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SURVEILLANCE NO. 1

Report for the Gulf of Alaska Pollock, Bering Sea and Aleutian Islands Pollock Fisheries

Alaska Pollock Fishery Client Group

Authors: Andy Hough, Anna Kiseleva, Bill Brodie
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DNV GL - Business Assurance

DNV GL Business Assurance Norway AS
Veritasveien 1
1322 HØVIK, Norway
Tel: +47 67 57 99 00
http://www.dnvgl.com

Objective:

The objective of this report is the first surveillance audit of the Alaska pollock fishery against the RFM standard v1.3.

Prepared by:
Anna Kiseleva
DNV GL Senior Assessor

Bill Brodie
Stock Assessment expert and Management system expert

Andy Hough
Ecosystem impacts expert

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Keywords:
RFM, Alaska, pollock

Reference to part of this report which may lead to misinterpretation is not permissible.

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0	25.02.2019	First Issue	Andy Hough, Anna Kiseleva, Bill Brodie

Table of contents

GLOSSARY

Abbreviations & acronyms

ABC	Allowable Biological Catch
ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
ASMI	Alaska Seafood Marketing Institute
BOF	Board of Fisheries
BSAI	Bering Sea and Aleutian Islands
CCRF	Code of Conduct for Responsible Fisheries
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
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
GOA	Gulf of Alaska
GHL	Guideline Harvest Level
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
IRFA	Initial Regulatory Flexibility Analysis
IRIU	Improved Retention/Improved Utilization
IUU	Illegal, Unreported, and Unregulated (fishing)
LLP	License Limitation Program
MSFCMA or MSA	Magnuson-Stevens Fisheries Management and Conservation Act
mt or t	Metric tons
MSST	Minimum Stock Size Threshold
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
PA	Precautionary approach
PSC	Prohibited Species Catch
PWS	Prince William Sound
REFM	Resource Ecology and Fisheries Management
RFM	Responsible Fisheries Management
SAFE	Stock Assessment and Fishery Evaluation (Report)
SSC	Scientific and Statistical Committee
SSL	Steller Sea Lion
TAC	Total Allowable Catch
USCG	U.S. Coast Guard

1 SUMMARY AND RECOMMENDATION

1.1 Fundamental Clauses Summary

Fundamental Clause	Evidence adequacy rating:	Justification:
1: Structured and legally mandated management system	High	The Alaskan pollock fisheries are managed by the North Pacific Fishery Management Council (NPFMC) and the NOAA's National Marine Fisheries Service (NMFS) in the federal waters (3-200 nm); and by the Alaska Department for Fish and Game (ADFG) and the Board of Fisheries (BOF) in the state waters (0-3 nm). In federal waters, Alaska pollock fisheries are managed under the Council's Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) Groundfish Fishery Management Plans (FMPs) written and amended subject to the Magnuson Stevens Act (MSA). The state pollock fishery in Prince William Sound (PWS) is managed using a Guideline Harvest Level (GHL) set as a percentage of the GOA federal Allowable Biological Catch (ABC). The US Coast Guard (USCG), the NMFS Office of Law Enforcement (OLE) and the Alaska Wildlife Troopers (AWT) and/or deputized ADFG staff, enforce fisheries regulations in federal and state waters respectively.
2: Coastal area management frameworks	High	The NMFS and NPFMC participate in coastal area management-related institutional frameworks through the federal National Environmental Policy Act (NEPA) processes. These include decision-making processes and activities relevant to fishery resources and users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users. The NEPA processes provide public information and opportunity for public involvement that are robust and inclusive at both the state and federal levels. With regards to conflict avoidance and resolution between different fisheries, the Council and the BOF tend to avoid conflict by actively involving stakeholders in the process leading up to decision making. Both entities provide information on their websites, including agenda of meetings, discussion papers, and records of decisions. The Council and the BOF actively encourage stakeholder participation, and their deliberations are conducted in open, public sessions. The Community Development Quota (CDQ) Program was created by the NPFMC in 1992 to provide western Alaska communities an opportunity to participate in the BSAI fisheries. There are 65 communities within a fifty-mile radius of the Bering Sea coastline who participate in the program, which allocates a percentage of the BSAI TACs for pollock as well as allocations for other species.
3: Management objectives and plan	High	The Magnuson Stevens Fishery Conservation and Management Act (MSA) is the primary domestic legislation governing the management of the USA marine fisheries. Under the MSA, NPFMC is authorized to prepare and submit to the Secretary of Commerce a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that

		requires conservation and management. These include Groundfish FMPs for the Gulf of Alaska (GOA) and the Bering Sea & Aleutian Islands (BSAI) which incorporate the pollock fisheries in those regions. Both FMPs present long-term management objectives for the Alaska pollock fishery. These are reviewed annually by the Council. In state waters the BOF has identified guiding principles for the development of their groundfish management plans.
4: Fishery data	High	The NMFS and the ADFG collect fishery data and conduct fishery independent surveys to assess the pollock fishery and ecosystems in GOA and BSAI. Stock Assessment and Fishery Evaluation (SAFE) reports provide complete descriptions of data collections and time series. Records of catch and effort are firstly recorded through the e-landing (electronic fish tickets) catch recording system and secondly, collected by vessel captains in logbooks. Fishery independent data are collected in regular trawl and acoustic surveys of both the GOA and BSAI regions and additional fishery dependent data are collected by the extensive observer program present in both regions. Other sources of data are also considered during the stock assessment process. The Prince William Sound pollock stock is estimated by ADFG bottom trawl surveys in summer and hydroacoustic surveys in winter (when possible).
5: Stock assessment	High	The NMFS has a well-established institutional framework for research developed within the AFSC. Scientists at the AFSC conduct research and stock assessments on pollock in Alaska each year, producing annual Stock Assessment and Fishery Evaluation (SAFE) reports for the federally managed EBS, GOA, Aleutian Islands and Bogoslof pollock stocks. ADFG also conducts scientific research and surveys on its state-managed pollock fisheries (e.g. PWS). These SAFE reports summarize the best-available science, including the fishery dependent and independent data; consider uncertainties; document stock status, significant trends or changes in the resource, marine ecosystems, and fishery over time; assess the relative success of existing state and Federal fishery management programs; and produce recommendations for annual quotas and other fishery management measures. The annual stock assessments are peer reviewed by experts and recommendations are made annually to improve the assessments. An additional level of peer review by external experts is conducted periodically (CIE reviews). Based on the information in the 2018 SAFE reports, none of the pollock stocks reviewed in this certification process are determined to have overfishing occurring, none are overfished, and none are approaching an overfished condition.
6: Biological reference points and harvest control rule	High	The stock assessment (SAFE) volume contains a chapter or sub-chapter for each stock, and contains estimates of all annual harvest specifications except TAC, all reference points needed to compute such estimates, and all information needed to make annual status determinations with respect to “overfishing” and

		"overfished". The NPFMC harvest control system is a complex and multi- faceted suite of management measures to address issues related to sustainability, legislative mandates, and quality of information. The tier system specifies the maximum permissible Allowable Biological Catch (ABC) and of the Overfishing Level (OFL) for each stock in the complex. Stocks in tiers 1-3 are further categorized (a) (b) or (c) based on the relationship between Biomass and BMSY (Tier 1) or B40% (Tier 3). The category assigned to a stock determines the method used to calculate ABC and OFL. As specified in the MSA, if stocks decline below the MSST (e.g. ½ of B35%), a rebuilding plan must be established to bring the biomass back to the BMSY level within a specified timeframe. For pollock and some other stocks, there is an additional threshold, B20%, used as a measure to protect Steller sea lions. Based on the 2018 SAFE reports, all 4 pollock stocks are all well above MSST values, and are not overfished.
7: Precautionary approach	High	Precautionary approach (PA)-based reference points are used in the management of the pollock stocks, and the scientific information and stock assessments available are at a consistently high level, providing the necessary basis for conservation and management decisions. There are three core components to the application of the PA in Alaskan groundfish fisheries. Firstly, the FMP for each management area sets out an Optimum Yield (OY) for the groundfish complex in each of BSAI and GOA Regions as a whole, which includes pollock along with the majority of targeted groundfish species. This value has been accepted as 2 million t for the BSAI Region. The second component is the tier system, which assigns each groundfish stock to a tier according to the level of scientific understanding, data available, and uncertainty associated with the fishery. Each tier has an associated set of management guidelines, particularly in relation to calculating the level of catch permitted. The EBS pollock stock is categorized as tier 1a while the GOA pollock and AI stocks are categorized as tier 3, and Bogoslof as tier 5. The third component is Overfishing Limit (OFL), Acceptable Biological Catch (ABC) and Total Allowable Catch (TAC) system.
8: Management measures to produce maximum sustainable levels	High	The Magnuson Stevens Act is the federal legislation that defines how fisheries off the United States EEZ are to be managed. From this legislation and NPFMC objectives, the management system for the Alaska groundfish fisheries has developed into a complex suite of measures comprised of harvest controls—e.g., OY, TAC, ABC, OFL, effort controls (limited access, licenses, cooperatives), time and/or area closures (habitat protected areas, marine reserves), by-catch controls (PSC limits, Maximum Retainable Allowances (MRA), gear modifications, retention and utilization requirements), observers, monitoring and enforcement programs, social and economic protections, and rules responding to other constraints (e.g., regulations to protect Steller sea lions (SSL)). Excess fishing capacity

		in the BSAI is avoided by the AFA, which limits participation and allocates percentages of the BSAI pollock fishery TAC among the fishery sectors. Stocks are measured against metrics defined in the MSA and if they are overfished, approaching an overfished condition, or overfishing is occurring, specific measures must be taken, such as implementing a rebuilding program within specified timeframes. The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information.
9: Appropriate standards of fisher's competence	High	Alaska enhances through education and training programs the education and skills of fishers and, where appropriate, their professional qualifications. Records of fishers are maintained along with their qualifications.
10: Effective legal and administrative framework	High	The Alaska pollock fishery 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, and conduct patrols on land, in the air and at sea. Observers are required to report infringements, and OLE and USCG officers conduct de-briefing interviews with observers, checking on vessels fishing practices and the conduct of the crew. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of NOVAs or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation. State regulations are enforced by the Alaska Wildlife Troopers (AWT).
11: Framework for sanctions	High	The MSA 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 MSA requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. The 2011 NOAA 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 AWT 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. The low proportion of violations encountered during at-sea patrols of the Alaska fisheries demonstrates effective deterrence. No recent sanctions have been applied by State of Alaska authorities in the PWS pollock fishery and ADFG staff consider that sanctions are effective

		deterrents.
12: Impacts of the fishery on the ecosystem	High	The NPFMC, NOAA (NMFS) and other relevant organisations continue to closely monitor the fisheries and their respective environmental effects. Appropriate significance appears to be allocated to issues of concern (including in response to stakeholder concerns – such as effects on bycatch populations and effects on habitat). Fishery management plans, Environmental Impact Assessments and other assessments are kept under review. No changes are apparent in the management of the GoA or BSAI fisheries that would detrimentally affect performance against the confidence ratings for any supporting clauses. Full conformance continues against all supporting clauses.
13: Enhanced fisheries	NA	NA: Not an enhanced fishery

