ALASKA RESPONSIBLE FISHERY MANAGEMENT CERTIFICATION SURVEILLANCE REPORT

For The

Alaska Pacific Cod Commercial Fisheries

Facilitated By the

Alaska Fisheries Development Foundation

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Glossary

ABC	Allowable Biological Catch
AI	Aleutian Islands
ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
ASMI	Alaska Seafood Marketing Institute
BOF	Board of Fisheries
BSAI	Bering Sea and Aleutian Islands
CCRF	Code of Conduct for Responsible Fisheries
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
CIE	Center of Independent Experts
CPUE	Catch per Unit Effort
EBS	Eastern Bering Sea
EIS	Environmental Impact Statement
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAO	Food and Agriculture Organization of the United Nations
FMP	Fishery Management Plan
FMSY	Fishing Mortality at Maximum Sustainable Yield
GOA	Gulf of Alaska
GHL	Guideline Harvest Level
IFQ	Individual Fishing Quota
IRFA	Initial Regulatory Flexibility Analysis
IRIU	Improved Retention/Improved Utilization
LLP	License Limitation Program
MSFCMA	Magnuson-Stevens Fisheries Management and Conservation Act
mt	Metric tons
MSY	Maximum Sustainable Yield
NEPA	National Environmental Policy Act
nm	Nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
OFL	Overfishing Level
OLE	Office for Law Enforcement
OY	Optimum Yield
PSC	Prohibited Species Catch
RACE	Resource Assessment and Conservation Engineering
REFM	Resource Ecology and Fisheries Management
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (Report)
SSB	Spawning Stock Biomass

SSC	Scientific and Statistical Committee
SSL	Steller Sea Lion
TAC	Total Allowable Catch
USCG	U.S. Coast Guard

I. Summary and Recommendations

This is the third **Surveillance Report (ref: AK/PCOD/001.3/2016)** for the Alaska Pacific cod, *Gadus microcephalus* State and federal commercial fisheries to the Alaska Responsible Fisheries Management (RFM) Certification Program. The original application was made in April 2010. Initial assessment commenced in March 2012 with assessment validation before proceeding to full assessment and final certification determination in April 17, 2013.

The objective of the Surveillance Report is to monitor for any changes/updates (after 12 months) in the management regime, regulations and their implementation since the previous assessment (in this case, second surveillance audit in 2015) and to determine whether these changes (if any) and current practices, remain consistent with the overall confidence rating scorings of the fishery allocated during initial certification. In addition to this, any areas reported as "items for surveillance" or corrective action plans in the previous assessment are reassessed and a new conclusion on consistency of these items with the Conformance Criteria is given accordingly. No non-conformances were identified since certification was granted.

Alaska Pacific cod (*Gadus macrocephalus*) is the species of focus in this Assessment and Certification Report. The Pacific cod commercial fisheries employ bottom trawl gear, longline gear, pot gear and jig gear within Alaska jurisdiction (200 nautical miles EEZ) are subjected to federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.

The surveillance assessment was conducted according to the Global Trust Certification procedures for Alaska Responsible Fisheries Management Certification using the Alaska RFM Standard V1.2 fundamental clauses as the assessment framework.

The main Key outcomes have been summarized in Section 5 "Assessment Outcome Summary".

II. Assessment Team Details

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1. Introduction

This Surveillance Report documents the 3rd Surveillance Assessment (2016) of the Alaska Pacific cod commercial fisheries originally certified on April 17th 2013, and presents the recommendation of the Assessment Team for continued Alaska RFM Certification.

The Pacific cod commercial fisheries employing bottom trawl gear, longline gear, pot gear and jig gear within Alaska jurisdiction (200 nautical miles EEZ), subjected to federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management, underwent their 3rd surveillance assessment against the requirements of the Alaska RFM Conformance Criteria (hereafter called 'the Standard') Version 1.2 Fundamental Clauses.

This 3rd Surveillance Report documents the assessment result for the continued certification of commercially exploited Pacific cod fisheries to the Alaska RFM Certification Program. This is a voluntary program owned by the Alaska Seafood Marketing Institute (ASMI) who wishes to provide an independent, third- party accredited certification that can be used to verify that these fisheries are responsibly managed. Since 2015, the new client group for this assessment is the Alaska Fisheries Development Foundation (AFDF).

The assessment was conducted according to the Global Trust procedures for Alaska RFM Certification using the fundamental clauses of the Alaska RFM Standard Version 1.2 (Sept 2011). The assessment uses the fundamental clauses specified in the Standard as the framework for reporting conformance of the fishery for the related clauses.

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

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

These six major components are supported by 13 fundamental clauses (+ 1 in case of enhanced fisheries) that guide the Alaska RFM surveillance assessment.

A summary of the consultations with the fishery is presented in Section 4. Assessors included both an externally contracted fishery expert and a Global Trust lead assessor (Appendix 1).

1.1. Recommendation of the Assessment Team

Following this 3rd Surveillance Assessment, in 2016, the assessment team recommends that continued Certification under the Alaska RFM Certification Program is maintained for the management system of the applicant Alaska Pacific cod (*Gadus macrocephalus*) fishery employing bottom trawl gear, longline gear, pot gear and jig gear within Alaska jurisdiction (200 nautical miles EEZ), subject to federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.

2. Fishery Applicant Details

Applicant Contact Information			
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3. Unit of Certification

Unit of Certification			
U.S. ALASKA Pacific Cod Commercial (Federal and State) Fisheries			
Fish Species (Common & Scientific Name)	***Geographical Location of Fishery***	***Gear Type***	***Principal Management Authority***
Pacific cod (Gadus macrocephalus)	*Gulf of Alaska and Bering Sea & Aleutian Islands*	*Bottom trawl, Longline, Pot and Jig gear.*	*National Marine Fisheries Service (NMFS)* *North Pacific Fishery Management Council (NPFMC)* *Alaska Department of Fish and Game (ADFG) &* *Alaska Board of Fisheries (BOF)*

4. Surveillance Meetings

Since this fishery had no non-conformances, Global Trust evaluated that there was low risk of reduced conformance to the Standard and therefore, it was decided to conduct a desktop review/literature research rather than an on-site surveillance meeting. Information was obtained from Mr. Dave Gaudet, a working for AFDF who was employed to provide evidence of conformity and provide responses to questions from the surveillance team. A conference call was held on June 25th 2016 with Alaska National Oceanic and Atmospheric Association. Office of Law Enforcement (NOAA OLE), Assistant Director, Lt. Will Ellis to discuss enforcement and compliance information for 2015.

5. Assessment Outcome Summary

Fundamental Clauses Summaries

Clause 1: Structured and legally mandated management system

Evidence adequacy rating: High

There is an effective legal (MSA, FMPs) and administrative framework (NMFS/NPFMC – ADFG/BOF) established at the local and national level (state/federal) appropriate for fishery resource conservation and management

Clause 2: Coastal area management frameworks

Evidence adequacy rating: High

Management organizations 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. The NPFMC and the BOF are required to manage the Pacific cod trawl, longline, pot and jig fisheries in a sustainable and transparent manner, as mandated by the MSA National Standards and the Alaska Constitution respectively

Clause 3: Management objectives and plan

Evidence adequacy rating: High

The BSAI and GOA FMPs present long-term management objectives for the Alaska Pacific cod fisheries. Seven state-managed Pacific cod fisheries are subject to an annually-published FMP.

Clause 4: Fishery data

Evidence adequacy rating: High

Reliable and accurate data required for assessing the status of fisheries and ecosystems - including data on retained catch of fish, bycatch, discards and waste are collected (BS, AI and GOA surveys, catch data, observer data). The NMFS and the ADFG collect fishery data and conduct fishery independent surveys to assess Pacific cod fisheries and ecosystems in GOA, EBS and AI areas. GOA, EBS and AI SAFE documents provide complete descriptions of data types and years collected.

Clause 5: Stock assessment

Evidence adequacy rating: High

NMFS and ADF&G ensure that appropriate research is conducted into all aspects of fisheries including biology, ecology, technology, environmental science, economics, social science, aquaculture and nutritional science (NMFS, ADFG, ASMI). The research is disseminated accordingly. NMFS and ADF&G also ensure the availability of research facilities and provides appropriate training, staffing and institution building to conduct the research.

Clause 6: Biological reference points and harvest control rule

Evidence adequacy rating: High

The BSAI, and GOA groundfish management plans define target and limit reference points for Pacific cod and other groundfish. Each SAFE report describes the current fishing mortality rate, stock biomass relative to target and limit reference points.

Clause 7: Precautionary approach

Evidence adequacy rating: High

When new uncertainties arise, research recommendations are made and there is accountability in subsequent years to follow up on related action items. However, these uncertainties do not lead to a postponement for providing advice, in all cases precaution is the rule.

Clause 8: Management measures

Evidence adequacy rating: High

Alaska Pacific cod commercial fisheries are managed according to a modern management plan that attempts to balance long-term sustainability of the resources with optimum utilization. For every change/amendment or new development affecting fisheries management and therefore modifying the FMPs, there is an evaluation of alternative conservation and management measures, including considerations of their cost effectiveness and social impact.

Clause 9: Management measures to produce maximum sustainable levels

Evidence adequacy rating: High

Specific management measures are designed and implemented to maintain stocks at levels capable of producing maximum sustainable levels. Also, efforts are made to ensure that resources and habitats critical to the wellbeing of such resources (Essential Fish Habitat, EFH) which have been adversely affected by fishing or other human activities are restored.

Clause 10: Appropriate standards of fisher's competence

Evidence adequacy rating: High

Alaska enhances through education and training programs the education and skills of fishers and, where appropriate, their professional qualifications. Records of fishermen are maintained up to date by the fishery management organizations.

Clause 11: Effective legal and administrative framework

Evidence adequacy rating: High

The Alaska Pacific cod fleet uses enforcement measures including vessel monitoring systems (VMS) on board vessels, USCG boardings and inspection activities. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce fisheries laws and regulations. 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).

Clause 12: Framework for sanctions

Evidence adequacy rating: High

The Magnuson-Stevens Act (50CFR600.740 Enforcement policy) provides four basic enforcement remedies for violations: 1) Issuance of a citation (a type of warning), usually at the scene of the offense, 2) Assessment by the Administrator of a civil money penalty, 3) for certain violations, judicial forfeiture action against the vessel and its catch, 4) Criminal prosecution of the owner or operator for some offenses. In some cases, the Magnuson- Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. The 2011 Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions issued by NOAA Office of the General Counsel – Enforcement and Litigation, provides guidance for the assessment of civil administrative penalties and permit sanctions under the statutes and regulations enforced by NOAA. The Alaska Wildlife troopers enforce state water regulations with a number of statutes that enable the government to fine, imprison, and confiscate equipment for violations and restrict an individual's right to fish if convicted of a violation.

Clause 13: Impacts of the fishery on the ecosystem

Evidence adequacy rating: High

Alaska's fisheries management organizations conduct assessments and research on the ecosystem effects of groundfish fisheries. Findings and conclusions are published in SAFE document, annual Ecosystem Considerations SAFE documents, and other research reports.

