

FAO-Based Responsible Fisheries Management Certification

Summary of the Certification of Alaska Flatfish fisheries



The key Alaska Flatfish commercial fisheries (species specified below) are awarded certification to the FAO-Based 'Responsible Fisheries Management' Program.

Certification Determination

On the 05th December 2013 a positive Certification determination was awarded for the *fishery management of the U.S. Alaska Flatfish commercial fisheries*, against the FAO-based Responsible Fisheries Management (RFM) Certification Program (Conformance Criteria version 1.2)¹. The assessment was performed at the request of the Alaska Seafood Marketing Institute (ASMI). This document provides a concise summary of the assessment information and certification decision.

The Full Assessment and Certification Report will be made available for download at the ASMI's website (<http://certification.alaskaseafood.org/flatfish-certification>) after the 31st January 2014.

The Unit of Certification is the Alaska flatfish complex distributed in the Bering Sea/Aleutian Islands (BSAI) and the Gulf of Alaska (GOA) and specifically includes BSAI Alaska plaice (*Pleuronectes quadrituberculatus*), BSAI/GOA arrowtooth flounder (*Atheresthes stomias*), BSAI/GOA flathead sole (*Hippoglossoides elassodon*), BSAI Greenland turbot (*Reinhardtius hippoglossoides*), BSAI Kamchatcka flounder (*Atheresthes evermanni*), BSAI/GOA northern rock sole (*Lepidopsetta polyxystra*), GOA rex sole (*Glyptocephalus zachirus*), GOA southern rock sole (*Lepidopsetta bilineata*) and BSAI yellowfin sole (*Limanda aspera*). These are the species of focus in the Assessment and Certification Report. The Alaskan flatfish complex commercial fisheries employ Alaska flatfish trawl gear and longline gear (Greenland Turbot only) within Alaska's jurisdiction (200 nautical miles EEZ). These fisheries are principally managed by two federal agencies, the National Marine Fisheries Service (NMFS) and the North Pacific Fishery Management Council (NPFMC).

The resulting certification communication for the Alaska Flatfish commercial fisheries is:

'Certified Responsible Fisheries Management'.

Following a 12 month assessment process, a Global Trust Certification Committee, composed of fishery, certification and accreditation experts, unanimously agreed with the Assessment Team's findings that the applicant Alaska Flatfish commercial fisheries are responsibly managed. The assessment and certification considered the effectiveness of management system and organizations, the robustness and effectiveness of fishery management plans, stock assessment activities, stock health and the application of precautionary harvest rates and management actions, monitoring and enforcement activities and the ecosystem effects of the fishery.

¹ Version 1.2 (Sept 2011), as derived by the United Nations Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries (1995), the FAO Guidelines for the Eco-Labeling of Fish and Fishery Products from Marine Capture Fisheries (2005) as amended/extended in 2009, and the FAO Fisheries Circular No. 917 by John. F. Caddy (1996).

Background to the FAO Based Responsible Fisheries Management (RFM) Certification

This Certification delivers high confidence that reliable management systems are in place to properly assess and respond to any current and evolving issues and allow the fishery to continue on the path of responsible management. These management systems are certified as consistent with those recommended by the FAO Code of Conduct for Responsible Fisheries (1995) and FAO Guidelines for the Eco-Labeling of Fish and Fishery Products from Marine Capture Fisheries (2005) and amended/extended in 2009.

This Certification demonstrates responsible management for the sustainable use of the fisheries and is a realistic and tangible communication for this standard and process. The FAO-Based RFM Certificate lasts for five years and it involves annual surveillance assessments of the fishery. This Certification means that the Alaska Flatfish commercial fisheries have met the criteria for certification of responsibly managed fisheries at the point in time of the assessment. Annual surveillance assessments and a full re-assessment every 5 years will be used to verify that fishery management continues to perform responsibly.

Towards the end of the assessment, after numerous clarifications were sought, the report documents the rationales in which the Alaska Flatfish commercial fisheries achieved high conformity against all of the FAO-Based RFM Conformance Criteria. The assessment findings have been documented in a 500 + page Full Assessment and Certification Report.

The assessment was conducted by Global Trust Certification according to the International Standards Organization (ISO) Guide 65:1996 procedures for FAO-based Responsible Fisheries Management Certification. ISO Guide 65 is the international general requirements for bodies operating product and process certification systems. The ISO Guide 65 assessment, certification and decision process is governed by the accreditation bodies of the International Accreditation Forum (IAF). Global Trust Certification is accredited by the Irish National Accreditation Board (INAB) who is a member of the IAF.

Details of the Assessment

ASMI, on behalf of the Alaska Flatfish commercial fisheries, submitted an application to Global Trust Certification for a formal assessment of these fisheries to the requirements of the FAO-Based Responsible Fisheries Management (RFM) Certification Program.

