharks are not retained. Pacific Cod and octopus are retained and used as bait.

*NMFS Observer Numbers

**Amount for <40' directed halibut fleet catch 20% of directed halibut fishery

Groundfish catch in the halibut target, Bering Sea and Aleutian Islands, in metric tons

YEAR	Alaska		Arrowtooth		Other		Flathead		Greenland		Kamchatka		Northern		Pacific		Pacific ocean		Rougheye		Other		Rock		Shorthead		Yellowfin				
	mackerel	flounder	flounder	flatfish	sole	turbot	trout	sole	sole	turbot	trout	trout	rockfish	rockfish	cod	cod	perch	perch	rockfish	rockfish	rockfish	rockfish	sole	sole	rockfish	rockfish	sculpin	sculpin	sharks	sole	
2013	0	21	11	0	25	22	2	0	450	0	0	5	33	1	147	56	54	329	26												
2014		13	9	0	3	11	0	16	254	0	4	29	0	67	45	53	801	4													
2015	0	17	2	0	20	4		18	202	0	2	31		92	98	22	376	2													
2016 (10/17/2016)	0	11	0	0	12	5	0	10	94	1	4	24	0	91	89	10	288	14													
2013-2015 Average	0	17	7	0	16	12	1	12	302	0	4	31	1	102	67	43	502	11													

Groundfish catch in the halibut target, Gulf of Alaska, in metric tons

YEAR	Alaska		Arrowtooth		Big		Demersal		Deep water		Dusty		Flathead		Longnose		Northern		Pacific		Pollock		Pacific ocean		Rex		Rougheye		Other		Shorthead		Shallow water		Squid		Sharks					
	mackerel	flounder	flounder	skate	skate	heir	rockfish	flatfish	flatfish	flatfish	rockfish	rockfish	sole	sole	state	state	rockfish	Octopus	cod	cod	perch	perch	rockfish	rockfish	perch	sole	rockfish	rockfish	rockfish	sculpin	sculpin	flatfish	flatfish	sculpin	sculpin	sharks	sharks					
2013	1	107	420	70	3	14	0	704	5	96	1,941	9	0	33	197	852	934	6																								
2014	1	44	413	56	1	8	1	421	1	51	1,139	16	0	32	105	670	162	3																								
2015	0	34	338	56	2	8	0	503	1	31	451	2	0	55	111	723	171	5																								
2016 (10/17/2016)		14	656	61	1	7	0	335	1	9	245	0	0	21	124	570	168	2																								
2013-2015 Average	1	62	390	61	2	10	0	542	2	60	1,177	9	0	40	138	748	422	5																								

From the NMFS, Alaska Region, Catch accounting system database

If a halibut IFQ vessel has a federal fishery permit, they are required to retain all catch of Pacific cod and rockfish depending on the status (open, closed) of those species.

Some of these species (most flatfish, Pacific cod, IFQ sablefish) are open for directed fishing during the halibut season.

run October 17, 2016

9.3. Status of non-conformances

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

The Corrective Action Plan was accepted by the Assessment Team and satisfactorily addresses the Non-Conformance. The action plan activities will be monitored during the annual surveillance audits of the fishery to confirm that implementation has taken place.

Status: Corrective Actions in place to be reviewed annually at surveillance audits.

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

The Assessment team confirms that further evidence submitted by FVOA and NOAA letters to address the non-conformance is sufficient to close non-conformance #2 with no further specific actions required by the Client. The evidence demonstrates that there is low risk of impact to species interacting for this fishery based on the low numbers of biomass caught in the fishery. Annual surveillance audits will continue to review any up-dates, changes in circumstances and status as part of the normal audit procedure.

Status: Closed following submission of further evidence.

Letter of Support from NMFS



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
7800 Sand Point Way N.E. Bldg 4
Seattle, Washington 98115-6349
(206) 526-4000

November 8, 2016

Bob Alverson
Fishing Vessel Owner's Association
4005 - 20th Ave. West, Room 232
Seattle, WA 98199

Dear Mr. Alverson

Thank you for your email from SAI Global Assurance Services LTD \ Global Trust Certification LTD regarding the sustainability certification for the Alaska Pacific halibut fishery. We will provide updates to you on a regular basis in 2017 and 2018 in the form of the North Pacific Observer Program Annual Report (due to the Council in June of each year), the Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries of Alaska (due to the Council in October of each year), as well as any interim reports related to Electronic Monitoring (EM) as we move toward an implemented EM program in 2018. NMFS will assist in providing updates when needed to the bycatch issues and development of the EM program in Alaska.

If you any questions, please contact me at (206) 526-4194 or chris.rilling@noaa.gov at the Alaska Fisheries Science Center or Jennifer Mondragon at (907) 586-7010 or Jennifer.mondragon@noaa.gov at the Alaska Regional Office.