6. Conformity Statement

The Assessment Team recommends that continued certification under the Alaska Responsible Fisheries Management Program is granted to the Alaska Pacific cod (*Gadus macrocephalus*) commercial fishery employing bottom trawl gear, longline gear, pot gear and jig gear within Alaska jurisdiction (200 nautical miles EEZ), subjected to federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of

Fisheries (BOF)] management.

A. The Fisheries Management System

Fundamental 1

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

No. Supporting clauses	**17**
Supporting clauses applicable	**9**
Supporting clauses not applicable	**8**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

The structure and function of the management system governing the Pacific cod fisheries in Alaska.

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

The primary layer of governance for the Alaska Pacific cod fisheries is dictated by the Magnuson Stevens Act (MSA). The MSA, as amended last on January 12th 2007, sets out ten national standards for fishery conservation and management (16 U.S.C. § 1851), with which all Fishery Management Plans (FMP) must be consistent. Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, an FMP and any necessary amendments, for each fishery under its authority that requires conservation and management actions, i.e. the annual setting of OFL/ABC/TAC/ACL.

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

The federal Fishery Management Plans (FMPs) accomplish this, more specifically, 1) the GOA Groundfish FMP, and 2) the BSAI Groundfish FMP govern the management of the Pacific cod federal fisheries. In federal waters (3-200 nm), the Alaska Pacific cod fisheries are managed by the NPFMC and the NMFS Alaska Region. The state P. cod fisheries are managed using a Guideline Harvest Level (GHL) set as a percentage of the GOA federal ABC. In addition, NMFS Alaska Regional Office conducts biological studies, stock survey and stock assessment reports. Current management measures consider the whole stocks biological units (i.e. structure and composition contributing to its resilience over their entire area of distribution, the area through which the species migrate during their life cycle and other biological characteristics of the stock).

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

NOAA and the Federal Agency for Fisheries of the Russian Federation signed a Joint Statement on

Enhanced Fisheries Cooperation (April 29, 2013).[1] This document identifies three major areas of future cooperation: 1) combating global Illegal Unreported and Unregulated (IUU) fishing; 2) collaborating on science and management of Arctic Ocean living marine resources; and 3) advancing conservation efforts in the Ross Sea region of Antarctica.

1.7. Review and Revision of conservation and management measures
Evidence Provided: Client report to Global Trust. AFDF(2016)

BSAI

BSAI - A final rule implementing Steller sea lion protection measures in the BSAI became effective on December 26, 2014 (79 FR 70286, November 25, 2014). These regulations insure that the western distinct population segment of Steller sea lions' continued existence is not jeopardized or its critical habitat is not destroyed or adversely modified. These regulations alter areas open for directed fishing in the Aleutian Islands subarea of the BSAI. They also alter the harvest limitation in these harvest specifications for pollock, Atka mackerel, and Pacific cod primarily in the Aleutian Islands subarea.

GOA

An additional change was allowing retention of Pacific cod in the Western GOA. Retention was prohibited since 2010. The proposed harvest specifications notified the public of possible changes to the harvest specification limits. Changes to the pollock, Atka mackerel, and Pacific cod harvest specifications that are required by the rule implementing the protection measures are described in the section for each of these target species.

State

For 2015, the Board of Fisheries (BOF) for the State of Alaska (State) established a Pacific cod guideline harvest level (GHL) in State waters between 164 and 167 degrees west longitude in the Bering Sea (BS) subarea. The Pacific cod GHL in this area is equal to 3 percent of the sum of the Pacific cod ABCs for the Aleutian Islands (AI) and the BS. To account for the State GHL fishery in 2015, the Council reduced the final BS subarea TAC by 3 percent of the combined BS and AI subarea ABCs. The combined BS subarea TAC and GHL (248,178 mt) are less than the final BS subarea ABC.

For 2015, the BOF for the State established a Pacific cod GHL in State waters in the AI subarea. The Pacific cod GHL in this area is equal to 3 percent of the sum of the Pacific cod ABCs for the AI and the BS. To account for the State GHL fishery in 2015 and 2016, the Council reduced the final AI subarea TAC by 3 percent of the combined BS and AI subarea ABCs. The combined AI TAC and GHL (17,600 mt) equal the final AI subarea ABC

C1 Council motion, June, 16, 2016[2]

C1 OBSERVER PROGRAM

1) The Council recommended that the draft 2017 Annual Deployment Plan evaluate the following:

[1] Joint statement NOAA and the Federal Agency of Fisheries of the Russian Federation http://www.nmfs.noaa.gov/ia/slider_stories/2013/04/statement_signed.pdf

[2] http://npfmc.legistar.com/gateway.aspx?M=F&ID=240788eb-9cd6-4b80-9322-3768afd23651.pdf

- Maintain dockside monitoring on deliveries.
- Continue to place vessels under 40ft in the no selection pool.
- Continue to place vessels participating in the 2017 EM pre-implementation program into no selection pool, using the priority and number of vessels that will be determined through the EM workgroup and Council process.
- Maintain the 3 sampling strata defined by gear in 2017 and continue to use the optimal allocation to evaluate deployment rates while trying to maintain the expectation of at least 3 observed trips in each NMFS area.
- Continue to allow vessels to log 3 trips at a time in ODDS, and providing automatic release from coverage for the third observed trip for vessels 40-57.5 ft in length.
- Two additional strata for Council review in the 2017 draft ADP: 1) vessels delivering to tenders; and 2) partial coverage catcher-processors

1.8. Transparent management arrangements and decision making

The NPFMC submits their recommendations/plans to the NMFS for review, approval, and implementation. NMFS makes recommendations available for public review and comment (partly by publication) before taking final action by issuing legally binding Federal regulations[3].

1.9. Compliance with international conservation and management measures

The US Coast Guard (USCG) is responsible for enforcing these FMPs at sea, in conjunction with NMFS enforcement ashore. Also, the USCG enforce laws to protect marine mammals and endangered species, international fisheries agreements (i.e. UN High Seas Driftnet Moratorium in the North Pacific), and foreign encroachment[4].

Fundamental 2

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

No. Supporting clauses	**16**
Supporting clauses applicable	**15**
Supporting clauses not applicable	**1**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence

2.1. Appropriate policy, legal and institutional framework adopted to achieve sustainable and integrated use of living marine resources.

The NMFS and the NPFMC participate in coastal area management-related institutional frameworks

[3] North Pacific Fisheries Management Council website. Accessed 2015: http://www.npfmc.org/
[4] USCG. 2015. USCG District 17 Homepage: http://www.uscg.mil/d17/

through the federal National Environmental Policy Act (NEPA) processes, a socio-economic and biological/environmental impact assessment of various proposed scenarios, before the path of action is decided. This occurs whenever resources under their management may be affected by other developments and each time they create, renew or amend regulations. The NEPA processes provide public information and opportunity for public involvement that are robust and inclusive at both the state and federal levels. Fisheries are relevant to the NEPA process in two ways. First, each significant NPFMC fisheries package must go through the NEPA review process. Second, any project that could impact fisheries (i.e., oil and gas, mining, coastal construction projects, etc.,) that is either on federal lands, in federal waters, receives federal funds or requires a federal permit, must go through the NEPA process. In this manner, both fisheries and non-fisheries projects that have a potential to impact fisheries have a built in process by which concerns of the NPFMC, NMFS, state agencies, industry, other stakeholders or the public can be accounted for.

The NEPA process consists of an evaluation of the environmental effects of a federal undertaking including its alternatives. There are three levels of analysis: categorical exclusion determination; preparation of an environmental assessment/finding of no significant impact (EA/FONSI); and preparation of an environmental impact statement (EIS).

2.2./2.3./2.4. 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. Conflict avoidance and dissemination of management measures

The state is a cooperating agency in the NEPA process for federal actions, giving the State of Alaska a seat at the table for federal actions. This includes 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.

Overall, the NEPA process, existing agencies (e.g. ADFG, the Alaska Department of Environmental Conservation, the Department of Natural Resources (DNR), US Fish and Wildlife Service, the Alaska National Interest Lands Conservation Act, the DNR's Office of Project Management and Permitting and Bureau of Ocean Energy Management), and the existing intimate and routine cooperation between federal and state agencies managing Alaska's coastal resources (living and non- living) is capable of planning and managing coastal developments in a transparent, organized and sustainable way, that minimizes environmental issues while taking into account the socio-economic aspects, needs and interests of the various stakeholders of the coastal zone.

The NPFMC system was designed so that fisheries management decisions were made at the regional level to allow input from affected stakeholders assuring that the rights of coastal communities and their historic access to the fishery is included in the decision process. Council meetings are open, and public testimony - both written and oral - is taken on each and every issue prior to deliberations and final decisions. Public comments are also taken at all Advisory Panel and Scientific and Statistical Committee meetings. Each Council decision is made by recorded vote in public forum after public comment. Final decisions then go to NMFS for a second review, public comment, and final approval. Decisions must conform to the MSA, the NEPA, Endangered Species Act, Marine Mammal Protection Act, and other applicable law including several executive orders. The Council meets five times each year, usually in February, April, June, October and December, with three of the meetings held in Anchorage, one in a fishing community in Alaska and one either in Portland or Seattle. Most Council meetings take seven

days, with the AP and SSC usually following the same agenda and meeting two days earlier.

The Alaska BOF and the NPFMC have signed a joint protocol agreement to help coordinate compatible and sustainable management of fisheries within each organization's jurisdiction. A committee was formed, the Joint Protocol Committee, which includes three members from each group. The entire board and council meet jointly once a year to consider proposals, committee recommendations, the analyses, and other topics of mutual concern. The joint meeting is typically held in Anchorage in February, depending upon council and board meeting schedules.

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.

The Community Development Quota (CDQ) Program began in December of 1992 with the goal of promoting fisheries related economic development in western Alaska. The CDQ Program allocates a percentage of all BSAI quotas for groundfish, prohibited species, halibut and crab to eligible communities. The purpose of the program is to (i) provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the BSAI Management Area; (ii) to support economic development in western Alaska; (iii) to alleviate poverty and provide economic and social benefits for residents of western Alaska; and (iv) to achieve sustainable and diversified local economies in western Alaska. There are 65 communities within a fifty-mile radius of the BS coastline who participate in the program. It was latest granted perpetuity status during the 1996 reauthorization of the MSA.

2.6./2.7. /2.8/2.9/2.10./2.11Research and monitoring of the coastal environment

The coastal zone is monitored as part of the coastal management process using physical, chemical, biological, economic and social parameters. Involvement include federal and state agencies and programs including the U.S. Forest Service, U.S. Fish and Wildlife Service, NMFS Pacific Marine Environmental Lab (PMEL), the Alaska Department of Environmental Conservation (DEC) Division of Water, ADFG Habitat Division, the AFSC's "Ecosystem Monitoring and Assessment Program", The NMFS' Habitat Conservation Division (HCD) and their Essential Fish Habitats (EFH) monitoring and protection program, the U.S. Coast Guard, the NMFS Alaska Regional Office's Restricted Access Management Program (RAM), the Alaska National Interest Lands Conservation Act (ANILCA) federal agencies cooperation directive, and the Department of Natural Resources (DNR) Office of Project Management and Permitting (OPMP) coordinating the review of large scale projects in the state of Alaska.