After the initial site visits and the Validation Assessment, an expert Assessment Team was formed to undertake the full assessment. The Assessment Team was composed of independent assessors (Table 1) with expert competency in fisheries management and operations, stock assessment, and on the ecosystem effects of the fishery. The Assessment Team's report was peer-reviewed by two additional independent experts (Table 2) before submission to a formal Global Trust Certification Committee (Table 3) for an independent certification decision. The level of conformance of each fishery was scored against each clause of the FAO-Based Conformance Criteria (version 1.2). Conformance ratings were assigned through consensus scoring by the assessment team, based on objective evidence derived and measured from the fishery and verified through on site meetings and consultations.

A. The Fisheries Management System

Fundamental 1

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

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

Summarized evidence:

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

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

The federal Fishery Management Plans (FMPs), more specifically, 1) the GOA Groundfish FMP, and 2) the BSAI Groundfish FMP govern the management of the Flatfish federal fisheries. In federal waters (3-200 nm), the Alaska Flatfish fisheries are managed by the NPFMC and the NMFS Alaska Region. The Council submits their recommendations/plans to the NMFS for review, approval, and implementation. The NMFS makes those recommendations available for public review and comment (partly by publication) before taking final action by issuing legally binding Federal regulations. In addition, NMFS Alaska Regional Office conducts biological studies, stock survey and stock assessment reports. The US Coast Guard (USCG) is responsible for enforcing these FMPs at sea, in conjunction with NMFS enforcement ashore. Also, the USCG enforce laws to protect marine mammals and endangered species, international fisheries agreements (i.e. UN High Seas Driftnet Moratorium in the North Pacific), and foreign encroachment. Current management measures consider the whole stocks biological units (i.e. structure and composition contributing to its resilience over their entire area of distribution, the area through which the species migrate during their life cycle and other biological characteristics of the stock).

All of the species within the Alaska flatfish complex are managed as separate stocks between the BSAI and the GOA, even if they occur in both areas. The Aleutian Island chain serves as a barrier between the two water bodies, and there is thought to be little mixing of flatfish stocks. None of the species considered here are known to complete large migrations, other than short range spawning or age related movements. These smaller migrations are thought not to be on a basin-wide scale.

A. The Fisheries Management System

Fundamental 2

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

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

Summarized evidence

Participation in coastal zone institutional frameworks, decision making processes and activities:

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

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

The state is a cooperating agency in the NEPA process for federal actions, giving the State of Alaska a seat at the table for federal actions. This includes decision-making processes and activities relevant to the fishery resource and its users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users.

Overall, the NEPA process, existing agencies and processes (e.g. ADFG, the Alaska Department of

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

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

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

The Community Development Quota (CDQ) Program began in December of 1992 with the goal of promoting fisheries related economic development in western Alaska. The CDQ Program allocates a percentage of all BSAI quotas for groundfish, prohibited species, halibut and crab to eligible communities. The Program allocates 10.7% of the flatfish complex (yellowfin sole, northern rock sole, arrowtooth flounder, Greenland turbot, and flathead sole) BSAI TAC to eligible communities. The purpose of the program is to (i) provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the BSAI Management Area; (ii) to support economic development in western Alaska; (iii) to alleviate poverty and provide economic and social benefits for residents of western Alaska; and (iv) to achieve sustainable and diversified local economies in western Alaska. There are 65 communities within a fifty-mile radius of the BS coastline who participate in the program. It was latest granted perpetuity status during the 1996 reauthorization of the MSA.

A. The Fisheries Management System

Fundamental 3

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

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

Summarized evidence:

Fishery management plans and their objectives:

Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that requires conservation and management. The GOA and BSAI Groundfish FMPs, under which Flatfish in the federal waters of Alaska is managed, define nine management and policy objectives that are reviewed annually. These are 1) Prevent Overfishing, 2) Promote Sustainable Fisheries and Communities, 3) Preserve Food Webs, 4) Manage Incidental Catch and Reduce Bycatch and Waste, 5) Avoid Impacts to Seabirds and Marine Mammals, 6) Reduce and Avoid Impacts to Habitat, 7) Promote Equitable and Efficient Use of Fishery Resources, 8) Increase Alaska Native Consultation, 9) Improve Data Quality, Monitoring and Enforcement. The national standards and management objectives defined in GOA and BSAI FMPs provide adequate evidence to demonstrate the existence of long-term objectives clearly stated in management plans. Management measures detailed in the two Groundfish FMPs include quotas, allocated by region and by gear type; permit requirements, seasonal restrictions and closures, geographical restrictions and closed areas, gear restrictions, prohibited species requirements, retention and utilisation requirements, recordkeeping and reporting requirements, and observer requirements.