1.2 Audit conclusion

Fishery	Status of certification	Comment
The Alaska pollock (Gadus chalcogrammus) commercial fisheries, under 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, fished by the directed fishery with pelagic trawl gear [and other gear types (jig, longline, pot, bottom trawl) that can legally land by-caught pollock] within Alaska's 200 nm EEZ.	**Certified**	Following the results of the 1st surveillance audit finalized in February 2019, the assessment team concludes that the RFM Certificate for this fishery shall remain active until the certificate expiry date of 5 December 2022.

2 GENERAL INFORMATION

Table 1 General information

Fishery name	Alaska Pollock Fishery		
Unit(s) of Assessment (UoA)	Applicant Group:	Alaska Pollock Fishery Client Group	
	Product Common Name (*Species*):	Alaska Pollock (Gadus chalcogrammus)	
	Geographic Location:	Gulf of Alaska and Bering sea & Aleutian Islands within Alaska jurisdiction (200 nautical miles EEZ).	
	Gear Types:	Pelagic Trawl (main), other gears (bottom trawl, jig, longline, pot) from other non-directed pollock fisheries legally landing pollock	
	Principal Management Authority:	National Marine Fisheries Service; North Pacific Fishery Management Council; Alaska Department of Fish and Game; Alaska Board of Fisheries	
Date certified	6 December 2017	Date of certificate expiry	5 December 2022
Surveillance type	Off-site surveillance/document review		
Date of surveillance audit	January-February 2019		
Surveillance stage	**1st Surveillance**	**X**	
	2nd Surveillance		

	3rd Surveillance	
	4th Surveillance	
	Other (expedited etc)	
Surveillance team	Lead assessor: Anna Kiseleva Assessor(s): Andrew Hough, Bill Brodie	

This report contains the findings of the first annual RFM Fisheries surveillance audit conducted for the Alaska pollock fishery during January-February 2019.

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

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

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

The purpose of this annual Surveillance Report is:

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

3 ASSESSMENT TEAM DETAILS

Name	Qualifications summary
William (Bill) Brodie Main area of responsibility Fundamental clause A (The Fisheries Management System), B (Science and Stock Assessment activities), C (The precautionary approach), D (Management measures), and E (Implementation monitoring and control)	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 with DFO he worked as Senior Science Coordinator/Advisor on Northwest Atlantic Fisheries Organization (NAFO) issues, serving as chair of the Scientific Council of NAFO and chairing 3 of its standing committees. As a stock assessment biologist, he led assessments and surveys for several flatfish species and stocks, including American plaice, Greenland halibut, yellowtail and witch flounders. These include the largest stocks of flatfish in the NW Atlantic. He also participated in assessments of flatfish, gadoid, and shrimp stocks in the NE Atlantic and North Sea. Bill has participated in over 30 scientific research vessel fisheries surveys on various Canadian and inte rnational ships, and he has published extensively in the scientific and technical literature, primarily on

	flatfish stock assessment. He has been involved with fishery managers and the fishing industry on a wide range of issues, including identification of ecologically sensitive areas, and developing rebuilding plans for groundfish under a Precautionary Approach. Since retirement from DFO in 2014, Bill has been contracted to serve as an assessor and/or reviewer on several Responsible Fisheries Management certification assessment and surveillance audits for Alaskan stocks including Pacific cod, halibut, sablefish, pollock, flatfish, and crab. He has also provided peer review for MSC certification assessments for stocks in the Grand Banks and Icelandic areas.
Andrew Hough Main area of responsibility Fundamental clause F (Serious Impacts of the Fishery on the Ecosystem):	Following three years PhD research on crustacean ecology, Andy has worked in the field of marine research and management for over twenty years, including marine conservation biology, fishery impacts on marine ecosystems, marine and coastal environmental impact assessment and policy development. Andrew has been active in the development of Marine Stewardship Council certification since 1997, when involved in the pre-assessment of the Thames herring fishery. He was a founding Director of Moody Marine and led the establishment of Moody Marine fishery certification systems. He has also worked with MSC on several specific development projects, including those concerned with the certification of small scale/data deficient fisheries. He has been Lead Assessor on many fishery assessments to date. This has included Groundfish (e.g. cod, haddock, pollock, hoki, hake, flatfish), Pelagics (e.g. tuna species, herring, mackerel, sprat, krill, sardine) and shellfish (molluscs and crustacea); included evaluation of the environmental effects of all main gear types and considered many fishery administrations including the North Atlantic, South Atlantic, Pacific, Southern Ocean and in Europe, North America, Australia and New Zealand, Japan, China, Vietnam and Pacific Islands. He has recently acted solely as an expert team member of Principle 2 inputs of European inshore fisheries and Falkland Islands Toothfish. Andrew has also been involved in the development of certification schemes for individual vessels (Responsible Fishing Scheme) and evaluation of the Marine Aquarium Council standards for trade in ornamental aquarium marine species. Consultancy services have included policy advice to the Association of Sustainable Fisheries, particularly with regard to the implications of MSC standard development, and assistance to fisheries preparing for, or engaged in, MSC assessment.
Anna Kiseleva DNV GL Lead Assessor:	Anna is a senior assessor responsible for MSC Fisheries and RFM certification schemes at DNV GL Business Assurance. She holds MSc degree in International fisheries management from the University of Tromsø and MSc degree in Business Management from Murmansk State Technical University. She has over 10 years of experience in

the global seafood industry incl. assessment services, consultancy and project management. She is an experienced project management with proven ability to lead cross-disciplinary teams. She has been involved in the delivery of the Fisheries assessment services since 2008.

4 BACKGROUND TO THE FISHERY

4.1 Fishery description

No material changes occurred within this fishery since the re-assessment carried out in June-December 2017. All information on this fishery could be obtained from the original full-assessment report, subsequent surveillance reports and re-assessment report available for the download at: http://www.alaskaseafood.org/rfm-certification/certified-fisheries/alaska-pollock/.

Catch data is similar to the previous years and recent data is presented below:

BSAI

Species	Latin name	2017 TAC (MT)	2017 Total Catch (MT)
pollock	Gadus chalcogrammus	1 364 000	1 359 530

GOA

Species	Latin name	2017 TAC (MT)	2017 Total Catch (MT)
pollock	Gadus chalcogrammus	208 595	184 257

4.2 Original Assessment and Previous surveillance audits

The Alaska Bering Sea/Aleutian Islands and Gulf of Alaska Pollock fisheries were first certified under the requirements of the Alaska Responsible Fisheries Management standard v1.2 on 6th of December 2011. The initial certification and four annual surveillance audits were carried out by the certification body Global Trust (GT).

18. November 2016, the certificate for this fishery was transferred from GT to the DNV GL. The certificate transfer and the fifth surveillance audit were carried out by the DNV GL. During June-December 2017 the fishery went through the full re-assessment against newer version of the standard, v1.3. This re-assessment did not result in any changes in the compliance of the fishery with the RFM standard and no non-conformities were raised. The new certificate was therefore issued with the validity date until 5 December 2022.

5 THE ASSESSMENT PROCESS

5.1 Meetings attended

No on-site stakeholder consultancy was carried out during the first surveillance audit. DNV GL has carefully reviewed the full-assessment report, all subsequent surveillance reports and re-assessment report and concluded that the low risk nature of the fishery, absence of conditions and history of excellent compliance with the rules and regulations in the client operations do allow for the remote surveillance audit with the desk-top review of new information only.

5.2 Stakeholder input

The first annual surveillance audit for this fishery was publicly announced on 11th of January 2019. No stakeholder input was received by the assessment team.

6 ASSESSMENT OUTCOME SUMMARY / FUNDAMENTAL CLAUSES SUMMARIES

6.1 The Fisheries Management System (A)

Fundamental Clause 1.

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

No. supporting clauses	13
Applicable supporting clauses	11
Non-applicable supporting clauses	2 (1.6.1, 1.9)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

Considerable resources in the form of stock assessment, ecosystem monitoring and management expertise and capacity; management organisations and structures, e.g. NMFS Alaska region, NPFMC, OLE, USCG, Observer Program, are dedicated to fisheries, including pollock, in Alaskan federal waters. National legislation and the regulatory process by which NPFMC and NMFS are directed and follow, enable the management of the resource at regional and localised levels. The adaptive and consultative management approach adopted by the NPFMC actively promotes stakeholder participation. The NOAA Office of General Council reviews any proposed management action to assure compliance with the MSA. International obligations, e.g. combating IUU, and the enforcement of federal regulations are upheld by the federal departments such as USCG and OLE. Within state waters, the pollock fishery is undertaken on a much smaller scale and supported by area specific stock assessment surveys as well as shared information from federal assessments. Technical expertise is available in-house (ADFG) and supported through the participation in and with groups established by the NPFMC. The BOF provides a consultative management approach that offers and takes account of stakeholder input. The Alaska Wildlife Trooper input into the development of regulations and are responsible for their enforcement at-sea and ashore.