Fundamental 3

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

No. Supporting clauses	**6**
Supporting clauses applicable	**6**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

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

Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that requires conservation and management.

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

The GOA[5] and BSAI[6] Groundfish FMPs, under which Pacific cod in the federal waters of Alaska is managed, define nine management and policy objectives that are reviewed annually. These are:

1) Prevent Overfishing,
2) Promote Sustainable Fisheries and Communities,
3) Preserve Food Webs,
4) Manage Incidental Catch and Reduce Bycatch 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,
9) Improve Data Quality, Monitoring and Enforcement.

The national standards and management objectives defined in GOA and BSAI FMPs provide adequate evidence to demonstrate the existence of long-term objectives clearly stated in management plans. Management measures detailed in the two Groundfish FMPs include quotas, allocated by region and by gear type; permit requirements, seasonal restrictions and closures, geographical restrictions and closed areas, gear restrictions, prohibited species requirements, retention and utilization requirements, recordkeeping and reporting requirements, and observer requirements[7].

[5] Fishery Management Plan for Groundfish of the Gulf of Alaska. August 2015. NPFMC: http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

[6] Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands. August 2015. NPFMC http://www.npfmc.org/wp-content/PDFdocuments/fmp/BSAI/BSAIfmp.pdf

[7] State Management: 5 AAC 28.089 Guiding Principles for groundfish fishery regulations http://www.touchngo.com/lglcntr/akstats/aac/title05/chapter028/section089.htm

B. Science and Stock Assessment Activities

Fundamental 4

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

No. Supporting clauses	**14**
Supporting clauses applicable	**9**
Supporting clauses not applicable	**3**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

4.1. (Incl. 4.1.1., 4.1.2.) Reliable and accurate data required for assessing the status of fisheries and ecosystems - including data on retained catch of fish, bycatch, discards and waste shall be collected.

All fishery removals and mortality of P. cod are considered in the assessment and management of the stock. Reliable and accurate data are provided annually to assess the status of P. cod fisheries and ecosystems. These data include information on retained catch, discards and by-catch, and catches in the Alaskan state-managed fisheries (inside 3 n. mi.), including sport, recreational, subsistence, research, and bait fisheries. Several data reporting systems, such as the "eLandings" system are in place to ensure timely and accurate collection and reporting of catch data. The Catch Accounting System (CAS) combines observer and industry information such as e-landings to create estimates of total catch. Additional details on the catch reporting and estimation processes can be found in Cahalan et al. 2014, and more information on commercial P. cod catches can be found in the 3 SAFE documents from 2015 (Thompson 2015(EBS); A'mar and Palsson 2015(AI); Thompson and Palsson 2015(GOA)). Removals from the sport fishery are relatively minor for P. cod but have been increasing in recent years in the GOA. Total removals from activities other than the directed fishery were estimated to be about 9500 t in EBS in 2014, almost all of which was taken as bait for the crab fishery. The total for GOA in 2014 was about 400 t, half of which was from the sport fishery, and about 50 t was estimated for the AI area.

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

An extensive industry-funded on-board observer program exists in Alaskan waters to cover various fisheries, including P. cod. 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). These amendments (86 in BSAI and 76 in GOA) were added to the Federal Fisheries Regulations 50 CFR Part 679: Fisheries of the Exclusive Economic Zone Off Alaska. In addition to observer coverage, electronic monitoring is being introduced by NPFMC. Vessels under 40 feet LOA are excluded from observer coverage at present, but this fleet segment does not take a large proportion of the P.cod catch in any of the three stock areas (estimated to be less than 0.5% of the total catch in 2013-2015). Data from the observer program are used extensively in the stock assessments, and details on the amended

program can be found in Faunce (2013)[8] . Extensive information on the sampling program carried out by the observers, including collection of biological data on P. cod, is extensive and available in NMFS/AFSC publications[9]

4.3. (Incl. 4.3.1.) Sufficient knowledge of social, economic and institutional factors relevant to the fishery in question shall be developed through data gathering, analysis and research.

Data on P. cod collected from surveys and fisheries are analysed and presented in peer reviewed meetings and/or in primary literature, following rigorous scientific protocols. Data are widely available on NMFS and ADF&G websites and results of analyses are disseminated in a timely fashion through numerous methods, including scientific publications, at various publically-attended meetings, 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, such as in the analysis of CPUE data involving a small number of vessels or fishers.

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

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[10] 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. Through the University of Alaska Fairbanks, the state of Alaska also operates the Kodiak Seafood and Marine Science Center (KSMSC)[11] , which directs efforts in several fields, including seafood processing technology, and seafood quality and safety. 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.

4.5. States shall ensure that the economic, social, marketing and institutional aspects of fisheries are adequately researched and that comparable data are generated for ongoing monitoring, analysis and policy formulation.

Economic and social data are collected and analysed by various organisations, such as NMFS, NPFMC, and ADF&G. An extensive report from NMFS/AFSC is produced each year providing data and analysis on a number of socioeconomic factors in Alaskan fisheries such as P. cod, including catch volumes and values, numbers of vessels, employment, and marketing (Fissel et al. 2015). These data, along with analyses conducted by/for NPFMC and ADF&G, are adequate for ongoing monitoring, analysis and policy formulation for the P. cod fisheries. Agencies such as NPFMC are required to consider the impact of their rules (e.g. Fishery Management Plans[12] , Fishing Regulations) on small entities (fisher communities) and to evaluate alternatives that would accomplish the objectives of the rules without unduly burdening small entities when the rules impose a significant economic impact on them. This NPFMC approach explicitly

[8] http://www.afsc.noaa.gov/Quarterly/jfm2013/JFM2013-Feature.pdf.

[9] http://www.afsc.noaa.gov/FMA/Manual_pages/MANUAL_pdfs/manual2015.pdf

[10] http://www.alaskaseafood.org

[11] https://www.uaf.edu/sfos/about-us/locations/kodiak/about-ksmsc/

[12] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

recognizes the need to balance competing uses of resources and different social and economic goals for sustainable management.

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.
All available P. cod data from small and large scale fisheries, including personal use and subsistence, are considered in the stock assessment and management processes. Data from both federal and state-managed fisheries are included (e.g. see Thompson 2015).

4.7, 4.8 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.
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. Data from the annual setline survey (targeting P. halibut) conducted by IPHC, using commercial vessels from USA and Canada, have been considered as indices of P. cod abundance. 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 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. None of the other surveys used for P. cod assessments cross any international boundaries and there is no research on the Alaskan P. cod stocks conducted on the high seas.

Supporting clauses 4.9 – 4.11. As there are no developing countries involved in the P. cod fisheries, and the fisheries are well established, these clauses are not relevant.

Fundamental 5

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

No. Supporting clauses	**11**
Supporting clauses applicable	**11**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized Evidence:

5.1. (Incl. 5.1.1) States shall ensure that appropriate research is conducted into all aspects of fisheries including biology, ecology, technology, environmental science, economics, social science, aquaculture and nutritional science. The research shall be disseminated accordingly. States shall also ensure the availability of research facilities and provide appropriate training, staffing and institution building to conduct the

research, taking into account the special needs of developing countries.

There is a well-established process in place to peer review all appropriate research, stock assessment and management of the P. cod resource in Alaska. This includes review and production of annual SAFE documents, as well as research and assessment of P. cod by ADF&G in state-managed waters. NMFS has a well-established institutional framework for research developed within the Alaska Fisheries Science Center (AFSC). The AFSC operates several laboratories (e.g. Auke Bay Biological Lab and the National Marine Mammal Lab), and an extensive fisheries monitoring and analysis section (Observers), as well as the Resource Assessment & Conservation Engineering (RACE) and the Resource Ecology Fisheries & Management (REFM) Divisions.

As outlined in the NPFMC FMPs[13] , scientists from the AFSC, ADF&G, other agencies, and universities prepare a Stock Assessment and Fishery Evaluation (SAFE) report annually. The SAFE report consists of three volumes: a volume containing stock assessments, one containing economic analysis, and one describing ecosystem considerations. Chapters of the assessment volume deal with each stock assessment (e.g. for EBS P. cod, see Thompson 2015). The SAFE report is scientifically based, considers all available research on P. cod, and provides information to NPFMC for determining annual harvest specifications, documenting significant trends or changes in the stocks, marine ecosystem, and fisheries. This document is reviewed first by the NPFMC Groundfish Plan Team, then by the Scientific and Statistical Committee (SSC) and Advisory Panel, and finally by the full Council. Upon review and acceptance by the SSC, the SAFE report and any associated SSC comments constitute the best scientific information available for purposes of the Magnuson-Stevens Act. NPFMC actively encourages stakeholder participation, and all Council deliberations are conducted in open, public sessions.

In 2016, NMFS requested the Center for Independent Experts (CIE)[14] to conduct a peer review of the agency's stock assessments of EBS and AI P. cod. The CIE is a group that provides independent peer reviews of NMFS science nationwide, including reviews of stock assessments for fish and marine mammals. The 2016 CIE Review of assessments of Pacific cod (*Gadus macrocephalus*) stocks in the Eastern Bering Sea (EBS) and Aleutian Islands (AI) met in Seattle, Washington, from Tuesday to Friday, 16-19 February 2016. The review panel was composed of Robin Cook, Jean-Jacques Maguire, and Neil Klaer from the Center for Independent Experts (CIE). The meeting concentrated on providing answers to the specific questions in the terms of reference, rather than arriving at a consensus view on any particular model. Each member of the Panel has written his own independent report on the meeting [15][16] [17] .

ADF&G has two employees who are members of the NPFMC's Scientific and Statistical Committee (SSC). ADFG scientists conduct research associated with sampling commercial fishery catches, conducting trawl surveys, estimation of catch, and analysis of fishery-dependent data, and collect biological and economic data as basis for the setting of P. cod management objectives. ADF&G manages the smaller-scale parallel

[13] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

[14] http://ciereviews.org/

[15] CIE review by Maguire http://www.afsc.noaa.gov/REFM/Stocks/plan_team/2016pcodCIE/2016_04%20Maguire%20Pacific%20cod%20assesment%20report.pdf

[16] CIE review by Klaer: http://www.afsc.noaa.gov/REFM/Stocks/plan_team/2016pcodCIE/2016_04%20Klaer%20Pacific%20cod%20assesment%20report.pdf

[17] CIE review by Cook http://www.afsc.noaa.gov/REFM/Stocks/plan_team/2016pcodCIE/2016_04 Cook Pacific cod assessment report.pdf

and state water P. cod fisheries by determining the Guideline Harvest Level (GHL) and monitoring catches to ensure the GHL is not exceeded in any area. For example, the guideline harvest level (GHL) for the Aleutian Islands District state-waters P. cod season in 2015 was set at 3% of the estimated ABC of P. cod for the federal BSAI Area[18].

Appropriate research is conducted into all aspects of fisheries by NMFS, ADF&G, and researchers from universities and other agencies. Data gaps and research priorities are published in the annual SAFE documents, and biology, ecology, stock assessment, and environmental science are all covered there. Economic analyses and social science are conducted by NMFS/AFSC (Fissel et al. 2015), and ADF&G. All results of research are available to the public in understandable fashion, and 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, including the University of Alaska and the University of Alaska Fairbanks Kodiak Seafood and Marine Science Center.