B. Science and Stock Assessment Activities

Fundamental 4

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

No. Supporting clauses	14
Supporting clauses applicable	9
Supporting clauses not applicable	5
Overall level of conformity	HIGH
Non Conformances	0

Summarized evidence:

Data collection, aggregation and use:

The annual age-based assessment used to determine stock status and harvest recommendations for BSAI and GOA Flatfish uses data collected from commercial landings and transshipment reports, port and at-sea observers; as well as sex, length and age data from fishery independent surveys in the EBS, the AI and the GOA. The Resource Assessment and Conservation Division (RACE) of the Alaskan Fisheries Science Center (AFSC) are responsible for federally managed fisheries (3-200 nm) while the ADFG undertake coastal surveys and gather and collect data from state managed fisheries (0-3 nm). It is noted that the overall data collection program is probably one of the most extensive in the world. At-sea (processor and catcher-processor vessels) are legally required to report commercial and non-commercial catch data on a daily basis, while catch and auxiliary information from a very extensive observer program, in many cases covering 100% of the fleet activity (e.g. in the EBS, but significantly less in the GOA) is also transmitted on a daily basis.

Landings data from shore based processing facilities are also transmitted on a daily basis and the processing facilities subject to a high level of observer coverage. For all operations under Federal jurisdiction, all US vessels catching Flatfish within the US EEZ, land based and stationary floating processor and factory (motherships) receiving catches of Flatfish are legally obliged to maintain accurate records of all transactions. Landing data are routinely cross checked for overall accuracy, and verified during US Coast Guard boardings.

The Fisheries Monitoring and Analysis Division (FMA) of the NMFS monitor groundfish fishing activities in the US EEZ. FMA is responsible for the biological sampling of commercial fishery catches, estimation of catch and bycatch mortality, and analysis of fishery-dependent survey data. The Division is responsible for training and oversight of at-sea observers who collect catch data onboard fishing vessels and at onshore processing plants. Data and analysis are provided to the Sustainable Fisheries Division of the Alaska Regional Office for the monitoring of quota uptake and for stock assessment, ecosystem investigations and research programs.

To facilitate reporting of commercial catch from both state and federally managed fisheries, data from a wide range of sources is gathered in 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. The CAS system also provides a centralized data platform for the collation of catch (landings and discards) data from the extensive observer program.

Data gathered under the auspices of the North Pacific Groundfish Observer Programme (NPGOP) covers all biological information associated with commercial fisheries, including catch weights (landings and discards), catch demographics (species composition, length, sex and age) and interactions with sharks, rays, seabirds, marine mammals and other species with limited or no commercial value. As well as providing demographic data for scientific purposes, the observer programme is also used extensively in- and post-season management. Daily reports are electronically transmitted via the CAS system. This 'real-time' data is used as the basis to trigger area as well as fisheries closures e.g. if maximum catch allocations of target or Prohibited Species are caught. Financing of the NPGOP is based on a cost recovery formula where individual vessel operators must pay the daily observer costs as a condition of licence.

Beginning in 2013, Amendment 86 to the FMP of the BSAI and Amendment 76 to the FMP of the GOA establish the new North Pacific Groundfish and Halibut Observer Program. All vessels fishing for groundfish in federal waters are required to carry observers, at their own expense, for at least a portion of their fishing time. These changes will increase the statistical reliability of data collected by the program, address cost inequality among fishery participants, and expand observer coverage to previously unobserved fisheries.

The NOAA biennial GOA groundfish survey data is used for the assessment for Flatfish in the GOA. All three surveys (EBS, AI and GOA) collect demographic data (length and age) as well as stomach content data for potential use in multi-species assessment models. The annual EBS survey program follows systematic stratified design with two geographic strata: NW (arctic area) and SE (sub-arctic area) three depth strata (inner shelf < 50 m; mid-shelf between 50 and 200 m; and outer shelf > 200 m). On average 376 survey stations are completed annually in the EBS survey, with tow duration of 30 minutes at a speed of 3 knots. The nominal survey abundance index is standardized with the area swept. The GOA survey follows the same stratification as the EBS survey, a random stratified survey design. The survey is biennial, with the NOAA survey schedule alternating each year between the GOA and the AI survey area. For each survey year, on average 825 stations are surveyed by three boats in the GOA, and 420 stations are surveyed by two boats in the AI.

In terms of socio-economic data collection, the Regulatory Flexibility Act (RFA) requires agencies (NPFMC) to consider the impact of their rules (Fishery Management Plans, Fishing Regulations) on small entities (fishermen communities) and to evaluate alternatives that would accomplish the objectives of the rule without unduly burdening small entities when the rules impose a significant economic impact on a substantial number of small entities. Economic analyses are also required to varying degrees under the MSA, the NEPA, the Endangered Species Act, and other applicable laws.

NOAA's Resource Ecology and Fisheries Management (REFM) Division produces an annual Economic Status Report of the Groundfish fisheries in Alaska. The figures and tables in the report provide

estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, the ex-vessel value of the groundfish catch, the ex-vessel value of the catch in other Alaska fisheries, the gross product value of the resulting groundfish seafood products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, vessel activity, and employment on at-sea processors. The report contains analysis and comment of the performance of a range of indices for different sectors of the North Pacific fisheries relate changes in value, price, and quantity, across species, product and gear types, to aggregate changes in the market.