The EBS and GOA pollock stocks are assessed independently using assessment models that take into account all sources of fishing mortality and are based on complete catch reporting systems including extensive observer data. Catch at age models synthesize data on biomass and age composition from the fishery, bottom trawl, and echo integrated trawl surveys conducted by the AFSC to estimate the numbers of pollock at age. Each year several assessment models are developed and evaluated by scientists using alternative life history and fishery and survey selectivity assumptions. Additionally, for the EBS and GOA models exploring stock status in relation to changing environmental conditions have also been developed and evaluated. Each model uses information on the status of the stock and potential effects of current management practices. The stock assessments consider the migration and possible removal of pollock in Russian waters. For an example of the 2018 EBS pollock Stock Assessment and Fishery Evaluation Report (SAFE), see Ianelli et al. (2018a).

The NPFMC FMPs (NPFMC 2018a) explicitly describe the Council's commitment to review management issues and this is reflected in the numerous Council meetings that take place each year. Similarly, the BOF websites have dedicated pages to their public meetings and agendas and outcomes reflect a commitment to review previously agreed management measures.

The US and Russia cooperate through a bilateral Intergovernmental Consultative Committee (ICC) fisheries forum established following the signing of the US - Soviet Comprehensive Fisheries Agreement in 1988. The purpose of the Agreement is to establish a common understanding of the principles and procedures to provide for cooperation between the Parties in areas of mutual interest concerning fisheries. The US and Russia work together on gathering and sharing information and monitoring the fishery. In so doing, this contributes to the maintenance of the EBS stock well within sustainable levels. Pollock are also found in international waters where no country has single jurisdiction. The Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea ('The Donut Hole') is responsible for the conservation, management, and optimum utilisation of pollock resources in the high seas area of the Bering Sea. Member states have maintained a moratorium on commercial pollock fishing in the Convention Area since 1993.

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

There are procedures at multiple levels to review management measures, and the MSA is reviewed by Congress every five years and is periodically revised and reauthorized. The adaptive management approach taken in the Alaska pollock fisheries requires regular and periodic review. Component parts of the FMPs are regularly reviewed, including outcome indicators, and various levels of Environmental Impact Statements (EIS) are undertaken when the FMPs are amended in order to review the environmental and socio-economic consequences, as well as assess the effectiveness of the changes. Stakeholders are actively encouraged to participate in Council and BOF meetings and, in so doing, opportunity to review management measures is provided. Stock status is reviewed and updated annually, producing SAFE reports for the federally managed EBS, GOA, Aleutian Islands and Bogoslof pollock stocks. ADFG also conducts scientific research and surveys on its state-managed pollock fisheries. These SAFE reports document stock status and significant trends or changes in the resource, marine ecosystems and fishery over time. The reports also assess the relative success of existing state and Federal fishery management programs and, based on stock status indicators, provide recommendations for annual quotas and other fishery management measures.

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

Evidence of continuous compliance with the supporting clauses

There is no material change in compliance with any of the following supporting clauses. Clauses 1.6.1 and 1.9 are not applicable.

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

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

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

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

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

1.4 A State not member/participant of a sub-regional or regional fisheries management organization

shall cooperate, in accordance with relevant international agreements and law, in the conservation and management of the relevant fisheries resources by giving effect to any relevant measures adopted by such organization/arrangement.

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

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

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

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

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

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

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

- Management arrangements
- Decision-making

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 2.

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

No. supporting clauses	10
Applicable supporting clauses	8

Non-applicable supporting clauses	2 (2.1.1, 2.7)
Overall level of conformity	High
Non-conformance	None

Evidence of continuous compliance with the fundamental clause:

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

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

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

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

The Community Development Quota (CDQ) Program was created by the NPFMC in 1992 to provide western Alaska communities an opportunity to participate in the BSAI fisheries that had been foreclosed to them because of the high capital investment needed to enter the fishery. The program involves eligible communities who have formed six regional organizations, referred to as CDQ groups. There are 65 communities within a fifty-mile radius of the Bering Sea coastline who participate in the program. The CDQ program allocates a percentage of the BSAI quotas to CDQ groups, including pollock, halibut, Pacific cod, crab and bycatch species. Ten percent of the pollock TAC for EBS is allocated to the CDQ. https://alaskafisheries.noaa.gov/sites/default/files/reports/annualmatrix2018.pdf The program is reviewed every ten years, with the last review occurring in 2012. Analysis by the State of Alaska in 2013 determined that each CDQ entity had maintained or improved performance against its objectives.

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

the collection of observations of fish and oceanography.

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

Evidence of continuous compliance with the supporting clauses

There is no material change in compliance with any of the following supporting clauses. Clauses 2.1.1 and 2.7 are not applicable.

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

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

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

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

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

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

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

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

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

2.8 In the case of activities that may have an adverse transboundary environmental effect on coastal areas, States shall:
a) Provide timely information and if possible, prior notification to potentially affected States.

b) Consult with those States as early as possible.

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 3.

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

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

Evidence of continuous compliance with the fundamental clause:

The NPFMC has in place groundfish FMPs (NPFMC 2018a) in the BSAI and GOA that include the pollock fisheries. Within these FMPs there are nine management and policy objectives, that are reviewed annually. These include preventing overfishing, preserving the food web, and reducing bycatch and waste. The BOF, when developing their initial groundfish management identified guiding principles for the development of these plans, which are similar to the NPFMC objectives.

Excess fishing capacity in the BSAI is avoided by the AFA. The Act limits participation and allocates percentages of the BSAI pollock fishery TAC among the fishery sectors. In 2000, the NPFMC adopted the Alaska Licence Limitation Program (LLP). The intent of the program has been to use fishing track record to rationalise the Alaska groundfish and crab fleet by limiting the number, size and specific operation of vessels as well as eliminating latent licences. Groundfish licenses are currently required to participate in the BSAI groundfish fisheries in Federal waters of Alaska. Licenses may contain endorsements for both areas (BS and AI), or one of the two areas. Gear endorsements define what type of gear may be used: non-trawl, trawl, or both.

The MSA requires that conservation and fisheries management measures prevent overfishing while achieving optimum yield on a continuing basis. NMFS and NPFMC follow a multi-faceted PA (OFL, ABC, TAC, OY) to manage the federal pollock fisheries, based on targets, limits, and pre-defined HCRs, as well as overall ecosystem considerations (e.g. the OY limits). The fisheries management system is supported by high level science and the biomass of pollock stocks has been maintained well above the limit reference points, and thus management measures are effective in avoiding overfishing and maintain an abundance of fish that make fishing economically viable and help promote responsible fishing. Objectives for the BSAI and GOA are set out in the FMPs and include the need to take into account socio-economic considerations. Estimates of ex-vessel value by area, gear, type of vessel, and species, are included in the annual Economic Status SAFE report (Fissel et al. 2017), and each stock assessment SAFE also contains extensive economic data. Alaska pollock is the dominant species in the catch in the BSAI.

The GOA and BSAI FMPs describe management measures designed to take into account the interests of subsistence, small-scale, and artisanal fisheries. Specific FMP management objectives include: the promotion of sustainable fisheries and communities, the promotion of equitable and efficient use of fishery resources and increase Alaska native consultation. The fishery dependence of coastal and western Alaska communities was addressed through the creation of the pollock, sablefish, and halibut

community development quota (CDQ) programs for the BSAI in the early to mid-1990s and the expansion of those programs into the multispecies CDQ Program by 1999.

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

There are mechanisms developed to identify significant effects on EFH and for identifying HAPC, and are considered consistent with achieving management objectives for avoidance, minimization or mitigation of impacts on essential habitats for the "stock under consideration" and on habitats that are highly vulnerable to damage by the fishing gear of the unit of certification. This is further supported by habitat ecosystem indicators considered as part of the SAFE process. There are processes in place – primarily through FMPs, endangered species management plans and Biological Opinions and EISs of the various plans - that allow for direct and indirect impacts that are likely to have significant (not only serious) consequences to be addressed. There is extensive evidence setting out the evaluation of effects and implementation of management response; this includes SAFE reports, FMPs, Endangered species Conservation Plans, supporting EIS and BiOps. These are all publicly available through NMFS and NPFMC websites.

Effects on ecosystem aspects are considered more fully under Fundamental Clause 12, addressed below. Essentially, there are several processes in place which demonstrably address actual or potential impacts identified through the monitoring of the groundfish fishery and the ecosystem supporting the fishery. The primary mechanism is the annual Stock Assessment and Fishery Evaluation (SAFE) report. There are specific processes through NMFS and U.S. Fish and Wildlife Service (USFWS) to review potential impacts (generally indirect effects through changes in prey availability) on endangered species (through the Endangered Species Act) and marine mammals (Marine Mammal Protection Act).

Evidence of continuous compliance with the supporting clauses

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

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

3.2 Management measures shall provide inter alia that:

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

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

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

6.2 Science and Stock Assessment Activities (B)

Fundamental Clause 4.

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

No. Supporting clauses	13
Supporting clauses applicable	10
Supporting clauses not applicable	3 (4.9, 4.10, 4.11)
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The NMFS and the ADFG collect fishery data and conduct fishery independent surveys to assess the pollock fishery and ecosystems in GOA and BSAI areas. Stock Assessment and Fishery Evaluation (SAFE) reports (Ianelli et al 2018a for EBS, Barbeaux et al. 2018 for AI, Ianelli et al. 2018b for Bogoslof, and Dorn et al. 2018 for GOA) provide complete descriptions of the data collected and used in the four annual assessments, used to determine stock status and harvest recommendations for the Alaskan pollock stocks. Reporting of commercial catch from both state and federally managed fisheries is done through the Catch Accounting System (CAS), a multi-agency (NMFS, IPHC and ADFG) system that centrally collates landings data from shore-based processing and landings operations as well as retained catch observations from individual vessels. Catch reports for previous years can be found on the NMFS and ADFG websites. The Alaska Fisheries Information Network (AKFIN) maintains an analytic database of both state and federal commercial fisheries data in Alaska and provides that data in usable formats.