Sincerely,

Chris Rilling
Director, Fisheries Monitoring and Analysis
Division
North Pacific Observer Program

Cc: Doug DeMaster
Jim Balsiger
Glenn Merrill



10. Recommendation and Determination

The assessment Team recommends that the management system of the applicant fishery, the US Alaska Pacific halibut commercial fishery, under international (IPHC), federal (NMFS/NPFMC) and state (ADFG) management, fished with benthic longline (within Alaska's 200 nm EEZ), should be awarded continued certification to the Alaska RFM Certification Program.

The Certification Committee agreed to certify the Alaska Pacific Halibut Commercial Fishery to the Alaska RFM Certification Program.

11. References

AFSC (Alaska Fisheries Science Center). 2008. Electronic Fisheries Monitoring AFSC. 2015. 2015 Observer Sampling Manual. Fisheries Monitoring and Analysis Division, North Pacific Groundfish Observer Program. AFSC, 7600 Sand Point Way N.E., Seattle, Washington, 98115.

Ames, R. T. 2005. The efficacy of electronic monitoring systems: a case study on the applicability of video technology for longline fisheries management. International Pacific Halibut Commission Scientific Report 80.

Ames, R. T., G. H. Williams, and S. M. Fitzgerald. 2005. Using digital video monitoring systems in fisheries: application for monitoring compliance of seabird avoidance devices and seabird mortality in Pacific halibut longline fisheries. NOAA Technical Memorandum NMFS-AFSC-152.

Ames, R.T, B. M. Leaman, and K. L. Ames. 2007. Evaluation of Video Technology for Monitoring of Multispecies Longline Catches. North American Journal of Fisheries Management 27:955–964.

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.

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.

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.

Cahalan, J.A., B.M. Leaman, G.H.Williams, B.H. Mason, and W.A. Karp. 2010. Bycatch characterization in the Pacific halibut fishery: A field test of electronic monitoring technology. U.S. Dep. Commer., NOAA Technical Memorandum NMFS-AFSC-213, 66 p.

Clark, W.G. 2003. A model for the world: 80 years of model development and application at the International Pacific Halibut Commission. Nat. Res. Mod. 16: 491-503.

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.

Cox, S. P., Ianelli, J., and Mangel, M. 2016. Reports of the IPHC Scientific Review Board, 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 615-622.

Dykstra, C. 2016. 2015 Halibut sport fishery review. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 36-46.

Erikson, L. H. 2016. Retention of U32 halibut in the 2015 Area 4D/4E CDQ fishery. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 61-63.

Faunce, C.H. 2013. The Restructured North Pacific Groundfish and Halibut Observer Program. NOAA quarterly publication.

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

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 Groundfish Fisheries off Alaska, 2014. AFSC, NMFS, NOAA, Seattle WA. <http://www.afsc.noaa.gov/REFM/Docs/2015/economic.pdf>

Forsberg, J., Sadorus, L., Logan, P., Kelleher, Z., and Pedersen, C. 2016. Wire tagging Pacific halibut on NMFS trawl surveys: 2015 pilot study. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 464-477.

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

Geernaert, T. O. 2016. Trends in seabird occurrence on stock assessment surveys (2002-2015). Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2014: 405-413.

Gilroy, H.L., Erikson, L.M., and MacTavish, K.A. 2016. 2015 commercial fishery and regulation changes. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 23-35.

Gilroy, H. L. 2016. The personal use harvest of Pacific halibut through 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 56-60.

Gilroy, H. L. and Stewart, I. J. 2016. Incidental mortality of halibut in the commercial halibut fishery (Wastage). Commercial catch sampling. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 47-55.

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.

Henry, E., Soderlund, E., Henry, A. M., Geernaert, T., Ranta, A. M., and Kong, T. 2016. 2015 standardized stock assessment survey. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 490-529.

IPHC staff. 2016. 2016 Annual Research Plan - November 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 7-22.

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.

Loher, T. 2016. Deployment and reporting of pop-up archival transmitting (PAT) tags to study seasonal dispersal of Pacific halibut from the Southern Salish Sea. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 478-489.

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.

Melvin, E.F. 2000. Streamer Lines to Reduce Seabird Bycatch Reduce Seabird Bycatch in Longline Fisheries in Longline Fisheries. Washington Sea Grant Program, University of Washington.

<https://wsg.washington.edu/wordpress/wp-content/uploads/publications/Streamer-Lines-Reduce-Seabird-Bycatch-Longliners.pdf>

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.

Method, R.D., and Wetzel, C.R. 2013. Stock synthesis: A biological and statistical framework for fish stock assessment and fishery management. Fish. Res. 142: 86-99.

NOAA Marine Debris Program. 2015. Report on the impacts of "ghost fishing" via derelict fishing gear. Silver Spring, MD. 25 pp

Quinn II, T. J., R. B. Deriso, and S. H. Hoag. 1985. Methods of Population Assessment of Pacific Halibut. IPHC Scientific Report 72.

Sadorus, L. L. and Walker, J. 2016. IPHC Oceanographic monitoring program 2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 398-404.