The Bering Sea Project, a partnership between the NPRB and the National Science Foundation, is studying the Bering Sea ecosystem from atmospheric forcing and physical oceanography to humans and communities, as well as socio-economic impacts of a changing marine ecosystem. Scientists and researchers from a number of agencies and universities are involved. Ecosystem modelling, sound data management, and education and outreach activities are included in the program. An example of some of this research is the publication by Farley et al. (2014) on P. cod biology and climate states in the EBS. An integrated GOA Ecosystem project, funded by the NPRB, is examining recruitment processes of major groundfish species.

5.2. (Incl. 5.2.1.) The state of the stocks under management jurisdiction, including the impacts of ecosystem changes resulting from fishing pressure, pollution or habitat alteration shall be monitored.

The NMFS, ADF&G, and University of Alaska[19] all have established research programs to monitor the state of the P. cod stocks and effects of fishing, pollution, habitat alteration and climate change. Clause 5.1 above documents the assessment procedures used to evaluate impacts of fishing on the P. cod stocks. NPFMC receives comprehensive 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), as part of its annual management process for Alaskan groundfish including P. cod. These are prepared and presented by NMFS scientists, and contain report cards which look at a wide range of environmental and ecosystem variables, such as physical and environmental trends, zooplankton biomass, predator and forage species biomass, and seabird and marine mammal data.

The NPRB has developed two special projects that seek to understand the integrated ecosystems of the BSAI[20] and GOA[21]. For example, in the Gulf of Alaska Integrated Ecosystem Research Program, more than 40 scientists from 11 institutions are taking part in the $17.6 million GOA ecosystem study that looks at the physical and biological mechanisms that determine the survival of juvenile groundfish in the eastern and western Gulf of Alaska. NOAA identifies essential fish habitats (EFH) for managed species and conserves habitats from adverse effects on those habitats. NMFS and NPFMC must describe and identify EFH in fishery management plans (FMPs), minimize to the extent practicable the adverse effects of fishing

[18] http://www.adfg.alaska.gov/FedAidPDFs/FMR14-58.pdf
[19] https://www.uaf.edu/sfos/research/fisheries/
[20] http://www.nprb.org/bering-sea-project
[21] http://www.nprb.org/gulf-of-alaska-project

on EFH, and identify other actions to encourage the conservation and enhancement of EFH[22] .

5.3(include 5.4). Management organizations shall cooperate with relevant international organizations to encourage research in order to ensure optimum utilization of fishery resources.
The only two nations involved in the P .cod fishery in the eastern North Pacific are Canada and the United States of America. This is also the only relevant transboundary issue for P .cod. The resources in each nation's waters are managed separately, and each nation conducts surveys that occur in adjacent geographical areas, as well as a halibut-directed survey conducted by IPHC that covers areas in the EEZs of both countries, and is used in P. cod stock assessments. There is cooperation on various aspects of research, stock assessment, and management of P. cod between the fisheries agencies (e.g. DFO and NMFS) of Canada and USA, including involvement of scientists in the stock assessments. There have been occasional cooperative research projects with other nations, mostly occurring prior to the 1990's (for an example, see Brown 1986).

5.5. (Incl. 5.5.1. and 5.5.2.) Data generated by research shall be analysed and the results of such analyses published in a way that ensures confidentiality is respected, where appropriate.
Scientific data from various sources are analysed and presented in peer reviewed meetings and/or in primary literature, following scientific protocols. Results of these analyses are disseminated widely in a timely fashion through numerous methods, including scientific publications, as information on websites of various agencies, and at public meetings, in order to contribute to P. cod fisheries conservation and management. Confidentially is required by Alaska Statute 16.05.815 Confidential Nature of Certain Reports and Records, 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.

5.6. 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.
5.7. In the evaluation of alternative conservation and management measures, their cost-effectiveness and social impact shall be considered.

Mechanisms have been established to reduce capacity to levels commensurate with sustainable use of the P. cod resource in Alaska. These include harvest control rules on the catch and effort management side, a licence limitation program, and reduction of the number of vessels through industry-based initiatives. Fishing fleet capacity is regularly monitored, and results published in annual SAFE reports (Fissel et al 2015). Authorizations to fish are controlled by NMFS and ADF&G authorities, under various tightly controlled regulations (see Section 8 for more detailed information on the regulations).

NPFMC is required to consider the impact of their rules (e.g. Fishery Management Plans[23], Fishing Regulations) on small entities (fisher communities) and to evaluate alternatives that would accomplish the objectives of the rules without unduly burdening small entities when the rules impose a significant economic impact on them. This NPFMC approach explicitly recognizes the need to balance competing uses of resources and different social and economic goals for sustainable management.

[22] http://www.npfmc.org/habitat-protections/essential-fish-habitat-efh/
[23] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

As noted in Clause 2.5 above, the Western Alaska Community Development Quota (CDQ) Program[24] 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.

[24] NPFMC Community Development Quota Program http://www.npfmc.org/community-development-program/

C. The Precautionary Approach

Fundamental 6

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

No. Supporting clauses	**5**
Supporting clauses applicable	**5**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized Evidence:

6.1. (Incl. 6.1.1., 6.1.2., 6.1.3., 6.1.4., 6.1.5.) States shall determine for the stock both safe targets for management (Target Reference Points) and limits for exploitation (Limit Reference Points), and, at the same time, the action to be taken if they are exceeded.

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

The NPFMC harvest control system used for Alaskan groundfish is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. It includes reference points for optimum yield (OY), which cover total fish removals in the BSAI and GOA ecosystems. The maximum fishing mortality threshold, also called the "OFL control rule", is the level of fishing mortality (F), on an annual basis, used to compute the smallest annual level of catch that would constitute overfishing, which is the overfishing level (OFL). If the exploitation level (or fishing mortality) exceeds the FOFL, the stock is considered to be subject to overfishing. A second metric is the relationship between the stock size and the minimum stock size threshold (MSST). If the stock size is below the MSST it is considered to be overfished. A stock is considered to be approaching an overfished condition when it is projected that there is more than a 50% chance that the biomass of the stock or stock complex will decline below the MSST within 2 years.

Harvest specifications are made annually by NPFMC, and include the overfishing limit, acceptable biological catch (ABC), and total allowable catch (TAC). The NPFMC management plans classify each stock based on a tier system (Tiers 1-6) with Tier 1 having the greatest level of information on stock status and fishing mortality relative to MSY considerations. The Tier system specifies the maximum permissible ABC and the Overfishing Level (OFL) for each stock in the complex (usually individual species but sometimes species groups). The BSAI and GOA groundfish fishery management plans[25] have pre-defined harvest

[25] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

control rules that define a series of target and limit reference points for P. cod and other groundfish covered by these plans. The overall objectives of the management plans are to prevent overfishing and to optimize the yield from the fishery through the promotion of conservative harvest levels while considering differing levels of uncertainty.

Tier 3 uses the following reference points: B40%, equal to 40% of the equilibrium spawning biomass that would be obtained in the absence of fishing; F35%, equal to the fishing mortality rate that reduces the equilibrium level of spawning per recruit to 35% of the level that would be obtained in the absence of fishing; and F40%, equal to the fishing mortality rate that reduces the equilibrium level of spawning per recruit to 40% of the level that would be obtained in the absence of fishing. The following formulae apply under Tier 3a:
Stock status: Current Biomass/B40% > 1; F_{OFL} = F35%; F_{ABC} < F40%.

The BSAI and GOA groundfish fishery management plans[26] have pre-defined harvest control rules that define a series of target and limit reference points for P .cod and other groundfish covered by these plans. Each SAFE report describes the current fishing mortality rate, and stock biomass relative to the target and limit reference points. Management plans specify the Overfishing Limits (OFL) and the Fishing mortality rate (F_{OFL}) used to set OFL, ABC, and the fishing mortality rate (F_{ABC}) used to set annual catch limits (ABC or ACL), the determination of each being dependent on the knowledge base for each stock. The overall objectives of the management plans are to prevent overfishing and to optimize the yield from the fishery through the promotion of conservative harvest levels while considering differing levels of uncertainty.

In the NPFMC tier system, the EBS and GOA P. cod stocks are currently managed under Tier 3a, indicating a stock where biomass is above B40%. The harvest control rule is biomass-based, for which fishing mortality is constant when biomass is above the B40% target and declines linearly down to a threshold value when biomass drops below the target, consistent with the precautionary approach. Below B20%, the MSST limit, FOFL is set to zero and there is no directed fishing permitted. The rule used to determine the Acceptable Biological Catch (ABC) is applied in exactly the same manner, i.e. based on a harvest control rule triggered by targets and limits, and below the MSST limit, maxFABC is set to zero.

Each SAFE report describes the current fishing mortality rate, stock biomass relative to the target and limit reference points. Management plans specify the Overfishing Limits (OFL) and the Fishing mortality rate (FOFL) used to set OFL, Acceptable Biological Catch (ABC) and the fishing mortality rate (FABC) used to set ABC, the determination of each being dependent on the knowledge base for each stock.

The 2015 SAFE documents for EBS and GOA P.cod (Thompson 2015; A'mar and Palsson 2015;) determined the current stock sizes compared to the various reference points. Based on these values, and comparing the 2014 catch to the 2014 OFL, by definition, these P. cod stocks are not being subjected to overfishing, are not currently overfished, and are not approaching an overfished condition. The recommended ABC values for these stocks for 2016 were based on the Tier 3a criteria (FOFL = F35%, and FABC < F40%). In the 2015 SAFE for P. cod in AI (Thompson and Palsson 2015), the authors recommend that the ABC be set using the Tier 5 criteria, and that current stock biomass is about 3 times the OFL. The recommended ABC levels for P. cod for 2016 EBS, GOA, and AI stocks are 255, 98.6. and 17.6 (all values in mt). Therefore, the P. cod stocks are substantially above the MSST values that would trigger the management action outlined

[26] Fishery Management Plans http://www.npfmc.org/fishery-management-plans/

in the HCR, and the ABC for GOA and EBS is set based on the stock being above B40%.

For the 8 state fisheries for P. cod, there are no specific overfishing definitions or reference points, but it is important to note that the federal fisheries are not allocated the full ABC for the stocks, and a portion is allocated to state fisheries. These state fisheries appear to be well managed, and in recent years have taken catches of P. cod below the overall state-set GHL levels.

Extensive oceanographic monitoring is carried out in conjunction with the various surveys in Alaskan waters, as described in Clause 4. 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 P. cod. In addition, comprehensive Ecosystem Reports for BSAI and GOA are presented to NPFMC annually (e.g. Zador (ed). 2016[27]), which look at numerous elements of the Alaskan Ecosystems (see Clause 5.2 for more details).

Fundamental 7

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

No. Supporting clauses	**6**
Supporting clauses applicable	**6**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized Evidence:

7.1. (Incl. 7.1.1.,7.1.2) The precautionary approach shall be applied widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment.