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

Amendment 86 to the FMP of the BSAI and Amendment 76 to the FMP of the GOA established the new North Pacific Groundfish and Halibut Observer Program (NPGHOP), and all vessels fishing for groundfish in federal Alaskan waters are required to carry observers, at their own expense, for at least a portion of their fishing time. Data gathered in the NPGHOP cover all biological information from commercial fisheries, including catch weights (landings and discards), catch demographics (species composition, length, sex and age) and interactions with species such as sharks, rays, seabirds, marine mammals and other species with limited or no commercial value. Observers were also assigned to monitor deliveries of pollock to obtain a count of the number of salmon caught as bycatch and to obtain genetic samples from these fish. NMFS and the NPFMC have developed at-sea Electronic Monitoring (EM) to integrate video monitoring into the Observer Program to improve data collection. On August 8, 2017 NMFS published a final rule to integrate electronic monitoring into the North Pacific Observer Program (Ganz et al. 2018). Observer coverage in the EBS Pollock fishery has been at or near 100% (often classified as 200% with 2 observers per vessel) for the past several years, while in the GOA, lower coverage rates exist. Detailed annual reports (e.g. AFSC 2018; Ganz et al. 2018) from

the Observer Program can be found on NMFS website, and provide extensive information on the NPGHOP, including observer deployments, coverage rates, data collections, etc.

NMFS and ADFG have extensive scientific databases which include pollock, and NPFMC has substantial information on management of pollock in Alaskan waters. These data are made widely available through the agency websites, publications and at various publicly-attended meetings. Data on certain aspects of commercial fishing are considered to be confidential, such as individuals or individual vessels in the analysis of fishery CPUE data, depending on the number of individuals or entities involved. Annual economic SAFE reports (e.g. Fissel et al. 2017) on social/cultural/economic value of the Alaskan fisheries resources are produced, which include extensive information on the Alaskan pollock fisheries. Individual pollock assessment SAFE reports have extensive sections on the economic performance of the pollock fisheries.

Alaska supports both a Seafood Marketing Institute and the Kodiak Seafood and Marine Science Center to stimulate research and to support and distribute the benefits of seafood in human diets.

Evidence of continuous compliance with the supporting clauses:

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

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

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

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

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

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

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

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

4.6. States shall investigate and document traditional fisheries knowledge and technologies, in particular those applied to small scale fisheries, in order to assess their application to sustainable fisheries conservation, management and development.

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

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 5.

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

No. Supporting clauses	7
Supporting clauses applicable	7
Supporting clauses not applicable	0
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

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

The SAFE documents are reviewed first by the NPFMC Groundfish Plan Team, then by the NPFMC

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. The AFSC periodically requests a more comprehensive external review of groundfish stock assessments by the Center of Independent Experts (CIE). A CIE review of the GOA pollock assessment was conducted in 2017 - reports by Chen, Trzcinski, and Jones at https://www.st.nmfs.noaa.gov/science-quality-assurance/cie-peer-reviews/cie-review-2017. Similar reviews of the EBS pollock assessment were conducted by three independent experts in 2016, and their reports are also available on the CIE website.

The Pollock Conservation Cooperative Research Center at the School of Fisheries and Ocean Sciences in University of Alaska Fairbanks was established in 2000 to improve knowledge about the North Pacific Ocean and Bering Sea through research and education, focusing on the commercial fisheries of the Bering Sea and Aleutian Islands.

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

Research is also conducted into climatic variables and mechanisms that affect pollock recruitment. In addition, ecosystem modelling is conducted, including the Bering Sea Regional Oceanographic Model and the Forage Euphausiid Abundance in Space and Time (FEAST) model, concentrated on climate/forage fish/zooplankton interactions with specific applications for cod, pollock and also fur seals, chinook salmon, birds. Food web modelling has been carried out for EBS, AI and GOA which provides analyses of cumulative and ecosystem level indicators. The CEATTLE model combines predation between cod, pollock and arrowtooth flounder inter and intraspecies predation with climatic effects, aiming to develop reference points in relation to prevailing climatic conditions, and multi-species ABCs.

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

The United States and Russian Federation maintain the bilateral Intergovernmental Consultative Committee (ICC) fisheries forum pursuant to the U.S.-Soviet Comprehensive Fisheries Agreement, signed on May 31, 1988. These meetings have resulted in US vessels doing acoustical surveys with Russian Federation scientists in the Federation's zone of the Bering Sea, where a small portion of U.S. pollock moves into. The Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (Donut Hole) is responsible for the conservation, management, and optimum utilization of pollock resources in the high seas area of the Bering Sea. Member states (China, Japan, Korea, Poland, Russia, and the United States) have maintained a moratorium on commercial pollock fishing in the Convention Area since 1993 in an effort to allow the stock to rebuild. USA cooperates through relevant international organizations such as PISCES to encourage research in order to ensure optimum utilization of all fishery resources. Although the fishery for Alaskan pollock is conducted entirely within the US EEZ, there is also scientific cooperation with neighboring countries such as Canada who fish on adjacent stocks. One example is the Technical Subcommittee (TSC) of the Canada-U.S. Groundfish Committee, formed in 1960 to coordinate fishery and scientific information resulting from the implementation of commercial groundfish fisheries operating in US and Canadian waters off the West Coast. http://www.psmfc.org/tsc2

Evidence of continuous compliance with the supporting clauses

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

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

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

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

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

6.3 The Precautionary Approach (C)

Fundamental Clause 6.

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

No. Supporting clauses	4
Supporting clauses applicable	4
Supporting clauses not applicable	0
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The NPFMC groundfish fishery management plans for BSAI and GOA contain the details on the NPFMC precautionary approach, including the tier system, the Harvest Control Rules, and the reference points. Extensive analysis (e.g. a series of standard projections) is conducted in each stock assessment to determine the current and projected biomass level relative to the target reference points. Based on the information in the 2018 SAFE documents, none of the 4 pollock stocks had overfishing occurring, as per the standard definitions applied to each stock.

The 2018 SAFE documents (referenced in Fundamental Clause 4, above) provide the status of pollock stocks relative to all available reference points. Extensive analysis is conducted and documented in each stock assessment to determine the current and projected biomass level relative to the reference points, and to advise on the various catch levels appropriate to the HCRs. Comprehensive annual Ecosystem Reports for BSAI and GOA are presented to NPFMC, which look at numerous elements of the Alaskan ecosystems (e.g. Zador 2016, Siddon and Zador 2017, Zador and Yasumiishi 2017).

The following section provides very brief updates on stock assessment, status, and ABCs for each of the four pollock stocks, based on excerpts from the 2018 SAFE documents and from SSC minutes from their Dec. 2018 meeting:

EBS (Ianelli et al. 2018a): Catches of EBS pollock have exceeded a million tons in most years since the early 1980's, and have been around 1.35 million t in recent years. Biomass of the stock is characterized by peaks in the mid-1980s, the mid-1990s, and again to new highs over 13 million t in 2016, following the low in 2008 of 4.6 million t. The estimate for 2018 trended downward and is at just over 10 million t. The probability that the current stock size is below 20% of B_0 (a level important for additional management measures related to Steller sea lion recovery) is <0.1% for 2019 and 2020.
Model estimates indicate that both the 2008 and 2012 year classes are well above average. Since 1977 the current estimates of fishing mortality suggest that during the early period, harvest rates were above FMSY until about 1980. Since that time, the levels of fishing mortality have averaged about 35% of the FMSY level. The estimate of BMSY is 2,280 kt which is less than the projected 2019 spawning biomass of 3,100 kt. Since the 2019 female spawning biomass is estimated to be above the BMSY level (2,280 kt) and the B40% value (2,368 kt) in 2019 and if the 2018 catch is as specified above, then the OFL and maximum permissible ABC values by the different Tiers would be (Ianelli et al., 2018a, SAFE report):

Tier	Year	MaxABC	OFL
1a	2019	3,096,000	3,914,000
1a	2020	2,437,000	3,082,000
3a	2019	2,163,000	2,660,000
3a	2020	1,792,000	2,208,000

The tier 3a estimates were adopted by NPFMC, and TACs for 2019 and 2020 are 1,397,000 t and 1,420,000 t.

The SAFE authors note that “the stock is estimated to be well above Bmsy at present, but projections indicate a decline given recent catch levels and future trends will depend on pollock survival at egg, larval, and juvenile stages which may be compromised given the lack of a cold pool and a considerable redistribution into the northern part of the Bering Sea”.

AI (Barbeaux et al. 2018): The 2018 acoustic-trawl survey showed a large increase in survey biomass, and this index was used in the age-structured assessment model. Consequently, estimated spawning and total biomass increased as well. This assessment moved AI pollock from Tier 3b to Tier 3a because the estimated 2019 spawning biomass is above B40%. Maximum ABC for 2019 and 2020 were adopted and OFLs calculated using the standard Tier 3a formulae.

GOA (Dorn et al. 2018): Catches have increased from around 100,000 t in 2013-14 to about 186,000 in 2017. Results from the stock assessment show the fishery relies primarily on a single strong 2012 year-class, because more recent year-classes appear to be weak. Projected spawning biomass shows a decline in 2019 as the 2012 year-class ages. The stock is in Tier 3a as female spawning biomass is above B40%, with probability of the stock dropping below B20% being close to zero until 2023. Based on the risk table approach it was concluded that a substantially increased level of concern is

warranted. Consequently, a 15% buffer (reduction from maxABC) was proposed to obtain the ABC for 2019. A two-year stair-step approach, obtained by averaging the projected maxABC from last year's assessment with the maxABC from this year's assessment, resulted in an ABC 14.2% below maxABC from this year's assessment. This was adopted due to concerns about reliance on a single year-class, poor recent recruitments, poor model fit to recent survey data, unassessed trends in natural mortality and anticipated poor prey quality related to warm ocean temperatures, and the most recent bottom trawl surveys resulting in biomass estimates near historic lows. Reductions from the maximum ABC are made in response to factors not included in the Tier system.