B. Science and Stock Assessment Activities

Fundamental 5

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

No. Supporting clauses	11
Supporting clauses applicable	10
Supporting clauses not applicable	1
Overall level of conformity	HIGH
Non Conformances	0

Summarized evidence:

Stock assessment activities:

The Resource Assessment and Conservation Engineering (RACE) Division comprises scientists from a wide range of disciplines whose function is to conduct quantitative fishery surveys and related ecological and oceanographic research to describe the distribution and abundance of commercially important fish and crab stocks in the region, and to investigate ways to reduce bycatch, bycatch mortality and the effects of fishing on habitat. Information derived from both regular surveys and associated research are analysed by AFSC stock assessment scientists and supplied to fishery management agencies and to the commercial fishing industry. The Resource Ecology and Fisheries Management (REFM) Division conducts research and data collection to support an ecosystem approach to management of fish and crab resources. More than twenty-five groundfish and crab stock assessments are developed annually and used to set catch quotas. In addition, economic and ecosystem assessments are provided to the Council on an annual basis. The Fisheries Monitoring and Analysis Division (FMA) monitors groundfish fishing activities and conducts research associated with sampling commercial fishery catches and estimation of catch and bycatch mortality, and analysis of fishery-dependent data.

The three surveys (EBS, AI and GOA) collect demographic data (length and age) as well as stomach content data for potential use in multi-species assessment models. The EBS survey is conducted annually, while the GOA and the AI surveys are conducted biannually, alternating with each other. Stock Assessment and Fishery Evaluation (SAFE) Reports are produced annually for flatfish in the BSAI and GOA Regions. These reports contain all the details of the assessments including data collected and used, and stock assessment models trialled.

The adequacy and appropriateness of the stock assessments are ensured by extensive peer review. For BSAI and GOA groundfish assessments, the review process begins with an internal review of assessments by the AFSC. Following that review, assessments are reviewed annually by the groundfish plan teams who provide comments to the assessment authors on revisions to the assessment as well as to make recommendations to the SSC regarding OFL and ABC levels for each stock. The majority of the plan team members have expertise in stock assessment and fisheries

biology with some additional members bringing in expertise in fishery management, in-season catch accounting, seabirds, marine mammals, and economics. The assessments as well as the plan team recommendations are then subsequently reviewed by the SSC who make the final OFL and ABC recommendations to the Council. The SSC may modify the recommendations from the Plan Team based upon additional considerations. The Council sets TAC at or below the ABC recommendations of the SSC.

The AFSC periodically requests a more comprehensive review of groundfish stock assessments by the Center of Independent Experts (CIE). These reviews are intended to lay a broader groundwork for improving the stock assessments outside the annual assessment cycle. The most recent CIE reviews of flatfish species SAFEs have been those for BSAI yellowfin sole- 2012; GOA southern rock sole – 2012; GOA northern rock sole – 2012; and GOA rex sole- 2012.

C. The Precautionary Approach

Fundamental 6

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

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

Summarized evidence:

Status determination criteria for Flatfish stocks, reference points and relative biomass:

The BSAI and GOA groundfish fishery management plans management plans define a series of target and limit reference points for Flatfish and other groundfish covered by these plans. Each SAFE report describes the current fishing mortality rate, stock biomass relative to target and limit reference points. Both management plans specify the Overfishing Limits (OFL) and the Fishing mortality rate (F_{OFL}) used to set OFL, Acceptable Biological Catch (ABC) and the fishing mortality rate (F_{ABC}) used to set ABC, the determination of each being dependent on the knowledge base for each stock. The overall objectives of the management plans are to prevent overfishing and to optimize the yield from the fishery through the promotion of conservative harvest levels while considering differing levels of uncertainty. The management plan classifies 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.

In general terms the harvest control rules become progressively precautionary with increasing tier classification and catch options are automatically adjusted depending on the status of stocks relative to B_{msy} or the biomass $B_{x\%}$ corresponding to the percentage of the equilibrium spawning biomass that would be obtained in the absence of fishing.

BSAI Alaska plaice spawning stock biomass in 2013 was considered stable and well above target reference points. BSAI arrowtooth flounder spawning stock biomass in 2013 was considered stable and well above target reference points. In 2013, BSAI flathead sole $B_{40\%}$ was estimated at 128,286 t. The year 2013 spawning stock biomass was estimated at 243,334 t; thus the stock appeared stable and well above its biomass target reference point. BSAI Northern Rock sole spawning stock biomass in 2013 was considered on the rise and well above target reference points. In 2013 the BSAI Alaska plaice spawning stock biomass was considered to be at about target reference point

level. Projected 2014 Kamchatka flounder female spawning biomass is estimated at 50,400 t, above the B40% level of 46,100 t, and is projected to remain above B40% if fishing continues at that level.