Precautionary approach-based reference points are used in the management of the P. cod stocks, 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 stocks is presented for different harvest levels (e.g. Thompson 2015), which explains the risk of biomass levels being below the adopted reference points. State-managed P. cod resources are managed with GHLs, and make use of adjacent federal-based reference points and precautionary approaches where possible.

The scientific information available for these P. cod resources is of a very high standard, and includes long time series of catch and fishery data, as well as fishery independent data. The annual NMFS/NPFMC stock assessments are of excellent quality, are reviewed at multiple levels (e.g. NPFMC's SSC and Advisory

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

Panel), and are externally reviewed on a regular basis (e.g. CIE). Details of the data and assessment are in Clauses 4 and 5. Where data gaps have been identified, the NMFS/AFSC has ongoing research programs capable of addressing these needs. Organizations such as NPRB allow scientists from a number of disciplines and agencies to work collaboratively on a variety of fishery related studies in Alaskan waters, including some on P. cod. Research is conducted by ADF&G on the state-managed P. cod resources.

7.2. (Incl. 7.2.1., 7.2.2., 7.2.3,7.3.) For new and exploratory fisheries, procedures shall be in place for promptly applying precautionary management measures, including catch or effort limits.

Virtually all current fisheries for P. cod, including trawl, longline and pot gear, are well established and have existed for many years, and thus there is little or no exploratory fishing. Catch and/or effort limits exist for all fleet sectors, and entry into the commercial fishery is limited. 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 NPFMC and NMFS and often involve periods of experimental fishing before being implemented.

There are pre-agreed NPFMC harvest control rules in place to ensure overfishing does not occur on the P. cod stocks, as noted in Clause 6. In addition the NPFMC FMPs contain the following specific clause: "In the event that a stock or stock complex is determined to be approaching a condition of being overfished, an in-season action, an FMP amendment, a regulatory amendment or a combination of these actions will be implemented to prevent overfishing from occurring[28]". The FMPs also note that information and data relating to stock status may become available to NPFMC 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.

Section 679.25 of the Federal Fishing Regulations for Fisheries of the Exclusive Economic Zone off Alaska deals with NMFS in-season adjustments. These adjustments include closure, extension, or opening of a season in all or part of a management area; modification of the allowable gear to be used in all or part of a management area; adjustment of TAC, MRA, and PSC limits; and interim closures of statistical areas, or portions thereof, to directed fishing for specified groundfish species. Any in-season adjustment taken must be based on a determination that such adjustments are necessary to prevent one of a number of conditions from occurring, including overfishing of any species or stock of fish or shellfish[29] .

[28] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf
[29] https://alaskafisheries.noaa.gov/sites/default/files/part679_all.pdf

D. Management Measures

Fundamental 8

Management shall adopt and implement effective measures including; harvest control rules an technical measures applicable to sustainable utilization of the fishery and based upon verifiable evidence and advice from available scientific and objective, traditional sources.

No. Supporting clauses	**10**
Supporting clauses applicable	**10**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

Management measures:

8.1. (Incl 8.1.1) Conservation and management measures shall be designed to ensure the long-term sustainability of fishery resources at levels which promote the objective of optimum utilization, and be based on verifiable and objective scientific and/or traditional sources. In the evaluation of alternative conservation and management measures, their cost-effectiveness and social impact shall be considered.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary domestic legislation governing management of the USA marine fisheries. The act establishes MSY as the basis for fishery management and requires that: the fishing mortality rate does not jeopardize the capacity of a stock or stock complex to produce MSY; the abundance of an overfished stock or stock complex be rebuilt to a level that is capable of producing MSY; and OY not exceed MSY. NPFMC FMPs for GOA and BSAI Regions present long-term management objectives for the Alaska P. cod fishery. These include sections that describe a Summary of Management Measures and Management and Policy Objectives. The MSA sets out ten national standards for fishery conservation and management, with which all fishery management plans must be consistent. Under the direction of the NPFMC, the GOA and BSAI FMPs define nine management and policy objectives that are reviewed annually, and they include preventing overfishing, promoting sustainable fisheries and communities, and promoting equitable and efficient use of fishery resources. The approach used by NPFMC for P. cod includes the best scientific advice available, and decisions are based on a precautionary approach which includes harvest control rules (outlined in previous clauses).

In state waters (0-3 nm), eight P. cod state fisheries are managed by the ADF&G and the BOF. Each area supports two distinct Pacific cod fisheries: a) the first fishery is managed concurrent to the federal BSAI or GOA fishery and is referred to as the parallel fishery; b) he second fishery in each area is referred to as the state-waters (or state-managed) fishery. A parallel groundfish fishery occurs where the State allows the federal species total allowable catch (TAC) to be harvested in State waters. The parallel fishery is managed by the state adopting most of the NMFS rules and management actions, including seasons, and catch in this fishery is counted towards federal quotas. The second fishery in each area is referred to as the state-waters (or state-managed) fishery. The state-waters fishery is managed independently of the federal/parallel fishery by the ADFG under guidelines developed by the BOF. Seven of the eight state-

water fisheries are subject to an annual Guideline Harvest Level (GHL) calculated as a percentage of federal fishery quotas, while the eighth has a Guideline Harvest Range. Although there is not a full suite of reference points for these resources, the state fisheries appear to be well managed, with recent catches often being less than the specified GHLs.

NPFMC uses a multi-tier precautionary approach, which includes Optimal Yield (OY) and MSY reference points. By definition, the optimum yield reference point is the amount of fish which: a) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems; b) is prescribed as such on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor; and c) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery. OY is given as a range for the groundfish complexes in the BSAI and the GOA, and the sum of the TACs of all groundfish species (except P. halibut) is required to fall within the range. The range for BSAI is 1.4 to 2.0 million mt[30] while the range for GOA is 116 to 800 thousand mt[31]. To prevent overfishing, NPFMC management objectives include the following measures specific to Optimum Yield: 1) Adopt conservative harvest levels for multi-species and single species fisheries and specify optimum yield; 2) continue to use the 2 million mt optimum yield cap for the BSAI groundfish fisheries; and 3) provide for adaptive management by continuing to specify optimum yield as a range.

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 substantial section on the economic and socioeconomic characteristics of the fisheries and communities in Alaska (Fissel et al 2015). Harvest levels for each groundfish species or species group that are set by the Council for a new fishing year are based on the best biological, ecological, and socioeconomic information available, and follow a rigorous and public peer-reviewed process.

Annual analyses are carried out on the costs, benefits, and economic value of P. cod fisheries in Alaska (Fissel et al. 2015). Measures have been taken to rationalize effort, eliminate derby-style fisheries, and improve retention, utilization, and reduce bycatch, such as the formation of the Bering Sea/Aleutian Islands non-Pollock Trawl Catcher-Processor Groundfish Cooperatives Program (also known as Amendment 80). This program was implemented in 2008 for certain groundfish catcher/processors in the Bering Sea/Aleutian Islands (BSAI) and provides an allocation of six groundfish species including P. cod. As well, the freezer longline fleet in the BSAI Region formed a voluntary cooperative (the Freezer Longline Conservation Cooperative or FLCC) in 2010, in an attempt to maximize the value of their allocation of P. cod. The number of active vessels in this fleet was stable between 2003 and 2009 at an average of approximately 39 vessels, but after the formation of the FLCC, only approximately 29-30 vessels continued to fish in 2011-2014. However the number of fishing days utilized increased, as the race for fish was eliminated (Fissel et al. 2015).

NPFMC FMPs and NMFS regulations list all legal gears for catching P. cod, including hook and line, pot, jig,

[30] http://www.npfmc.org/wp-content/PDFdocuments/fmp/BSAI/BSAIfmp.pdf
[31] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

and trawl. No destructive methods such as dynamite or poison are permitted, nor is there any evidence that such methods are being used illegally.

8.2. (Incl 8.2.1.) States shall seek to identify domestic parties having a legitimate interest in the use and management of the fishery.

NPFMC established an Advisory Panel[32] (AP) where members represent major segments of the fishing industry; catching and processing, subsistence and commercial fishermen, observers, consumers, environmental/conservation, and sport fishermen. The AP now consists of 21 members, all of which serve three-year staggered terms (January 1 through December 31). These members may be reappointed or replaced by the Council annually at their December Council meeting.

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. Initial priorities of the Committee included salmon PSC reduction[33].

The Western Alaska Community Development Quota (CDQ)[34] Program was created by 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 BSAI quotas for groundfish, prohibited species, halibut, and crab to eligible communities. The main purpose of the CDQ Program is to provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the BSAI Management Area. There are approximately 65 communities within 50 miles of the BS coastline who participate in the program.

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. Approximately 80% to 85% of the 84 ACs in Alaska are "active", meaning they regularly meet, write proposals, comment and attend BOF meetings. Regulations governing the ACs are found in the Alaska Administrative Code (AAC) Title 5, Chapters 96 – 97[35].

8.3. (Incl 8.3.1). Fleet capacity operating in the fishery shall be measured. States shall maintain, in accordance with recognized international standards and practices, statistical data, updated at regular intervals, on all fishing operations and a record of all authorizations to fish allowed by them.

Fishing fleet capacity is regularly monitored, and results published in annual SAFE reports (Fissel et al. 2015). Authorizations to fish are controlled by NMFS and ADF&G authorities, under various tightly controlled regulations.

Mechanisms have been established to reduce capacity to levels commensurate with sustainable use of the P. cod resource in Alaska. These include harvest control rules on the catch and effort management side, a licence limitation program, and reduction of the number of vessels through industry-based initiatives. The industry-based measures have been taken to rationalize effort, eliminate derby-style

[32] http://www.npfmc.org/ap/
[33] http://www.npfmc.org/committees/rural-outreach-committee/
[34] http://www.npfmc.org/community-development-program/
[35] http://www.boards.ADF&G.state.ak.us/bbs/what/prps.php

fisheries, and improve retention, utilization, and reduce bycatch, and include the formation of the Bering Sea/Aleutian Islands non-Pollock Trawl Catcher-Processor Groundfish Cooperatives Program (also known as Amendment 80). This program was implemented in 2008 for certain groundfish catcher/processors in the Bering Sea/Aleutian Islands (BSAI) and provides an allocation of six groundfish species including P. cod. As well, the freezer longline fleet in the BSAI Region formed a voluntary cooperative (the Freezer Longline Conservation Cooperative or FLCC) in 2010, in an attempt to maximize the value of their allocation of P. cod. The number of active vessels in this fleet was stable between 2003 and 2009 at an average of approximately 39 vessels, but after the formation of the FLCC, only approximately 29-30 vessels continued to fish in 2011-2014. However the number of fishing days utilized increased, as the race for fish was eliminated (Fissel et al. 2015).

8.4 (incl. 8.4.1, 8.4.2, 8.4.3). States and relevant groups from the fishing industry shall encourage the development and implementation of technologies and operational methods that reduce waste and discards of the target species. These measures shall be applied appropriately.