Bogoslof (Ianelli et al. 2018b): The 2018 acoustic-trawl survey indicated a large increase in pollock biomass and the first significant recruitment in more than 30 years. The age-structured assessment model shows high recruitments in 2009, 2010, and 2012. The magnitude of the survey estimate in 2018 was similar to that in 2016, increasing confidence that the increase in biomass will persist. This stock is managed as a Tier 5 stock using survey biomass, and a random effects approach has been applied in the past. There is a substantial increase in the resulting 2019 and 2020 ABCs and OFLs. Given that both regional and international interest is likely to return owing to the implications on fishery management of pollock in the Bering Sea Donut Hole, the SSC recommends that a genetics study be done to further investigate the uncertain stock structure of these fish.

For the GOA, AI, and EBS stocks, the standard MSA-required projections show that these stocks are not overfished, overfishing is not occurring, and they are not approaching an overfished condition. For Bogoslof (tier 5), no overfishing is occurring, and the other 2 metrics cannot be evaluated.

The following text on stock rebuilding is directly from the NPFMC FMP for BSAI Groundfish (NPFMC 2018a): Within two years of such time as a stock or stock complex is determined to be overfished, an FMP amendment or regulations will be designed and implemented to rebuild the stock or stock complex to the MSY level within a time period specified at Section 304(e)(4) of the Magnuson-Stevens Act. If a stock is determined to be in an overfished condition, a rebuilding plan would be developed and implemented for the stock, including the determination of an FOFL and FMSY that will rebuild the stock within an appropriate time frame.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 7.

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

No. Supporting clauses	5
Supporting clauses applicable	4
Supporting clauses not applicable	1 (7.2)
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The status of US fish stocks is determined by 2 metrics. The first is the relationship between the actual exploitation level and the overfishing level (OFL). If the exploitation level (or fishing mortality) exceeds the FOFL, the stock is considered to be subject to overfishing. The second is the relationship between the stock size and the 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.

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 OFL for each stock in the complex (usually individual species but sometimes species groups). The BSAI and GOA groundfish fishery management plans have pre-defined harvest control rules (HCR) that define a series of reference points for groundfish covered by these plans. The overall objectives of the management plans are to prevent overfishing and to optimize the yield from the fishery through the promotion of conservative harvest levels while considering differing levels of uncertainty.

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

Harvest specifications for each of the pollock stocks are made annually by NPFMC, and include the OFL, acceptable biological catch (ABC), and total allowable catch (TAC). Links to these documents from the Dec 2018 NPF Harvest specifications for each of the pollock stocks are made annually by NPFMC, and include the OFL, acceptable biological catch (ABC), and total allowable catch (TAC). Links to these documents from the Dec 2018 NPFMC meeting, with harvest specifications adopted for 2019 and 2020, are as follows (for BSAI and GOA respectively):

http://meetings.npfmc.org/CommentReview/DownloadFile?p=7f955903-fdb5-4fe2-8d91-82393d6791d7.pdf&fileName=C3%20MOTION%20-%20specs.pdf

http://meetings.npfmc.org/CommentReview/DownloadFile?p=f9de64f3-94ba-429a-8805-cd40ff8d4aac.pdf&fileName=C2%20MOTION.pdf Stock assessments are comprehensive and reviewed on a number of levels, including externally by CIE experts. Where data gaps have been identified, the NMFS/AFSC has ongoing research programs capable of addressing these needs. Organisations 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 pollock. Research is also conducted by ADFG on the state-managed pollock.

There are pre-agreed NPFMC harvest control rules in place to ensure overfishing does not occur on the pollock stocks, as outlined in the Tiered PA system described earlier. There have also been numerous regulations aimed at reducing waste and discards in the pollock fisheries, and to ensure that the resources are harvested sustainably. These include various measures to address fish size, discards, and closed seasons and areas. Specific examples include the split of the BS Pollock TAC into A and B seasons to allow harvest of roe-bearing pollock at appropriate times, and closures of large areas to protect numerous ETP species.

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

In June 2018, the Council (NPFMC 2018d) initiated an analysis of alternatives to modify the existing four-season structure of the Western and Central GOA pollock fishery and the relative allocation of the trawl CV sector's annual Pacific cod TAC across A and B seasons. For pollock, the Council will consider combining the existing A and B seasons into a single season that runs from January 20 through May 31 and combining the C and D seasons into a single season that runs from August 25 through November 1. The Council could also increase the 20% limit on inter-season rollovers of uncaught pollock TAC to 25% or 30%. The Council noted that the existing seasonal allocation of pollock and Pacific cod TAC sometimes results in inefficiencies such as unharvested groundfish and the need to fish during times when encounter rates with prohibited species – halibut and Chinook salmon – are known to be higher. Given the many existing challenges in managing and prosecuting these limited access trawl fisheries, the Council is seeking small changes that improve fishery outcomes without causing unintended redistribution of fishing opportunities across management areas or gear sectors. The Council recognized that the existing seasonal allocations were implemented as Steller sea lion (SSL) protection measures, and that modification requires analysis of potential effects on SSLs and consultation with NMFS Protected Resources division once a preferred action has been recommended.

Extensive provisions exist in the NMFS fishery regulations for in-season adjustments (e.g. gear modifications, fishery closures) where necessary to protect the resource from biological harm. 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."

Clause 7.2 is not applicable, as fisheries for pollock in Alaska are well established.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

timely fashion.

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

6.4 Management Measures (D)

Fundamental Clause 8.

Management shall adopt and implement effective management measures designed to maintain stocks at levels capable of producing maximum sustainable yields, including harvest control rules and technical measures applicable to sustainable utilization of the fishery and be based upon verifiable evidence and advice from available scientific and objective, traditional sources.

No. Supporting clauses	17
Supporting clauses applicable	15
Supporting clauses not applicable	2 (8.11, 8.14)
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The MSA requires that conservation and fisheries management measures prevent overfishing while achieving optimum yield on a continuing basis. NPFMC uses a multi-tier precautionary approach, which includes Optimum Yield and MSY reference points. NMFS and NPFMC follow a multi-faceted PA (OFL, ABC, TAC, OY) to manage the federal pollock fisheries, based on targets, limits, and pre-defined HCRs, as well as overall ecosystem considerations. These systems are described extensively in Fundamental Clauses 6 and 7 above. The objectives are spelled out clearly in modern FMPs for BSAI and GOA Regions, and both FMPs contain long-term management objectives for the Alaska pollock fishery. The biomass of pollock stocks has been maintained well above the limit reference points, and thus it can be concluded that management measures are effective in avoiding overfishing. The state pollock fishery in Prince William Sound (PWS) is managed by ADFG and BOF using an annual Guideline Harvest Level (GHL) set as a percentage of the federal ABC for GOA pollock, and regulations are spelled out by BOF.

OY is given (in the FMPs) as a range for the groundfish complexes in the BSAI and the GOA, and the sum of the TACs of all groundfish species (except Pacific halibut) is required to fall within the range.

The range for BSAI is 1.4 to 2.0 million tons while the range for GOA is 116 to 800 thousand tons. To prevent overfishing, NPFMC management objectives include the following measures specific to Optimum Yield: 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.

AFSC runs the Economic and Social Sciences Research Program in Alaska. The aim of the Program is to provide economic and sociocultural information to assist NMFS in meeting its stewardship responsibilities with activities being conducted in support of this mission. NPFMC has established the Social Science Planning Team to improve the quality and application of social science data that informs management decision-making and program evaluation. The NPFMC FMPs include a substantial section on the economic and socioeconomic characteristics of the fisheries and communities in Alaska. There is a detailed annual SAFE report on economic status of Alaskan fisheries, including pollock (Fissel et al. 2017), and a section on economics in the stock assessment SAFEs. Harvest levels for each groundfish species or species group that are set by the Council for a new fishing year are based on the best biological, ecological, and socioeconomic information available, and follow a rigorous and public peer-reviewed process. The 2019-20 harvest levels are specified by NPFMC, at the links given in Fundamental Clause 7 above.

The AFA affected the pollock industry in the BSAI Region through capacity reduction, increased efficiency, regulatory bycatch reduction, a higher portion of utilized fish, and higher valued products. Industry cooperatives have been formed to accomplish these objectives. NMFS has numerous analyses on the performance of the pollock vessels operating under AFA, including sections in the annual SAFE reports. The AFA does not apply to GOA pollock, where other measures are in place.

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

NPFMC and BOF have extensive processes in place to allow for identifying and consulting with domestic parties having interest in the Alaskan pollock fisheries. The NPFMC is responsible for allocation of the pollock resource among user groups in Alaskan waters, and the Alaskan Board of Fisheries (BOF) public meeting process provides a regularly scheduled public forum for all interested individuals, fishermen, fishing organizations, environmental organizations, Alaskan Native organizations and other governmental and non-governmental entities that catch pollock off Alaska to participate in the development of legal regulations for fisheries. Organisations and individuals involved in the fishery and management process have been identified. The Alaska pollock management process has many stakeholders, including license holders, processors, cooperatives, fishermen's organizations, the states of Alaska, Washington, and Oregon, CDQ groups, and environmental groups. The NPFMC process is the primary means for soliciting stakeholder information important to the fisheries, and this is fully transparent and open to the public. Proposals for management measures may come from the public, state and federal agencies, advisory groups, or Council members. Fishing industry stakeholders work extensively with fishery scientists, managers, and other industry members on various initiatives to ensure sustainability of the pollock fisheries.

The NPFMC established a Rural Outreach Committee in 2009 to improve outreach and communications with rural communities and Alaska Native entities and develop a method for systematic documentation of Alaska Native and community participation in the development of fishery management actions. The Western Alaska Community Development Quota (CDQ) Program allocates a percentage of all Bering Sea and Aleutian Islands quotas for groundfish, prohibited species, halibut, and crab to eligible communities. There are approximately 65 communities within a fifty-mile radius of the BS coastline who participate in the program.