The 2012 status of the Greenland Turbot stock is B21%, much lower than last year's projected status for 2012 of B89% and the 2008 estimate of B52%. The change in status was mostly due to fixing the input error and improvements in the shapes of the selectivity curves chosen in 2012. The 2013 recommended ABC is only 26% of the projected 2013 ABC from last year's model. However, the projected 2013 estimated total biomass in this year's model is higher than projected from the 2011 Reference model. This is due to strong 2008 and an especially large 2009 year classes observed in both the survey and fisheries size composition data. These two year classes are expected to be larger than any other recruitment event since the 1970's and will begin to have an increasing influence on spawning stock biomass starting in 2014.

BSAI Units	Tier	Year	B _{MSY} (t)	B _{35%} (t)	B _{40%} (t)	B _{100%} (t)	F _{OFL}	F _{ABC}	OFL (t)
Alaska plaice	3	2013		133,000	152,000	380,000	0.19	0.158	55,800
arrowtooth flounder	3	2013		215,667	246,476	616,191	0.21	0.17	131,985
flathead sole	3	2013		112,250	128,286	320,714	0.348	0.285	81,535
Greenland turbot	3b	2013		41,726	47,686	119,217	0.14	0.12	2,539
Kamchatka flounder	5	2013					0.13	0.098	16,300
northern rock sole	1	2013	260,000			694,500	0.164	0.146	241,000
yellowfin sole	1	2013	353,000			966,900	0.112	0.105	220,000

Spawning biomass for arrowtooth flounder in the Gulf of Alaska is estimated for 2013 as 1,274,290 tonnes. This is much higher than the B40% reference point calculated at 482,231 t and B35% calculated at 421,953 t. The 2012 B40 spawning biomass for flathead sole in the GOA is estimated at 41,547 t while the projected spawning biomass is at 106,377 t, therefore stable and well above target reference point. The spawning biomass of both Northern and Southern rock sole in the Gulf of Alaska is considered to be above their target reference points of B40. SB₄₀ for Northern rock sole in 2013 is estimated at 20,100 t while the spawning biomass is estimated at 42,700 t. SB₄₀ for Southern rock sole in 2013 is estimated at 45,100 t while the spawning biomass is estimated at 82,800 t. GOA Rex sole estimated spawning stock biomass for 2013 (52,807 t) is greater than B35% (19,434 t). For this reason the stock is not considered overfished. Because the 2012 catch was less than the 2012 ABC (i.e. 2,425 t < 9,612 t), overfishing is not occurring.

GOA Units	Tier	Year	B _{MSY} (t)	B _{35%} (t)	B _{40%} (t)	B _{100%} (t)	F _{OFL}	F _{ABC}	OFL (t)
arrowtooth flounder	3	2013		421,953	482,231	1,205,580	0.207	0.174	247,196
flathead	3	2013		36,354	41,547	103,868	0.593	0.45	61,036

sole									
northern rock sole	3a	2013		16,600	19,000	47,500	0.180	0.152	11,400
rex sole	5	2013					0.17	0.128	12,492
southern rock sole	3a	2013		43,000	49,200	123,000	0.230	0.193	21,900

Limit reference points ($B_{17.5\%}$) are established. The management approach also stipulates that if the stock shows a decline in biomass beyond limit reference point e.g. $B_{17.5\%}$ then the fishery maybe subjected to closure and formal rebuilding. None of the flatfish complex stocks are close to, at or below the limit reference point.

C. The Precautionary Approach

Fundamental 7

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

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

Summarized evidence:

The FAO Guidelines for the Precautionary Approach (PA) are satisfied:

The precautionary approach is applied widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The MSA, as amended, sets out ten national standards for fishery conservation and management. The BSAI and GOA Groundfish FMPs are consistent with MSA requirements in applying the Precautionary Approach to fisheries. The FAO Guidelines for the Precautionary Approach (PA) (FAO 1995) advocate a comprehensive management process that includes data collection, monitoring, research, enforcement, and review, prior identification of desirable (target) and undesirable (limit) outcomes, and measures in place to avoid and correct undesirable outcomes, the action to be taken when specified deviations from operational targets are observed and an effective management plan. Lastly, the FAO guidelines advocate that the absence of adequate scientific information should not be used as a reason for postponing or failing to take measures to conserve target species, associated or dependent species as well as non-target species and their environment. The overall management for the Flatfish in Alaska comprises all the elements as specified above in the FAO guidelines for the PA.