A summary of the NPFMC management measures that govern the GOA and BSAI groundfish fisheries are contained in the FMPs (e.g. see Table ES- 2 in the GOA FMP[36]). The full suite of NMFS fishery regulations for Alaskan waters can be found on the NMFS website[37]. These regulations cover all aspect of fishing, including seasons, gear limitations, and numerous area closures. There are specific rules laid out for P. cod, permitting the use of trawl gear in certain areas only, as well as regulations on seabird avoidance for vessels fishing with hook-and-line gear. The gear regulations also contain details on mesh sizes permitted, biodegradable panels in pot gears, types of hook and line gear allowed, etc. The use of bottom contact gear is prohibited in the Gulf of Alaska Coral and Alaska Seamount Habitat Protection Areas year-round. Fishing with trawl vessels is not permitted year-round in the Crab and Halibut Protection Zone and the Pribilof Island Habitat Conservation Area. As well, a number of closure zones for trawl gears are described in the NPFMC FMPs for GOA and BSAI.

NMFS has a National Bycatch Reduction Strategy[38], which is intended to guide efforts to reduce bycatch and bycatch mortality. Key areas of focus include monitoring and estimating the rates of bycatch and bycatch mortality to understand the level of impact and the nature of the interaction; research to improve estimates of bycatch rates, better understand the impacts of bycatch on species interactions and community dynamics, modify fishing gear, and develop mitigation tools to minimize bycatch and its impacts; and developing and implementing domestic management measures and promoting the adoption and implementation of international measures to address bycatch and its impacts.

Regulations pertaining to vessel and gear markings in the P. cod fishery are established in NMFS regulations, as prescribed in the annual management measures published in the Federal Register[39]. Regarding marking of hook-and-line, longline pot, and pot-and-line gear they state:

(1) All hook-and-line, longline pot, and pot-and line marker buoys carried on board or used by any vessel regulated under this part shall be marked with the vessel's Federal fisheries permit number or ADF&G vessel registration number; (2) Markings shall be in characters at least 4 inches (10.16 cm) in height and 0.5 inch (1.27 cm) in width in a contrasting color visible above the water line and shall be maintained so the markings are clearly visible.

[36] http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf
[37] https://alaskafisheries.noaa.gov/fisheries-679regs
[38] http://npfmc.legistar.com/gateway.aspx?M=F&ID=a6ea1d59-1038-4f85-89ce-29f3dddafa11.pdf
[39] https://alaskafisheries.noaa.gov/sites/default/files/679b24.pdf

Fundamental 9

There shall be defined management measures designed to maintain stocks at levels capable of producing maximum sustainable levels.

No. Supporting clauses	**11**
Supporting clauses applicable	**8**
Supporting clauses not applicable	**3**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

9.1. Measures shall be introduced to identify and protect depleted resources and those resources threatened with depletion, and to facilitate the sustained recovery 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.

As noted in previous sections, the MSA requires that conservation and fisheries management measures prevent overfishing while achieving optimal yield on a continuing basis. NMFS and NPFMC follow a multi-faceted PA (OFL, ABC, TAC, OY) to manage the federal P. cod fisheries, based on targets, limits, and pre-defined HCRs, as well as overall ecosystem considerations. Management measures are in place to ensure sustainability, and to allow timely rebuilding if stocks are overfished. None of the P. cod stocks considered in this report are classified as overfished or undergoing overfishing, and are not in a depleted state. Groundfish trawls and longlines are the main gears used in the fisheries and no destructive fishing practices are allowed which would adversely impact habitat.

The Environmental Impact Statement on Essential Fish Habitat (EFH) conducted in 2005[40] (and reviewed in 2010) indicated that fishing has long-term effects on benthic habitat features off Alaska and acknowledges that considerable scientific uncertainty remains regarding the consequences of such habitat changes for the sustained productivity of managed species. However, this EIS also concluded "that the effects on EFH are minimal because the analysis finds no indication that continued fishing activities at the current rate and intensity would alter the capacity of EFH to support healthy populations of managed species over the long term". The analysis concludes that no NPFMC managed fishing activities have more than minimal and temporary adverse effects on EFH, which is the regulatory standard requiring action to minimize adverse effects under the Magnuson-Stevens Act. These findings suggested that no additional actions were required to minimize the adverse effects of fishing on EFH pursuant to the Magnuson-Stevens Act and the EFH regulations. It was noted that the analysis has many limitations, and the effects of fishing on EFH for some managed species are unknown.

9.2. 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

[40] EIS 2005 Summary, conclusions https://alaskafisheries.noaa.gov/sites/default/files/0405efh_eis_Chapter_4.5.pdf

for their livelihood.

Through extensive consultation processes and direct involvement in the management of the P. cod stocks, interests of indigenous people and local fishing communities in Alaska are recognized. The Western Alaska Community Development Quota (CDQ) Program was created by 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. There are approximately 65 communities within 50 miles of the BS coastline who participate in the program. Also, NPFMC has established a Rural Outreach Committee 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. Management actions taken to reduce salmon by-catches in a number of fisheries also explicitly acknowledge the importance of the salmon resources to the individuals and communities reliant on them.

9.3. States and relevant groups from the fishing industry shall encourage the development and implementation of technologies and operational methods that reduce discards of the target and non-target species catch. 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.

NMFS has a National Bycatch Reduction Strategy, which is intended to guide efforts to reduce bycatch and bycatch mortality, and one key area of focus is on modification of fishing gear. The groundfish trawl industry in Alaska deploys halibut excluder devices in their gear, reducing the by-catch of halibut, which is treated as a prohibited species catch (PSC) and managed with strict limits. 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[41]. Vessels fishing longline gear in Alaskan waters are required by NMFS regulation[42] to take measures to avoid seabird bycatch, such as the use of streamer lines, and the use of baited hooks that sink as soon as they are put in the water. NMFS regulations also contain specific measures and programs (e.g. § 679.27[43]) aimed at P. cod to improve retention and utilization, such as preventing “bleeding” of codends and shaking of fish from longline gear.

9.4. Technologies, materials and operational methods shall be applied to minimize the loss of fishing gear and the ghost fishing effects of lost or abandoned fishing gear.

Substantial use of longline and pot gear in some of the P. cod fisheries reduces the impact on bottom habitats and bycatch of many bottom dwelling species. Also, longline is typically not associated with as much ghost fishing as some other fishing gears, such as gillnets and some types of traps[44]. Otter trawling is prohibited in many sensitive areas in BSAI and GOA Regions. Section 12 contains more information on the main bycatch species taken in the P. cod fisheries. NMFS regulations requires that each pot used to fish for groundfish in Alaska be equipped with a biodegradable panel at least 18 inches (45.72 cm) in length and sewn up with untreated cotton thread. These pot regulations also contain requirements on the dimensions of tunnel openings.

[41] https://alaskafisheries.noaa.gov/sites/default/files/efp2016-01-050616permit.pdf
[42] https://alaskafisheries.noaa.gov/sites/default/files/679b24.pdf.
[43] https://alaskafisheries.noaa.gov/fisheries-679regs
[44] https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf

9.5. There shall be a requirement that fishing gear, methods and practices where practicable, are sufficiently selective as to minimize waste, discards, and catch of non-target species - both fish and non-fish species and impacts on associated or dependent species.

As noted in Section 8, there are a number of measures implemented in the P. cod fishery to minimize non utilized catches. These include utilization of maximum retainable amounts (MRA) to limit bycatch, deployment of halibut excluder devices in groundfish trawl gear, use of streamers on longline gear to reduce seabird bycatch, deck sorting to improve survival of live fish 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, ADF&G, DFO, IPHC, universities, and industry.

9.6 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.

There is no evidence to suggest that regulations on fishing gear selectivity and impacts are being circumvented via usage of technical devices. Information on gear regulations, including amendments or modifications, as well as information on gear technology is readily available to fishers and the general public through the websites of management agencies such as NPFMC, NOAA/NMFS, and IPHC, and through various meetings, mailouts, etc. Fishing gear is regulated and monitored through these agencies, and data on compliance is recorded and published.

9.7 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.

The Alaskan P. cod fisheries are not international, as they are prosecuted solely by USA vessels. There is cooperation on science and management of the adjacent P. cod stock in Canadian (BC) waters. Results of research on Alaskan P. cod are widely available and disseminated through websites of NPFMC and NMFS, as well as at public meetings.

9.8 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 behaviour 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.

NPFMC is considering a number of measures to reduce by-catch, wastage, and PSC in Alaskan trawl fisheries. These are intended to " increase the ability of the groundfish trawl sector to avoid PSC species and utilize available amounts of PSC more efficiently by allowing groundfish trawl vessels to fish more slowly, strategically, and cooperatively, both amongst the vessels themselves and with shore-based processors", and to " reduce bycatch and regulatory discards by groundfish trawl vessels"[45]. Any measures introduced 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, ADF&G, DFO, IPHC, universities, and industry.

[45] NPFMC GOA Trawl by-catch management
http://npfmc.legistar.com/gateway.aspx?M=F&ID=efc97cbc-744b-4738-92e6-b06b4e19ca05.pdf

9.9 (incl. 9.9.1, 9.9.2) Policies shall be developed for increasing stock populations and enhancing fishing opportunities through the use of artificial structures, placed with due regard to the safety of navigation.
There is no evidence that artificial reefs/structures provide benefits to P.cod, thus this clause is not relevant.

Fundamental 10

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

No. Supporting clauses	**3**
Supporting clauses applicable	**3**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

10.1./10.2./10.3. Education and training programs.
The North Pacific Fishing Vessel Owners association (NPFVO)[46] provides a large and diverse training program that many of the professional crew members must pass. Training ranges from firefighting on a vessel, damage control, man-overboard, MARPOL, etc.. The Sitka-based Alaska Marine Safety Education Association alone has trained more than 10,000 fishermen in marine safety and survival through a Coast Guard-required class on emergency drills. 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[47].

The goal of the Alaska Maritime Training Center is to promote safe marine operations by effectively preparing captains and crew members for employment in the Alaskan maritime industry. The Alaska Maritime Training 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. Also, the University of Alaska Sea Grant Marine Advisory Program (MAP)[48] provides education and training in several sectors, including fisheries management, in the forms of seminars and workshops. MAP also conducts sessions of their Alaska Young Fishermen's Summit. Each Summit is an intense course in all aspects of Alaska fisheries, from fisheries management & regulation (e.g. MSA), to seafood marketing. The 2016 summit was hosted in Anchorage, Alaska, on the 27-29th January 2016. The conference aimed at providing crucial training and

[46]The North Pacific Fishing Vessel Owners association http://www.npfvoa.org/
[47] Alaska's Institute of Technology http://www.avtec.edu/amtc-cost.aspx
[48] University of Alaska Sea Grant Marine Advisory Program (MAP) http://seagrant.uaf.edu/map/fisheries/

networking opportunities for fishermen entering the business or wishing to take a leadership role in their industry[49].

In addition to this, MAP provides training and technical assistance to fishermen and seafood processors in Western Alaska. A number of training courses and workshops were developed in cooperation with local communities and CDQ groups. Additional education is provided by the Fishery Industrial Technology Center, in Kodiak, Alaska[50].

[49] Alaska Young Fishermen's Summit: https://seagrant.uaf.edu/map/workshops/2013/ayfs/, https://seagrant.uaf.edu/map/workshops/2016/ayfs/

[50] Fishery Industrial Technology Center http://www.uaf.edu/sfos/about-us/locations/kodiak/about-ksmsc/

E. Implementation, Monitoring and Control

Fundamental 11

An effective legal and administrative framework shall be established and compliance ensured through effective mechanisms for monitoring, surveillance, control and enforcement for all fishing activities within the jurisdiction.