There is clear evidence from implementation of the AFA that regulating the size of Alaskan fleet

capacity has been effective in the Bering Sea pollock fishery. NPFMC and NMFS have determined the fishing capacity commensurate with the sustainable use of the pollock resource, and stocks are above biomass reference points and not overfished in any way. Management mechanisms such as TACs and quota allocations regulate the catch and amount of fishing effort applied to the pollock stocks, and there is an overall OY cap in both GOA and BSAI regions which restricts the total amount of fish of all species that can be removed from these ecosystems. Access (an effort control) to the fishery is through the Restricted Access Management Program. Fleet capacity and regularly updated data on all pollock fishing operations are presented in the annual SAFE documents. For example, in the economic SAFE for the 2016 fisheries (Fissel et al. 2017), it is noted that the number of active AFA pollock vessels declined from 147 in the 1996-98 period to 113 in 2000, and has remained around 100 in recent years.

There have been numerous regulations, as well as technological developments, aimed at reducing waste and discards in the pollock fisheries, and to ensure that the resources are harvested sustainably. These include various measures to address fish size, discards, and closed seasons and areas. Specific examples include the split of the BS Pollock TAC into A and B seasons to allow harvest of roe-bearing pollock at appropriate times and thereby reduce wastage, the development of Chinook and chum salmon excluder devices for trawl gear to reduce these by-catches, and closures of large areas to protect numerous ETP species. Since 1998, full retention of pollock is required in all Alaskan fisheries under the Improved Retention/Improved Utilization (IRIU) program. Since implementation of the AFA, vessel operators often pursue optimal sizes of pollock for market since the quota is allocated to vessels via cooperative arrangements. In addition, several vessels have made various gear modifications to avoid retention of smaller pollock. Fishing industry groups such as cooperatives and coalitions have undertaken numerous conservation-oriented measures in relation to fish size, bycatch avoidance, and product utilization.

NPFMC has acted in a precautionary manner to place protections around Stellar sea lion (SSL) rookeries and haulouts and close areas where fishing may impact SSL prey such as pollock. Over 210,000 km2 (54%) of critical sea lion habitat is closed to the pollock fishery in BSAI, with further restrictions on the proportion of annual pollock TAC which can be removed from the BSAI SSL Conservation Area. In the Central and Western GOA the SSL protection measures implemented in 2001 established four seasons with 25% of the total TAC allocated to each season. ADFG has also implemented areas closed to fishing in PWS around SSL rookeries. The NPFMC FMPs for BSAI and GOA groundfish also have the B20% reference point (described in Fundamental Clause 7) for species identified as Steller sea lion prey, which includes pollock.

Amendments 91 and 110 address salmon bycatch in the pollock fisheries. In 2016, Amendment 110 was implemented to improve the management of Chinook and chum salmon bycatch in the Bering Sea pollock fishery by creating a comprehensive salmon bycatch avoidance program, to minimize salmon bycatch in the Bering Sea pollock fishery to the extent practicable while maintaining the potential for the full harvest of the pollock TAC within specified PSC limits. Measures included incorporation of chum salmon avoidance into Amendment 91 Incentive Plan Agreements, requirement for salmon excluder devices, establishment of penalties for vessels that consistently have high bycatch relative to the fleet, adjustments to seasonal allocations, and lowering the hard cap and performance standard by 25% in years of low Chinook abundance. Ianelli and Stram (2014) provided estimates of the bycatch impact on Chinook salmon runs to the coastal west Alaska region and found that the peak bycatch levels exceeded 7% of the total run return. Since 2011, the impact has been estimated to be <2%. An updated analysis of salmon bycatch mortality in the EBS pollock fishery, presented to NPFMC in 2018,

http://comments.npfmc.org/CommentReview/DownloadFile?p=bc4af485-80bb-46d5-8182-50efe06c8d34.pdf&fileName=0024_2_D3%20Corrected%20April%202018%20BSAI%20Salmon%20AEQ%20Update.pdf

concluded that updated bycatch numbers remain low relative to the 2005 – 2007 period, but that there appears to be a slight increasing trend since 2013. Whittle et al. (2018) and Guthrie et al. (2018) present additional details and analyses on genetic data for salmon bycatch in the 2016 fishery.

Only pelagic trawls can be used in pollock fisheries in the BSAI region, and the doors used in the pelagic trawls used in the pollock fisheries in Alaska have negligible bottom impacts. Although the net does sometimes contact the seabed, benthic or bottom species by-catch is quite low, as are discard rates. Monitoring of incidental catch occurs on a real-time basis, so that catch data can be analysed and vessel operators advised of bycatch “hotspots” to avoid.

None of the pollock stocks in Alaska are classified as overfished or undergoing overfishing, and none

are in a depleted state. Only pelagic trawls are used in the BSAI pollock fishery and no destructive fishing practices are allowed in GOA or BSAI which would adversely impact habitat. The Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (Donut Hole) is responsible for the conservation, management, and optimum utilization of pollock resources in the high seas area of the Bering Sea. Member states have maintained a moratorium on commercial pollock fishing in the Convention Area since 1993 in an effort to allow the stock to rebuild. One of the Convention objectives is "to cooperate in the gathering and examining of factual information concerning Pollock and other living marine resources in the Bering Sea". The United States and Russian Federation also maintain the bilateral Intergovernmental Consultative Committee (ICC) fisheries forum pursuant to the U.S.-Soviet Comprehensive Fisheries Agreement, signed on May 31, 1988. This has resulted in cooperative research on pollock in the Bering Sea.

With regard to other resources taken in the pollock fishery, considerable work has been done on studying the effects on Chinook salmon in the EBS, as there are concerns with the status of Chinook in many rivers. There is ongoing scientific sampling and genetic analyses of the Chinook and chum salmon taken in the pollock fisheries in the GOA and EBS to determine their origins. Amendments 91 and 110 introduced significant steps towards controlling and ultimately reducing bycatch by creating a comprehensive salmon bycatch avoidance program. Numerous measures to protect SSL populations and habitat affects are implemented in the FMPs for GOA and BSAI groundfish, and several are specific to the pollock fisheries. Amendment 103 to the GOA FMP allows NMFS to reapportion unused Chinook salmon prohibited species catch (PSC) within and among specific trawl sectors in the Central and Western Gulf of Alaska (GOA), based on specific criteria and within specified limits. This rule does not increase the annual PSC limit on Chinook salmon, and promotes more flexible management of GOA trawl-caught Chinook salmon PSC.

The pelagic trawl fisheries for pollock account for very low bycatches of most species, including marine mammals and seabirds, and data on bycatches are reviewed annually in the SAFE documents. There are numerous regulations in place to regulate and control bycatch, along with industry initiatives. As well, for the pollock fisheries, discarding is low, verified by observer data. For example, in the observer report for the 2017 BSAI fishery, for the 1.32 million tons of pollock retained by catcher and catcher processor vessels in 2017, only 5,357 t of total discards was recorded, which is <0.4% of the total catch in this fishery, similar to the discard rate recorded by observers in the recent years. https://alaskafisheries.noaa.gov/fisheries/observed-catch-tables

There are numerous measures implemented in Alaskan fisheries to minimize non-utilized catches, such use prohibition of discarding (IRIU program), use of salmon and halibut excluder devices in trawl nets, and use of streamers on longline gear to reduce seabird bycatch. Many of the studies and subsequent implementation have involved cooperative efforts between researchers at institutions in NMFS, ADFG, universities, and industry, and are introduced into regulations only after extensive testing has occurred. A number of studies on the use of gear technology have been carried out on specifically on trawl-mounted devices to exclude salmon in the pollock fisheries in GOA and BSAI and research on pollock vessels in BSAI has been carried out with regard to efficiency of excluder devices, examining factors such as light attraction and escape ports.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

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

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

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

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

8.5 Technical measures shall be taken into account, where appropriate, in relation to:
- fish size
- mesh size or gear
- closed seasons
- closed areas
- areas reserved for particular (e.g. artisanal) fisheries
- protection of juveniles or spawners

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

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

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

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

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

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 9.

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

No. Supporting clauses	3
Supporting clauses applicable	3
Supporting clauses not applicable	0
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The North Pacific Fishing Vessel Owners Association (NPFVOA) provides a large and diverse training program that many of the professional crew members must pass, and the Sitka-based Alaska Marine Safety Education Association has trained more than 10,000 fishermen in marine safety and survival. Captains and some officers on the larger pollock vessels require certain levels of navigational certification. 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, which promotes safe marine operations by effectively preparing captains and crew members for employment in the Alaskan maritime industry. Also, the University of Alaska Sea Grant Marine Advisory Program (MAP) provides education and training in several sectors, including fisheries management, in the forms of seminars and workshops. Additional education is provided by the Fishery Industrial Technology Center, in Kodiak, Alaska.

All rules and regulations governing Alaskan pollock fisheries, including those dealing with responsible fishing methods, are readily available on NMFS, NPFMC, and ADFG websites. A summary of the NPFMC management measures that govern the GOA and BSAI groundfish fisheries are contained in the FMPs for those two regions. These also cover legal definitions such as quota shares, IFQ's, etc. To increase communications and understanding between the regulated users and enforcement personnel, NOAA Fisheries Office of Law Enforcement (OLE) strives to maintain a positive and productive relationship with all harvesters and industry personnel, by providing current regulatory information and guidance to promote compliance and responsible fisheries.

Data on the number and location of Alaskan fishers, permits issued, etc. can be found in Fissel et al. 2017. Information on Alaska sport fish and crew license holders has been compiled through the Alaska Fisheries Information Network for Alaska Fisheries (AKFIN). Data on fishing in Alaskan state-managed fisheries can be found in the State of Alaska's CFEC website. Fishermen in the state-managed fisheries must register prior to fishing and are required to keep a logbook during the fishery. Completed logbook pages must be attached to the ADFG copy of the fish ticket at the time of delivery. USCG also maintains records and issues credentials on licenses for crewmembers, including engineers, captains, mates, deckhands, etc. State of Alaska issues commercial fishing licenses for all crew.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

6.5 Implementation, Monitoring and Control (E)

Fundamental Clause 10.