Absence of adequate scientific information is not used as a reason for postponing or failing to take conservation and management measures. The BSAI and GOA Flatfish stocks are managed under a tier system rule based on stock knowledge. Status determination criteria for groundfish stocks are annually calculated using a six-tier system that accommodates varying levels of uncertainty of information. The six-tier system incorporates new scientific information and provides a mechanism to continually improve the status determination criteria as new information becomes available. The higher the tier (i.e. 4, 5 or 6), the more conservative the determination of OFL/ABC and ACL are. This is because more conservative determinations are at the higher tier levels where less stock information is available. This system is intrinsically precautionary in nature and the results involve catches always lower than the overfishing level (equivalent to MSY). Stock assessment results

indicate that the BSAI and GOA Flatfish stocks biomasses are generally well above B40 and that the stocks are neither overfished nor undergoing overfishing. Greenland Turbot in the BSAI is the exception, currently being between target and limit reference point, but projected to increase in the upcoming years, starting in 2014.

Another limit reference point used in managing groundfish in the BSAI and GOA is the optimum yield (OY). The sum of the TACs of all groundfish species (except Pacific halibut) is required to fall within a given range. The upper range for BSAI is 2.0 million Mt while for the GOA is 800 thousand Mt, acting as an ecosystem cap. In practice, only the upper OY limit in the BSAI has been a factor in altering and limiting harvests.

D. Management Measures

Fundamental 8

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

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

Summarized evidence:

Management measures:

The Alaska Flatfish commercial fishery is managed according to a modern management plan that attempts to balance long-term sustainability of the resources with optimum utilization. Conservation and management measures are outlined in the BSAI and GOA FMPs for Groundfish. Along with yearly stock assessment surveys and reports (SAFEs), evaluation of the fisheries stock status, determination of OFL (consistent with MSY), ABC, ACL and TAC accounting for scientific uncertainty and ability and precision in catch control. Part of the assessment procedure is an extensive ecosystem assessment that shows development towards ecosystem-based management.

Management measures in the FMPs include (i) permit and participation, (ii) authorized gear, (iii) time and area, and catch restrictions, (iv) measures that allow flexible management authority, (v) designate monitoring and reporting requirements for the fisheries, and (vi) describe the schedule and procedures for review of the FMP or FMP component.

For every change/amendment or new development affecting fisheries management and therefore modifying the FMPs, there is an evaluation of alternative conservation and management measures, including considerations of their cost effectiveness and social impact. The Regulatory Flexibility Act (RFA) requires agencies to consider the impact of their rules (Fishery Management Plans, Fishing Regulations) on small entities (fishermen communities) and to evaluate alternatives that would accomplish the objectives of the rule without unduly burdening small entities when the rules impose a significant economic impact on a substantial number of small entities.

Economic and social analysis is part of the NEPA (essentially an environmental and socio-economic impact assessment) requirements, of which the NPFMC and NMFS consistently adhere and comply with. One recent change affecting flatfish complex fisheries in Alaska is the restructuring and implementation (Jan. 2013) of the groundfish observer program.

The NMFS Alaska Region RAM division requires that all vessels fishing or processing groundfish possess a federal fishing permit, a federal vessel license or/and a federal processing permit. The permit describes all pertinent information about the vessel and its' vessel fishing category, gear type and target fisheries. As a condition of these permits vessels must also comply with all regulations described in the GOA and BSAI FMPs. This includes reporting and landings requirements (elandings and logbooks), carrying onboard observers or having shoreside observers at shore plants.

The BSAI and GOA FMPs authorize only non-pelagic trawls and longlines (for Greenland Turbot) for flatfish fishing, hence no dynamiting, poisoning and other comparable destructive fishing practices are allowed. Trawl sweeps modifications that 1) decrease significantly habitat interaction of trawl gear and 2) reduce the bycatch of crabs, and mortality rates of crabs that slip under the gear without being caught, have been implemented in the BSAI in 2011 and the Council has allowed in December 2012 for trials to be conducted in the GOA Region during 2013 and 2014. Longline gear is regulated as for seabird avoidance measures (e.g. use of streamer lines, sink baited hooks, circle hooks, line shooters, lining tubes, night settings etc.). No fish size limits are implemented for flatfish. Market forces assure that fishermen target adult fish as it fetches a higher price per pound.

The flatfish complex fisheries in Alaska are not overharvesting the resource and fleet capacity is carefully measured. Mechanisms are in place via the permitting process, observer program and catch reporting programs to quantify fishing capacity and ensure that excess capacity is avoided. Accordingly, the resources in the GOA and BSAI are generally above their target reference points, except for Greenland turbot. Overall, the flatfish complex in Alaska appears to be lightly exploited. Various management measures to decrease discards and increase retention have been implemented. These are considered efficient measures in that retention in the flatfish fleet of Alaska has increased significantly in recent years. The fleets are measured and controlled in terms of permitting and quota share limitations by federal agencies. Estimated discards are accounted for by observers and accrued towards the TACs for each species.