No. Supporting clauses	**6**
Supporting clauses applicable	**3**
Supporting clauses not applicable	**3**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

11.1. Enforcement agencies and framework:

Effective mechanisms are established for fisheries monitoring, surveillance, control and enforcement measures including, an observer program (although it is designed for biological data collection rather than enforcement), inspection schemes such as US Coast Guard (USCG)[51] boardings, dockside landing inspections and vessel monitoring systems, to ensure compliance with the conservation and management measures for the Alaska Pacific cod fisheries.

The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE)[52] enforce federal fisheries laws and regulations, especially 50CFR679. 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.

On January 8, 2002, an emergency interim rule (67 FR 956) was issued by NMFS to implement Steller sea lion protection measures. All vessels using pot, hook-and-line or trawl gear in the directed fisheries for pollock, Pacific cod or Atka mackerel are required [Section 679.7(a)(18)] to have an operable VMS on board. This requirement is necessary to monitor fishing restrictions in Steller sea lion protection and forage areas. The Alaska Department of Public Safety, Division of Alaska Wildlife Troopers is responsible for protecting fishery resources within 3 miles of shore.[53]

11.2./11.4. Fishing permit requirements:

No foreign fleet is allowed to fish in the Alaska's EEZ. Every fishing vessel targeting Pacific cod in Alaska is required to have a federal and state permit. The permit programs are managed by the Restricted Access

[51] US Coast Guard: http://www.uscg.mil/
[52] NOAA Office of Law Enforcement http://www.nmfs.noaa.gov/ole/index.html
[53] Alaska Wildlife Troopers http://dps.alaska.gov/AWT/marine.aspx

Management (RAM) federal division.

The Pacific cod fisheries of Alaska under assessment here are harvested exclusively within the Alaska EEZ only. Those fisheries are not part of any international agreement or part of a framework of sub-regional or regional fisheries management organizations or arrangements.

11.3 Boardings and Violations

For Pacific cod there were 144 incidents 12 boardings 21 violations (Will Ellis AK NOAA OLE Personal communication, (June 24th 2016).

The nature of these most of these violations were under IRIU (Increase Retention Increase Utilization) provisions related

Fundamental 12

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

No. Supporting clauses	**4**
Supporting clauses applicable	**2**
Supporting clauses not applicable	**2**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

12.1/12.2 Enforcement policies and regulations, state and federal:

In Alaska waters, enforcement policy section 50CFR600.740 states[54]:

The Magnuson-Stevens Act provides four basic enforcement remedies for violations, in ascending order of severity, as follows: (1) Issuance of a citation (a type of warning), 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. It shall be the policy of NMFS to enforce vigorously and equitably the provisions of the MSA by utilizing that form or combination of authorized remedies best suited in a particular case to this end[55].

Processing a case under one remedial form usually means that other remedies are inappropriate in that case. However, further investigation or later review may indicate the case to be either more or less serious than initially considered, or may otherwise reveal that the penalty first pursued is inadequate to serve the purposes of the MSA. Under such circumstances, the Agency may pursue other remedies either in lieu of or in addition to the action originally taken. Forfeiture of the illegal catch does not fall within this general rule and is considered in most cases as only the initial step in remedying a violation by removing

[54] 50CFR600.740 Enforcement policy NOAA. Update of NOAA Fisheries Enforcement Programs and Operations. Accessed 2015.http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20L%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf

[55] The Alaska State Legislature. Accessed 2015 http://www.legis.state.ak.us/basis/aac.asp#TitleTable

the ill-gotten gains of the offense.

If a fishing vessel for which a permit has been issued under the MSA is used in the commission of an offense prohibited by section 307 of the MSA, NOAA may impose permit sanctions, whether or not civil or criminal action has been undertaken against the vessel or its owner or operator. In some cases, the MSA requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. In sum, 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.

The "Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions" issued by NOAA Office of the General Counsel – Enforcement and Litigation on March 16, 2011. In that Policy, the NOAA General Counsel's Office committed to periodic review of the Penalty Policy to consider revisions or modifications as appropriate. The July 2014 revised version of the Penalty Policy is a result of that review. The purpose of the 2014 Policy is to ensure that: (1) civil administrative penalties and permit sanctions are assessed in accordance with the laws that NOAA enforces in a fair and consistent manner; (2) penalties and permit sanctions are appropriate for the gravity of the violation; (3) penalties and permit sanctions are sufficient to deter both individual violators and the regulated community as a whole from committing violations; (4) economic incentives for noncompliance are eliminated; and (5) compliance is expeditiously achieved and maintained to protect natural resources. Under this Policy, NOAA expects to improve consistency at a national level, provide greater predictability for the regulated community and the public, improve transparency in enforcement, and more effectively protect natural resources. For significant violations, the NOAA attorney may recommend charges under NOAA's civil administrative process (see 15 C.F.R. Part 904), through issuance of a Notice of Violation and Assessment of a penalty (NOVA), Notice of Permit Sanction (NOPS), Notice of Intent to Deny Permit (NIDP), or some combination thereof. Alternatively, the NOAA attorney may recommend that there is a violation of a criminal provision that is sufficiently significant to warrant referral to a U.S. Attorney's office for criminal prosecution[56,57].

[56] NOAA Office of the General Counsel – Enforcement Section Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions: http://www.gc.noaa.gov/documents/Penalty%20Policy_FINAL_07012014_combo.pdf
[57] NOAA Penalty Policy and Schedules. Accessed 2015. http://www.gc.noaa.gov/enforce-office3.html

F. Serious Impacts of the Fishery on the Ecosystem

Fundamental 13

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

No. Supporting clauses	**13**
Supporting clauses applicable	**13**
Supporting clauses not applicable	**0**
Overall level of conformity	**HIGH**
Non Conformances	**0**

Summarized evidence:

13.1. Research and Institutional capacity for environmental impact assessment

Tens of millions of dollars on research essential to NPFMC management has occurred over the past decade to understand the Bering Sea and Gulf of Alaska ecosystems and how these systems play a dynamic role in Pacific cod stock status. Major research projects like the Bering Sea Integrated Ecosystem Research Program (BSIERP) and the GOA Integrated Ecosystem Research Program (GOAIERP) have provided and are providing, among many others, significant insight into these major North Pacific Integrated Ecosystem Research Plans and research findings that are presented annually at the North Pacific Science Symposium.

The North Pacific Research Board (NPRB) was created by Congress in 1997 to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean with a priority on cooperative research efforts designed to address pressing fishery management or marine ecosystem information needs. While the NPRB has invested millions of dollars on obtaining this objective, they have also developed two special projects that seek to understand the integrated ecosystems of the BSAI and GOA. For the Gulf of Alaska Integrated Ecosystem Research Program, more than 40 scientists from 11 institutions are taking part in the $17.6 million Gulf of Alaska ecosystem study that looks at the physical and biological mechanisms that determine the survival of juvenile groundfish in the eastern and western Gulf of Alaska[58].

For the Bering Sea, a large multiyear ecosystem project is moving towards completion. It consists of two large projects that will be integrated. One funded by the National Science Foundation (NSF's BEST program is the Bering Ecosystem Study, a multi-year study (2007-2010)). The other funded by NPRB (BSIERP, is the Bering Sea Integrated Ecosystem Research Program (2008-2012)[59]. The overlapping goals of these projects led to a partnership that brings together some $52 million worth of ecosystem research over six years, including important contributions by NOAA and the US Fish & Wildlife Service.

[58] North Pacific Research Board Gulf of Alaska Project: http://www.nprb.org/gulf-of-alaska-project
[59] North Pacific Research Board Bering Sea Project: http://www.nprb.org/bering-sea-project

From 2007 to 2012, NPRB, NSF, and project partners are combining talented scientists and resources for three years of field research on the eastern Bering Sea Shelf, followed by two more years for analysis and reporting.

The NMFS and the NPFMC, and other institutions interested in the North Pacific conduct assessments and research on environmental factors on Pacific cod and associated species and their habitats. Findings and conclusions are published in SAFE document, annual Ecosystem SAFE documents and other reports. SAFE documents for BSAI and GOA Pacific cod summarize ecosystem considerations for the stocks.

13.2./13.3. Fishery Interaction with the ecosystem

Potentially, fisheries for Pacific cod can have effects on other species in the ecosystem through a variety of mechanisms, for example by relieving predation pressure on shared prey species (i.e., species which serve as prey for both Pacific cod and other species), by reducing prey availability for predators of Pacific cod, by altering habitat, by imposing bycatch mortality, or by "ghost fishing" caused by lost fishing gear.

Ecosystem effects on the Pacific cod stock.

There have been studies documenting environmental covariates influencing Pacific cod abundance[60].

A primary ecosystem phenomenon affecting the Pacific cod stock seems to be the occurrence of periodic "regime shifts," in which central tendencies of key variables in the physical environment change on a scale spanning several years to a few decades (Zador, 2011). One well-documented example of such a regime shift occurred in 1977, and shifts occurring in 1989 and 1999 have also been suggested (e.g., Hare and Mantua 2000).

There is documentation that environmental covariates can affect recruitment of Pacific cod. Studies have shown a a positive correlation between Pacific cod recruitment and the North Pacific Index (NPI is the area-weighted sea level pressure over the region 30°N-65°N, 160°E-140°W) (Thompson and Palsson 2013 Thompson 2014, Vestfal et al 2014)

Major trends in the most important prey or predator species could also be expected to affect the dynamics of Pacific cod to some extent. The prey and predators of Pacific cod have been described or reviewed by Albers and Anderson (1985), Livingston (1989, 1991), Lang et al. (2003), Westrheim (1996), and Yang (2004). The composition of Pacific cod prey varies to some extent by time and area. In terms of percent occurrence, some of the most important items in the diet of Pacific cod in the BSAI and GOA have been polychaetes, amphipods, and crangonid shrimp. In terms of numbers of individual organisms consumed, some of the most important dietary items have been euphausids, miscellaneous fishes, and amphipods. In terms of weight of organisms consumed, some of the most important dietary items have been walleye pollock, fishery offal, yellowfin sole, and crustaceans. Small Pacific cod feed mostly on invertebrates, while large Pacific cod are mainly piscivorous. Predators of Pacific cod include Pacific cod, halibut, salmon shark, northern fur seals, Steller sea lions, harbor porpoises, various whale species, and tufted puffin.

Pacific cod fishery effects on the ecosystem.

Potentially, fisheries for Pacific cod can have effects on other species in the ecosystem through a variety of mechanisms, for example by relieving predation pressure on shared prey species (i.e., species which serve

[60] http://www.afsc.noaa.gov/REFM/Docs/2015/EBSpcod.pdf

as prey for both Pacific cod and other species), by reducing prey availability for predators of Pacific cod, by altering habitat, by imposing bycatch mortality, or by "ghost fishing" caused by lost fishing gear.