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

No. Supporting clauses	6
Supporting clauses applicable	2
Supporting clauses not applicable	4 (10.3, 10.3.1, 10.4, 10.4.1)
Overall level of conformity	High
Non Conformances	None

Evidence of continuous compliance with the fundamental clause:

The US Coast Guard (USCG), NMFS Office of Law Enforcement (OLE) and Alaska Wildlife Troopers (AWT) conduct at-sea and shore-based inspections. At-sea, dockside monitoring, aerial surveillance

and satellite vessel monitoring systems (VMS) are in operation within the fisheries and development of electronic monitoring (EM) is ongoing. Monitoring, control and surveillance (MCS) is carried out at-sea and shore-side for the federal fisheries by the OLE and the USCG. The AWT fulfils the MCS function for the state water fisheries. The AWT also liaise with the OLE and may also request the assistance of the USCG vessels and aircraft to help in their surveillance and enforcement activities.

The NPFMC Groundfish and Halibut Observer Program (NGHOP) is the main data gathering program for all biological and fishery data for pollock stock assessment and management. An annual report is produced on the Alaskan observer program, which covers fisheries in the BSAI and GOA Regions. Although observers are not directly part of the federal MCS programme, they are required to report infringements, and OLE and USCG officers conduct de-briefing interviews with observers, checking on vessels fishing practices and the conduct of the crew.

The Alaska Commercial Fisheries Entry Commission (CFEC) helps to conserve and maintain the economic health of Alaska's commercial fisheries by limiting the number of participating fishers. CFEC issues permits and vessel licenses and provides due process hearings and appeals as and when needed. OLE, USCG and AWT staff have on-line access to information related to permits and licences and are therefore able to confirm whether a vessel or individual has the correct credentials to be operating in a fishery.

The OLE publishes a national annual report and the Alaska region submits six monthly reports to the NPFMC. The USCG publishes an annual report to the NPFMC on resources applied to fishery enforcement in the previous year, the number of boardings/inspections, the number of violations, lives lost at sea, safety issues, and any changes in regulations. The low occurrence of serious offences indicates that the pollock fishery is generally very compliant with regulations and the sanctions are considered to be an effective deterrent. OLE, USCG and AWT staff have on-line access to information related to permits and licences and are therefore able to confirm whether a vessel or individual has the correct credentials to be operating in a fishery.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

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

10.4 Flag States shall ensure that no fishing vessels entitled to fly their flag fish on the high seas or in waters under the jurisdiction of other States unless such vessels have been issued with a Certificate of

Registry and have been authorized to fish by the competent authorities. Such vessels shall carry on board the Certificate of Registry and their authorization to fish.

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 11.

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

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

Evidence of continuous compliance with the fundamental clause:

The MSA provides four options for penalizing violations, listed in ascending order of severity:
1) Issuance of a citation (a type of warning), usually at the scene of the offence
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 offences.

The policy of NMFS is to enforce the provisions of the MSA by utilizing the authorized remedies best suited in a particular case. OLE agents and officers can assess civil penalties directly to the violator in the form of a summary settlement or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation who can impose a sanction on the vessels permit or further refer the case to the U.S. Attorney's Office for criminal proceedings. The low proportion of violations encountered during at-sea patrols of the Alaska fisheries demonstrates effective deterrence. No recent sanctions have been applied by State of Alaska authorities in the PWS Pollock fishery and ADFG staff consider that sanctions are effective deterrents.

NOAA Alaska region has available a "Summary Settlement and Fix-it Schedule" which describes the violation and penalties associated with them. It also includes an increasing scale of penalty for repeat offences. Alaska state law describes the penalties for violating a BOF regulation. Fines, up to a maximum of $15,000 or imprisonment for not more than 1 year are stipulated, along with forfeiture of any fish, its market value, forfeiture of vessel and any fishing gear. The option of pursuing criminal action is also available to the state.

In 2018 following enforcement and outreach efforts, pollock trip overages fell from 1 in 10 to 1 in 20

deliveries (NOAA 2018). Summary settlements under the Alaska Summary Settlement Penalty Schedule and several cases are being prepared for submission to NOAA General Counsel Enforcement Section for review and disposition.

Evidence of continuous compliance with the supporting clauses

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

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

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

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

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

6.6 Serious impacts of the fishery on the Ecosystem (F)

Fundamental Clause 12.

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

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

Evidence of continuous compliance with the fundamental and supporting clause:

There are no material changes (since the last assessment activity) in compliance with the supporting clauses, evidence of compliance is therefore provided in a summarized format.

Gulf of Alaska (GoA)

Assessment of environmental and social effects and management consideration (Supporting clauses: 12.1, 12.2, 12.3, 12.4, 12.10)

12.1 States shall assess the impacts of environmental factors on target stocks and species

belonging to the same ecosystem or associated with or dependent upon the target stocks, and assess the relationship among the populations in the ecosystem.

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

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

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

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

Programmes of monitoring, evaluation and management response continue at the level when the fishery was re-certified, supported by wide-ranging evaluations such as the PSEIS (2004 and reviewed 2014). This is reflected in updated SAFE reports (including evaluation of ecosystem considerations) and specific Gulf of Alaska Ecosystem Status Report (Zador 2017). Also carried out was an updated evaluation of the economic status of the groundfish fisheries off Alaska (Fissel et al 2017). Included in the environmental analyses are considerations of the effects of ecosystem variation (notably the warming of 2014-16) on production.

No changes are evident which would affect the existing confidence ratings

Monitoring and management regarding non-target catches (Supporting clauses 12.5, 12.6, 12.11)

12.5 Appropriate measures shall be applied to minimize:
- catch, waste and discards of non-target species (both fish and non-fish species).
- impacts on associated, dependent or endangered species

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

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

Monitoring is carried out principally through the North Pacific Groundfish and Halibut Observer Program operated by the NMFS. In 2017, catcher vessels using pelagic gear had 21% observer coverage and accounted for about 99% of the pollock catch in the GOA. Overall, the amounts and species composition of FMP-retained species taken in 2017 were comparable to that in the previous five years Although the catch of non-FMP species had doubled in 2016 from the previous year, the catch in 2017 dropped to less than 100 t driven primarily by absence of Giant Grenadier.
The bycatch of prohibited species increased, driven primarily by an increase in the catch of Chinook salmon, and other salmon species. Despite this increase, the bycatch was within the limit of 25,000 Chinook salmon set by Amendment 93 in 2012. Genetic discrimination of Chinook and Chum salmon, predominantly in the GOA pollock fishery, have been updated; catches of both species deriving predominantly from river systems that flow into the GOA and the Eastern Pacific Ocean.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding endangered species and dependent predators (Supporting clauses 12.5, 12.5.1, 12.12, 12.14)

12.5 Appropriate measures shall be applied to minimize:
- catch, waste and discards of non-target species (both fish and non-fish species).
- impacts on associated, dependent or endangered species

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

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

12.14 There shall be outcome indicator(s) consistent with achieving management objectives that seek to avoid severe adverse impacts on dependent predators resulting from the unit of certification fishing on a stock under consideration that is a key prey species.

Mammals. It is noted that in a June 2018 technical memorandum, NOAA fisheries updated all Alaska Marine Mammal Stock Assessments with new estimates of Permissible Biological Removals in addition to summaries of incidental mortality and injury due to commercial fisheries using the latest available data. For Steller sea lions, there has been a sustained increase in population size in all areas of the GOA since about 2000.
Seabirds. Data show no significant changes to retained and bycatch species. Work to improve mitigation measures continues and a workshop was convened in November 2017 that discussed voluntary mitigation efforts to reduce seabird cable strikes on trawl vessels, primarily in West Coast fisheries, but also Alaska trawl fisheries. Short-tailed albatross remain the primary ETP bird species of concern in the Alaska fisheries.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding aquatic ecosystems (Supporting clauses 12.7, 12.8, 12.15)

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

12.8 States shall introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).

12.15 There shall be outcome indicator(s) consistent with achieving management objectives that seek to minimize adverse impacts of the unit of certification, including any enhancement activities, on the structure, processes and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible. Any modifications to the habitat for enhancing the stock under consideration must be reversible and not cause serious or irreversible harm to the natural ecosystem’s structure, processes and function.

The Gulf of Alaska Ecosystem Status Report includes continuing monitoring of a range of ecosystem indicators, all considered by the NPFMC in the decision-making process. Further developments in management include creation of the Alaska Marine Ecosystem Forum to promote coordination between the agencies on issues of shared responsibilities related to the marine ecosystems off Alaska’s coast and an Ecosystem Research Workshop to discuss the integration of ecosystem knowledge into the Council process.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding essential habitats (Supporting clauses 12.9, 12.13)

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

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

The most recent 5-year review of EFH took place in 2016 using a new Fishing Effects (FE) model to assess the impacts of fishing activities on EFH. Overall fishing impacts in the pollock core EFH area are very low. The average percentage impact for the entire GOA, over the period 2003 to 2016, was 1.7%. The average for area 630, where trawl impacts are highest, was 3% and did not exceed 4.1% in any month. All these values are below the 10% habitat impact that was established as the trigger for further analysis. The final environmental assessment (EA) for Essential Fish Habitat (EFH) Omnibus Amendments was published in June of 2018. Amendment 105 is the relevant omnibus amendment to the Fishery Management Plan for the groundfish fishery of the Gulf of Alaska. Based on the most recent (2015) 5-year review of EFH that concluded in 2017, the Council determined that new habitat and life history information is available to revise many of the EFH descriptions and maps. These amendments (A105 for the GOA) to the EFH provisions in the Council's FMPs would not substantively change the impacts of EFH as analysed in the 2005 EFH environmental impact statement. The 2015 EFH 5-year review concluded that no change to the conclusions of the evaluation of fishing effects on EFH is warranted based on new information. None of the FMP amendments require regulatory action.

No changes are evident which would affect the existing confidence ratings.

Bering Sea and Aleutian Islands (BSAI)

Assessment of environmental and social effects and management consideration (Supporting clauses: 12.1, 12.2, 12.3, 12.4, 12.10).