Regulations implementing the FMP include conservation measures that temporally and spatially limit fishing in certain geographical areas as well as effort around areas important to marine mammals. NMFS uses Stellar sea lion protection measures (SSLPM) to ensure the groundfish fisheries off Alaska are not likely to jeopardize the continued existence of the western population of Steller sea lions or adversely modify their critical habitat. The management measures disperse fishing over time and area to protect against potential competition for important Steller sea lion prey species near rookeries and important haulouts.

D. Management Measures

Fundamental 9

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

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

Summarized evidence:

Management measures to maintain the Flatfish stocks at maximum sustainable levels:

The flatfish stocks in Alaska part of this unit of certification are not depleted or threatened with depletion. Presently, the resources in the GOA and BSAI are considered to be generally above their target reference points, except for Greenland turbot. Overall, the flatfish complex in Alaska appears to be lightly exploited.

Council guidelines, federal FMP regulations and the MSA with its National Standards all define to management agencies what must be done if a stock becomes depressed. The US Congress established new statutory requirements under the MSA in 2006 to end and prevent overfishing by the use of annual catch limits (ACLs) and accountability measures. These new requirements were implemented in 2010 for all stocks subject to overfishing and in 2011 for all stocks not subject to overfishing. A new provision of the MSA requires that the respective scientific and statistical committees (SSC) of the eight fishery management councils determine scientific benchmarks, while the councils continue to recommend quotas subject to these scientific benchmarks. This separation of authorities represents a major step forward in trying to eliminate overfishing and to enhance recovery of overfished stocks nation-wide.

Assuming that catch is measured accurately, ACLs provide a transparent measure of the effectiveness of management practices to prevent overfishing. They cannot exceed the fishing level determined by the SSC, but catch thresholds can also be established that trigger accountability measures to prevent overfishing. Accountability measures might include: (1) seasonal, area, and gear allocations; (2) bycatch limits; (3) closed areas; (4) gear restrictions; (5) limited entry; (6) catch shares; (7) in-season fishery closures; and (8) observer and vessel monitoring requirements. Accountability measures allow close monitoring of overall catch levels, as well as seasonal and area apportionments. They might close designated areas, or fisheries, if bycatch limits for prohibited species are attained. They also allow monitoring of any endangered or threatened mammals or

seabirds and provide a database for evaluating likely consequences of future management actions.

The Council has consistently adopted the annual OFL and acceptable biological catch (ABC) recommendations from its SSC and set the total allowable catch (TAC) for each of its commercial groundfish stocks at or below the respective ABC. The NPFMC first defined OFL in 1991 as a catch limit that never should be exceeded. The NPFMC adopted more conservative definitions of OFL in 1996 and again in 1999, to comply with revised national guidelines. In 1999, the NPFMC prescribed that OFL should never exceed the amount that would be taken if the stock were fished at FMSY (or a proxy for FMSY), after Congress redefined the terms “overfishing” and “overfished” to mean a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce MSY on a continuing basis. The OFL could be set lower than catch at FMSY at the discretion of the SSC. OFL can be then virtually defined as an upper limit reference point.

In 1996, the NPFMC capped the rate of fishing mortality used to calculate ABC by the rate used to calculate OFL. These rates were prescribed through a set of six tiers defining more and more conservative catch levels as the tiers increased. Harvest rates used to establish ABCs were reduced at low stock size levels, thereby allowing rebuilding of depleted stocks. If the biomass of any stock falls below BMSY, or a proxy for BMSY, the fishing mortality is reduced relative to the stock status.

Both target and non-target species are regularly assessed and bycatch limits and PSC caps are in place to control impacts. Also, Essential Fish Habitat (EFH), as defined in the MSA, are described and evaluated to assure that fishing impacts are not more than minimal or more than temporary. Some areas have been closed to protect dependent species - this includes SSL protection areas around rookeries and haulouts (10 & 20 nm closures).

During the last EFH review in 2010 it has been shown that fishing effects on the habitat of flatfish in the BSAI and GOA do not appear to have impaired either stocks’ ability to sustain themselves at or near the MSY level.

D. Management Measures

Fundamental 10

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

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

Summarized evidence:

Training opportunities and facilities. The North Pacific Fishing Vessel Owners association (NPFVO) provides a large and diverse training program that many of the professional crew members must pass. Training ranges from firefighting on a vessel, damage control, man- overboard, MARPOL, etc., and The Sitka-based Alaska Marine Safety Education Association alone has trained more than 10,000 fishermen in marine safety and survival through a Coast Guard-required class on emergency drills. The State of Alaska, Department of Labor & Workforce Development (ADLWD) includes AVTEC (formerly called Alaska Vocational Training & Education Center, now called Alaska's Institute of Technology). One of AVTEC's main divisions is the Alaska Maritime Training Center.