Sigler, M. F., M. F. Cameron, M. P. Eagleton, C. H. Faunce, J. Heifetz, T. E. Helser, B. J. Laurel, M. R. Lindeberg, R. A. McConnaughey, C. H. Ryer, and T. K. Wilderbuer. 2012. Alaska Essential Fish Habitat Research Plan. AFSC Processed Rep. 2012-06, 21 p. Alaska Fish. Sci. Cent., NOAA, NMFS, 17109 Pt. Lena Loop Road, Juneau, AK 99801

Southwick Associates Inc. and W. J. Romberg, A. E. Bingham, G. B. Jennings, and R. A. Clark. 2008. Economic impacts and contributions of sportfishing in Alaska, 2007. Alaska Department of Fish and Game, Professional Paper No. 08-01, Anchorage.

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.

Stewart, I.J., and Monnahan C. 2016. Overview of data sources for the Pacific halibut stock assessment and related analyses. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 99-187.

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.

Williams, G.H. 2016. Incidental catch and mortality of Pacific halibut, 1962-2015. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 313-348.

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.

12. Appendices

Appendix 1 – Assessment Team

Based on the technical expertise required to carry out the above fishery assessment, Global Trust Certification Ltd., is pleased to confirm the Full Assessment team members for the fishery as follows.

Dr. Ivan Mateo (Lead Assessor)

Dr. Ivan Mateo has over 20 years' 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 bio-energetic 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 Service 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). For the last twelve years of service 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 standing committees. As a senior stock assessment biologist, he led assessments and surveys for several flatfish species and stocks, including American plaice, Greenland halibut, yellowtail and witch flounders. These include the largest stocks of flatfish in the NW Atlantic. He also participated in assessment of flatfish, cod, and shrimp stocks in the NE Atlantic and North Sea. Bill has participated in over 30 scientific research vessel surveys on a variety of Canadian and international ships. Bill has previously served as an assessor on Alaska Responsible Fisheries Management certification surveillance audit for P. cod.

Sam Dignan, (Assessor)

Sam Dignan is a fisheries scientist, working as a full time assessor with Global Trust. He has previously worked with the Department of Environment, Food and Agriculture (DEFA), Isle of Man and Bangor University Fisheries and Conservation Science Group (Wales). He has a BSc in Biological and Chemical Sciences with Zoology from University College Cork and an MSc in Marine Environmental Protection from Bangor University. He has experience conducting stock assessments, from the survey design and implementation phases through to final analysis and report presentation; from 2013 to 2015 he was a member of the ICES working group stock assessment. He has been involved in providing scientific data to ensure fishery compliance with certification frameworks and has participated in surveillance audits from a client's perspective. Sam has extensive experience of interacting directly with fishers and their representative organization as well as members of scientific and government institutions. He was previously an advisor to the Isle of Man Queen Scallop Management Board that manages the MSC certified Isle of Man queen scallop fishery. He has also worked on the spatial analysis of fishing activity, using Vessel Monitoring System (VMS) and logbook data, to spatially quantify fishing activity and fisheries-ecosystem interactions.

Appendix 2 – Peer Reviewers

Based on the technical expertise required to carry out the above fishery assessment, Global Trust Certification Ltd. confirmed the external peer review team members for this Alaska halibut fishery as follows.

Dr. Robert Leaf

Dr. Robert Leaf has ten years of experience working in the field of natural resource management of fin and shellfish. He specializes in the evaluation of management strategies of harvested species and the identification of environmental drivers that impact their population dynamics. Dr. Leaf received his Master's Degree in Marine Science at Moss Landing Marine Laboratories and his PhD in Fisheries and Wildlife Sciences from Virginia Polytechnic and State Institute. His last professional post was as a post-doc under Dr. Kevin Friedland at the Northeast Fishery Science Center's Narragansett Laboratory. There, he worked on understanding the impact of environmental conditions on fish stock productivity and recruitment. He has worked in the Gulf of Mexico for the last three years working on fish stock assessment of commercially and recreationally important species in that area. Dr. Leaf is a member of the Gulf of Mexico Fishery Management Council's Red Drum working group and NOAA's Marine Fisheries and Climate Taskforce. He currently supervises four masters level students working on various state and federally managed fish

Wes Toller (Independent Consultant in Sustainability)

As owner and operator of his own consulting business since 2010, Wes has worked closely with a number of leading certification schemes including the Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC) to develop and improve processes for auditing and accreditation of sustainability standards. He previously worked as a program manager with Accreditation Services International (ASI) where he helped establish the company's nascent MSC Program. Wes has an in-depth knowledge of ISO requirements and international best practices that pertain to eco-labelling. He has a detail-oriented work style and wide ranging interests. Although Wes enjoys all subject areas within the field of sustainability, his favorite theme is sustainable use of natural resources – especially fisheries management and marine science. He sees his move into the sustainability sector as a natural progression from his extensive background in fisheries management and habitat conservation. Wes received his doctorate in biological sciences from the University of Southern California. He currently resides in Seattle.