Incidental Catch Taken in the Pacific Cod Fisheries

Incidental catches taken in the Pacific cod fisheries are summarized in the GOA, BS/AI SAFE reports On the last 10 years the most abundant FMP species caught on the EBS trawl Pacific cod fishery is Pollock followed by Rock sole while on the longline gear Pollock dominated the incidental catches followed by Yellowfin sole. The most abundant non FMP species caught on the EBS Pacific cod fishery are skates followed by sculpins while the most abundant non target species groups on the EBS Pacific cod fishery are sea stars and grenadiers

On the GOA region the species composition of Groundfish incidental catch was dominated by arrowtooth flounder, members of the GOA shallow flatfish complex and skates. Sea stars and Grenadiers were the most abundant non target species of the Pacific cod fishery

Effects on Sea Lions

Sinclair and Zeppelin (2002) showed that Pacific cod was one of the four most important prey items of Steller sea lions in terms of frequency of occurrence averaged over years, seasons, and sites, and was especially important in winter. Pitcher (1981) and Calkins (1998) also showed Pacific cod to be an important winter prey item in the GOA and BSAI, respectively. Furthermore, the size ranges of Pacific cod harvested by the fisheries and consumed by Steller sea lions overlap, and the fishery has operated to some extent in the same areas used by Steller sea lion as foraging grounds (Livingston (ed.), 2002).

The Fisheries Interaction Team of the Alaska Fisheries Science Center has been engaged in research to determine the effectiveness of recent management measures designed to mitigate the impacts of the Pacific cod fisheries (among others) on Steller sea lions. A study conducted in 2002-2005 using pot fishing gear demonstrated that the local concentration of cod in the Unimak Pass area is very dynamic, so that fishery removals did not create a measurable decline in fish abundance (Conners and Munro 2008). A preliminary tagging study in 2003 – 2004 showed some cod remaining in the vicinity of the release area in the southeast Bering Sea for several months, while other fish moved distances of 150 km or more north-northwest along the shelf, some within a matter of two weeks (Rand et al. 2015). Further work has been planned to determine the overall scale of movement of Pacific cod in the Bering Sea and Aleutian Islands.

Effects on Birds

The following is a summary of information provided by Livingston (ed., 2002): In both the BSAI and GOA, the northern fulmar (*Fulmarus glacialis*) comprises the majority of seabird bycatch, which occurs primarily in the longline fisheries, including the hook and line fishery for Pacific cod. Shearwater (*Puffinus* spp.) distribution overlaps with the Pacific cod longline fishery in the Bering Sea, and with trawl fisheries in general in both the Bering Sea and GOA. Black-footed albatross (*Phoebastria nigripes*) is taken in much greater numbers in the GOA longline fisheries than the Bering Sea longline fisheries, but is not taken in the trawl fisheries. The distribution of Laysan albatross (*Phoebastria immutabilis*) appears to overlap with the longline fisheries in the central and western Aleutians. The distribution of short-tailed albatross (*Phoebastria albatrus*) also overlaps with the Pacific cod longline fishery along the Aleutian chain, although the majority of the bycatch has taken place along the northern portion of the Bering Sea shelf edge (in contrast, only two takes have been recorded in the GOA). Some success has been obtained in devising measures to mitigate fishery-seabird interactions. For example, on vessels larger than 60 ft. LOA, paired streamer lines of specified performance and material standards have been found to reduce seabird incidental take significantly

Effects on Habitat

The following is a summary of information provided by Livingston (ed., 2002): The longline and trawl fisheries for Pacific cod each comprise an important component of the combined fisheries associated with the respective gear type in each of the three major management regions (BS, AI, and GOA). Looking at each gear type in each region as a whole (i.e., aggregating across all target species) during the period 1998-2001, the total number of observed hauls/sets was as follows:

	BS	AI	GOA
Trawl	240,347	43,585	68,436
Longline	65,286	13,462	7,139

In the BS, both longline and trawl effort was concentrated north of False Pass (Unimak Island) and along the shelf edge represented by the boundary of areas 513, 517 (in addition, longline effort was concentrated along the shelf edge represented by the boundary of areas 521-533). In the AI, both longline and trawl effort were dispersed over a wide area along the shelf edge. The catcher vessel longline fishery in the AI occurred primarily over mud bottoms. Longline catcher-processors in the AI tended to fish more over rocky bottoms. In the GOA, fishing effort was also dispersed over a wide area along the shelf, though pockets of trawl effort were located near Chirikof, Cape Barnabus, Cape Chiniak and Marmot Flats. The GOA longline fishery for Pacific cod generally took place over gravel, cobble, mud, sand, and rocky bottoms, in depths of 25 fathoms to 140 fathoms.

Impacts of the Pacific cod fisheries on essential fish habitat were further analyzed in an environmental impact statement by NMFS (2005), followed by a 5-year review in 2010 (NMFS 2010). A second 5-year review is currently in progress.

13.4. Pollution – MARPOL.

MARPOL 73/78 (the "International Convention for the Prevention of Pollution from Ships") is one of the most important treaties regulating pollution from ships. Six Annexes of the Convention cover the various sources of pollution from ships and provide an overarching framework for international objectives. In the U.S., the Convention is implemented through the Act to Prevent Pollution from Ships (APPS). Under the provisions of the Convention, the United States can take direct enforcement action under U.S. laws against foreign-flagged ships when pollution discharge incidents occur within U.S. jurisdiction. 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[61,62].

13.5. Management responses to likely serious impacts on ecosystem Regulations/measures to minimize impacts.

Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the Pacific cod fisheries. Many trawl closures have been implemented to protect benthic habitat or reduce bycatch of prohibited species (i.e., salmon, crab, herring, and halibut). Some of the trawl closures are in

[61] Act to Prevent Pollution from Ships, 33 U.S.C. §§ 1901–1915. https://www.law.cornell.edu/uscode/text/33/1901

[62] U.S. Government Accountability Office, Washington, D.C. (2000). "Progress Made to Reduce Marine Pollution by Cruise Ships, but Important Issues Remain." Report to Congressional Requesters. Report No. RCED-00-48. http://www.gao.gov/assets/230/228813.pdf

effect year-round while others are seasonal. In general, year-round trawl closures have been implemented to protect vulnerable benthic habitat. Seasonal closures are used to reduce bycatch by closing areas where and when bycatch rates had historically been high[63].

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. These measures, including the use of streamer (tory) lines, night setting, lineshooters and lining tubes, have been shown to reduce seabird interactions when setting or retrieving gear. Bycatch is recorded in detail and endangered species interactions with Steller sea lions and short-tailed albatross are tightly monitored and regulated. The current ESA biological opinion specifies that the expected take of Short tailed albatross (bycatch) in the longline fishery is four in any 2-year period. In the event that a fifth bird is bycaught, an ESA Section 7 consultation involving the U.S. Fish and Wildlife Service and the National Marine Fisheries Service must be initiated. This process can lead to additional regulatory action on the fishery. Reports for 2012 show that the bycatch rate for seabirds in fisheries is 40% below the 5-year average, with no short-tailed albatross catches. Also, NMFS uses Stellar sea lion protection measures (SSLPM) to ensure the groundfish fisheries off Alaska are not likely to jeopardize the continued existence of the western population of Steller sea lions or adversely modify their critical habitat. The management measures disperse fishing over time and area to protect against potential competition for important Steller sea lion prey species near rookeries and important haulouts.

The Bering Sea, Aleutian Islands and GOA Pacific cod stocks are not considered overfished. Furthermore serious impacts are regulated in the FMPs by identifying ecosystem components and non-target stocks that are vulnerable or important for food web functioning (prohibited and forage species).

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) mandates NOAA to identify habitats essential for managed species and conserve habitats from adverse effects on those habitats (NMFS 2010). 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 2010).[64]

13.6. Research on environment and social impacts of fishing gear.

Monitoring the numbers of fishing vessels provides general measures of fishing effort, the level of capitalization in the fisheries, and the potential magnitude of effects on industry stakeholders caused by management decisions.[65] The total number of vessels participating in federally-managed fisheries off Alaska has generally decreased since 1994, though participation has remained relatively stable in recent years. Vessels using hook and line or jig gear have accounted for most of the participating vessels from 1994 to 2014. 581 such vessels participated in 2014, down from a high of 1,225 two decades prior. The number of active trawl-gear vessels has decreased steadily from over 250 annually in the period from 1994 to 1999 to around 180 in each of the last 5 years. During this period, counts of pot-gear vessels peaked at 343 in 2000, decreasing in 2014 to 152.

[63] NPFMC Ecosystem considerations 2015: http://www.afsc.noaa.gov/REFM/Docs/2015/ecosystem.pdf
[64] NMFS Essential Fish Habitat Research Plan: http://www.afsc.noaa.gov/HEPR/docs/Sigler_et_al_2012_Alaska_Essential_Fish_Habitat_Research_Plan.pdf
[65] NPFMC Ecosystem considerations 2015: http://www.afsc.noaa.gov/REFM/Docs/2015/ecosystem.pdf

8. Performance specific to agreed corrective action plans

Not Applicable. No non conformances are active for this fishery.

9. Unclosed, new non conformances and new corrective action plans

Not applicable, no new non conformances have been issued.

10. Future Surveillance Actions

Not applicable, next assessment will be the fourth surveillance assessment.

11. Client signed acceptance of the action plan

Not applicable.

12. Recommendation and Determination

Following this 3rd surveillance assessment, concluded October 3rd 2016, the assessment team recommends that continued Certification under the Alaska Responsible Fisheries Management Certification Program. Global Trust Certification confirms that certification is maintained for the management system of the applicant fishery, the Pacific cod commercial fishery employing bottom trawl gear, longline gear, pot gear and jig gear within Alaska jurisdiction (200 nautical miles EEZ), and subjected to federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.

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Appendix 1

Assessment Team Details

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 bioenergetic 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 Defence Fund developing population dynamics models for data poor stocks in the Gulf of California. Recently Dr. Mateo worked as National Research Council postdoc research associate at the NOAA National Marine Fisheries Services Ted Stevens Marine Research Institute on population dynamic modeling of Alaska sablefish.

William Brodie (Assessor)

Bill Brodie is an independent fisheries consultant with previously, a 36-year career with Science Branch of Fisheries and Oceans Canada (DFO, Newfoundland and Labrador Region). He has a BSc in Biology from Memorial University of Newfoundland and Labrador. For the last twelve years of service at DFO he worked as Senior Science Coordinator/Advisor on Northwest Atlantic Fisheries Organization (NAFO) issues, serving as chair of the Scientific Council of NAFO and chairing 3 of its standing committees. As a 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, and numerous international fisheries. He also participated in ICES assessments of flatfish, gadoid, and shrimp stocks in the NE Atlantic and North Sea. Bill has participated in over 30 scientific research vessel surveys on a variety of Canadian and international ships, and he has over 200 publications in the scientific and technical literature, primarily on flatfish stock assessment. He has worked with fishery managers and the fishing industry on a variety of issues, including identification of ecologically sensitive areas and developing rebuilding plans for groundfish under a Precautionary Approach. Recently, Bill has served as an assessor on Alaska Responsible Fisheries Management certification and/or surveillance audits for Alaskan stocks including Pacific cod, halibut, flatfish, pollock, and sablefish.