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

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

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

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

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

Programmes of monitoring, evaluation and management response continue at the level when the fishery was re-certified, supported by wide-ranging evaluations such as the PSEIS (2004 and reviewed 2014). This is reflected in updated SAFE reports (including evaluation of ecosystem considerations) and specific Eastern Bering Sea (Siddon and Zador, 2017) and Aleutian Island (Zador 2016)

Ecosystem Status Reports. Also carried out was an updated evaluation of the economic status of the groundfish fisheries off Alaska (Fissel et al 2017). Included in the environmental analyses are considerations of the effects of ecosystem variation (notably the warming of 2014-16) on production.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding non-target catches (Supporting clauses 12.5, 12.6, 12.11)

12.5 Appropriate measures shall be applied to minimize:
- catch, waste and discards of non-target species (both fish and non-fish species).
- impacts on associated, dependent or endangered species

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

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

Monitoring is carried out principally through the North Pacific Groundfish and Halibut Observer Program operated by the NMFS. In 2017, pollock fisheries in the BSAI had 100% observer coverage in 2017 with two observers per vessel. The catch of retained species in 2017 was the second lowest in the series since 2011 at 17,489 t and well below the average during the period 2011 to 2016 of 23,020 t. As in previous years, Pacific cod, rock sole, flathead sole, yellowfin sole, and squid were the main species caught. In 2016, NMFS issued a final rule to implement Amendment 111 to the BSAI FMP to reduce prohibited species catch (PSC) limits for Pacific halibut in the BSAI groundfish fisheries; this results in an overall BSAI halibut PSC limit of 3,515 t. The bycatch of halibut in the Pollock fishery decreased to 152 t in 2015 and 116 t in 2016 and 85 t in 2017. A high number of non-Chinook salmon (nearly all made up of chum salmon) was taken in the 2017 pollock fishery. At 424,018 fish, this was the highest catch since 2011 and almost three times the average bycatch for the period 2011 to 2016. Chinook salmon bycatch also increased again in 2017 to 19,674 fish; above the average of 14,725 for the previous six years. Nevertheless, the higher bycatch of Chinook in 2017 was still well below the allowable limits established by Amendment 91

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding endangered species and dependent predators (Supporting clauses 12.5, 12.5.1, 12.12, 12.14)

12.5 Appropriate measures shall be applied to minimize:
- catch, waste and discards of non-target species (both fish and non-fish species).
- impacts on associated, dependent or endangered species

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

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

12.14 There shall be outcome indicator(s) consistent with achieving management objectives that seek to avoid severe adverse impacts on dependent predators resulting from the unit of certification fishing on a stock under consideration that is a key prey species.

Chinook salmon. Genetic differentiation work has been carried out to fulfill the terms and conditions of the December 2, 2009, and the January 11, 2007 supplements to the November 30, 2000, biological opinion (Bi Op) regarding authorization of the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) groundfish fisheries (NMFS 2000). The most recent BiOp that addresses incidental catch of Chinook salmon in the GOA groundfish fisheries is the supplemental BiOp issued on January 9, 2012. This BiOp concluded that the GOA groundfish fisheries are not likely to jeopardize the continued existence of listed salmon evolutionarily significant units (ESUs). At the June 2018 NPFMC meeting the Council was provided an update on Chinook salmon mortality due to bycatch in the EBS pollock fishery. This coincided with their decision to adopt a new run reconstruction model for the Kuskokwim River as part of the 3-river index. Using the stochastic "adult equivalence" (AEQ) model, updated results were similar to past analyses. The addition of stock identification data shows the AEQs broken out by regional stock groups are quite similar over time. Overall, results suggest that the impact rate has remained low but there appears to be a slight upturn for the 2017 bycatch levels.
Mammals. Work is ongoing to determine which life history traits (age-specific reproductive or survival rates) are implicated in the regional dynamics of Steller sea lions and to better understand the links between forging behaviour, diet and population dynamics. Once completed these studies may provide new insight into the factors underlying recent population trends. Other work includes a Lenfest Ocean Program funded project, in which a team of researchers are developing a new spatially explicit bioenergetics model to estimate the dietary needs of northern fur seals, and link the model to the existing climate-to-fish model of the Bering Sea (FEAST) and the multi-species stock assessment model (CEATTLE).
Seabirds. Relatively few seabirds are taken in BSAI pollock fishery. Seabird bycatch in groundfish fisheries in the EBS has declined since 2007. However, there was an increase to 3,992 in the bycatch of all groups (fulmars, shearwaters, gulls) in 2015 and a further increase in 2016 to 9,355 birds driven by substantial increased in the bycatch of Northern fulmar and shearwaters. No short-tailed albatross or black-footed albatross were caught, and an average number of Laysan albatross were caught incidentally in 2016, the most recent data. The number of seabirds estimated to be bycaught in Aleutian Islands groundfish fisheries in 2016 declined to the low level observed during the period 2011-2014. As part of ongoing management review, a Seabird Cable Strike Mitigation Workshop was held in 2017 in Seattle. The goal of the workshop was to identify effective, practical mitigation measures to reduce seabird cable strike mortality in the catcher-processor west coast hake and Alaska trawl fisheries.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding aquatic ecosystems (Supporting clauses 12.7, 12.8, 12.15)

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

12.8 States shall introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).

12.15 There shall be outcome indicator(s) consistent with achieving management objectives that seek to minimize adverse impacts of the unit of certification, including any enhancement activities, on the structure, processes and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible. Any modifications to the habitat for enhancing the stock under consideration must be reversible and not cause serious or irreversible harm to the natural ecosystem's structure, processes and function.

The Eastern Bering Sea (Siddon and Zador, 2017) and Aleutian Island (Zador 2016) Ecosystem Status Reports include continuing monitoring of a range of ecosystem indicators, all considered by the NPFMC in the decision-making process. Further developments in management include creation of the Alaska Marine Ecosystem Forum to promote coordination between the agencies on issues of shared responsibilities related to the marine ecosystems off Alaska's coast and an Ecosystem Research Workshop to discuss the integration of ecosystem knowledge into the Council process.

No changes are evident which would affect the existing confidence ratings.

Monitoring and management regarding essential habitats (Supporting clauses 12.9, 12.13)

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

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

The most recent five-year review of Essential Fish Habitat (EFH) took place in 2016 using a new Fishing Effects (FE) model to assess the impacts of fishing activities on EFH. Over the period 2003 to 2016 the average impact of the Pollock fishery on pollock EFH was 2.6% in the Bering Sea and 2.1% for the Pollock fishery in the Aleutian Islands. On this basis, NPFMC agreed that the effects of fishing on EFH do not currently meet the threshold of more than minimal and not temporary, and mitigation action is not needed at this time (NMFS 2017). Additional analysis of the distribution and intensity of pelagic trawl and non-pelagic trawl fishing in predicted coral habitat in the EBS was also provided. This found that 2% of annual fishing events in the EBS have occurred in predicted coral habitat since 2003. Estimates of the percentage of pelagic trawl tows in predicted coral habitat have decreased from 3-5% during 2003-2007 to 1-2% during 2008-2014. In addition, the final environmental assessment (EA) for Essential Fish Habitat (EFH) Omnibus Amendments was published in June of 2018. Amendment 115 is the relevant omnibus amendment to the Fishery Management Plan for the groundfish fishery of the Bering Sea and Aleutian Islands Area. Based on the most recent (2015) 5-year review of EFH that concluded in 2017, the Council determined that new habitat and life history information is available to revise many of the EFH descriptions and maps. These amendments (A115 for the BSAI) to the EFH provisions in the Council's FMPs would not substantively change the impacts of EFH as analysed in the 2005 EFH environmental impact statement. The 2015 EFH 5-year review concluded that no change to the conclusions of the evaluation of fishing effects on EFH is warranted based on new information. None of the FMP amendments require regulatory action.

No changes are evident which would affect the existing confidence ratings.

Changes to Fundamental Clause Confidence Ratings.

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

Conformance:

Conformance level: High. Non-conformance: None

Fundamental Clause 13 – NOT APPLICABLE

Where fisheries enhancement is utilized, environmental assessment and monitoring shall

consider genetic diversity and ecosystem integrity.

No. supporting clauses	19
Applicable supporting clauses	0
Non-applicable supporting clauses	19
Overall level of conformity	NA
Non-conformance	NA

Evidence of continuous compliance with the fundamental clause: NA

Evidence of continuous compliance with the supporting clauses: NA

13. 1 State shall promote responsible development and management of aquaculture, including an advanced evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity, based on the best available scientific information (and/or traditional, fisher or community objective and verifiable knowledge). Significant uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries, including culture and enhancement activities. This issue can be addressed by taking a risk assessment/risk management approach.

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

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

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

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

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

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

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

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

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

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

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

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

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

13.10 State shall cooperate in the elaboration, adoption and implementation of international codes of

practice and procedures for introductions and transfers of aquatic organisms.

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

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

13.13 Regarding the enhanced components of the "stock under consideration", provided that a natural reproductive stock component is maintained and fishery production is based primarily on natural biological production within the ecosystem of which the "stock under consideration" forms a part, enhanced fisheries shall meet the following criteria:
• the species shall be native to the fishery's geographic area or introduced historically and have subsequently become established as part of the "natural" ecosystem;
• there shall be natural reproductive components of the "stock under consideration";
• the growth during the post-release phase shall be based upon food supply from the natural environment and the production system shall operate without supplemental feeding.

13.14 In the case of enhanced fisheries, "stock under consideration" may comprise naturally reproductive components and components maintained by stocking. In the context of avoiding significant negative impacts of enhancement activities on the natural reproductive components of "stock under consideration":
• naturally reproductive components of enhanced stocks shall not be overfished;
• naturally reproductive components of enhanced stocks shall not be substantially displaced by stocked components. In particular, displacement shall not result in a reduction of the natural reproductive stock component below abundance-based target reference points (or their proxies) defined for the regulation of harvest.

Changes to Fundamental Clause Confidence Ratings.

NA

Conformance:

NA

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APPENDICES

Appendix 1 Stakeholder submissions

No stakeholder comments were received during the annual surveillance activities.

About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.