The goal of the Alaska Maritime Training Center is to promote safe marine operations by effectively preparing captains and crew members for employment in the Alaskan maritime industry. The Alaska Maritime Training Center is a United States Coast Guard (USCG) approved training facility located in Seward, Alaska, and offers USCG/STCW-compliant maritime training (STCW is the international Standards of Training, Certification, & Watchkeeping). In addition to the standard courses offered, customized training is available to meet the specific needs of maritime companies. Also, the University of Alaska Sea Grant Marine Advisory Program (MAP) provides education and training in several sectors, including fisheries management, in the forms of seminars and workshops. MAP also conducts sessions of their Alaska Young Fishermen's Summit. Each Summit is an intense course in all aspects of Alaska fisheries, from fisheries management & regulation (e.g. MSA), to seafood marketing. The 2013 summit was hosted in Anchorage, Alaska, from December 10th to the 12th. The conference aimed at providing crucial training and networking opportunities for fishermen entering the business or wishing to take a leadership role in their industry.

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

E. Implementation, Monitoring and Control

Fundamental 11

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

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

Summarized evidence:

Enforcement agencies and framework:

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

The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce federal fisheries laws and regulations, especially 50CFR679. OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation (GCEL). GCEL can then assess a civil penalty in the form of a Notice of Permit Sanctions (NOPs) or Notice of Violation and Assessment (NOVAs), or they can refer the case to the U.S. Attorney's Office for criminal proceedings.

On January 8, 2002, an emergency interim rule (67 FR 956) was issued by NMFS to implement Steller sea lion protection measures. Vessels that catch flatfish also catch Pacific cod since it found in similar fishing grounds and they have quota for it. All vessels using pot, hook-and-line or trawl gear in the directed fisheries for pollock, Pacific cod or Atka mackerel are required [Section 679.7(a)(18)] to have an operable VMS on board. This requirement is necessary to monitor fishing restrictions in Steller sea lion protection and forage areas. Also, when the vessels are fishing Pacific cod in the state parallel fishery, they would use their VMS as directed by their federal fishing permit.

Boardings and Violations

Flatfish fisheries in the Bering Sea are primarily targeted by trawl vessels, although there are some longliners that also target various flatfish species. The active fleet size of vessels targeting these species is approximately 87 vessels each year, and the Coast Guard attempts to board 18 of these vessels annually. This fleet has a VMS requirement, which makes them relatively easy to track.

With regards to the question of checking gear, vessels using bottom contact trawl gear in the Bering Sea are required to have elevating devices installed on their trawl sweeps to raise them off the sea floor to reduce interactions with other species. To date, since the implementation of this requirement, there have been no violations detected by at-sea boardings of this requirement. This is the only gear measurement requirement that is in place.

From fiscal year 2008 through the end of fiscal year 2012, the Coast Guard boarded 90 vessels targeting flatfish in the Bering Sea with 7 violations detected on 7 vessels, providing a detected violation rate of 7.77%.

Flatfish fisheries in the Gulf of Alaska are targeted primarily by trawl vessels. The active fleet size of vessels targeting these species is approximately 85 vessels each year, and the Coast Guard attempts to board 17 of these vessels annually. This fleet has a VMS requirement, which makes them relatively easy to track.

Currently, there are no gear modification requirements for this fishery, although there are provisions being put in place to mimic the Bering Sea trawl sweep elevating devices. Given the success of that problem and some of the gains realized by the fishermen for using these devices, there are not expected significant violations associated with implementation of these regulations.

From fiscal year 2008 through the end of fiscal year 2012, the Coast Guard boarded 21 vessels targeting flatfish in the Gulf of Alaska with 5 violations noted on two vessels, providing a detected violation rate of 9.52%.

Fishing permit requirements:

No foreign fleet is allowed to fish in the Alaska's EEZ. Every fishing vessel targeting flatfish in Alaska is required to have a federal permit. The permit programs are managed by the Restricted Access Management (RAM) federal division.

The flatfish fisheries of Alaska under assessment here are harvested exclusively within the Alaska EEZ only. Those fisheries are not part of any international agreement or part of a framework of sub-regional or regional fisheries management organizations or arrangements. Flatfish fisheries in international waters abutting the GOA or BSAI EEZ occur in north-western British Columbia and in Russian waters across the Bering Sea Convention Line. Those fisheries are regulated by their own Governments.

E. Implementation, Monitoring and Control

Fundamental 12

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

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

Summarized evidence:

Enforcement policies and regulations, state and federal:

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

(a) The MSA provides four basic enforcement remedies for violations, in ascending order of severity, as follows: (1) Issuance of a citation (a type of warning), usually at the scene of the offense (see 15 CFR part 904, subpart E). (2) Assessment by the Administrator of a civil money penalty. (3) For certain violations, judicial forfeiture action against the vessel and its catch. (4) Criminal prosecution of the owner or operator for some offenses. It shall be the policy of NMFS to enforce vigorously and equitably the provisions of the MSA by utilizing that form or combination of authorized remedies best suited in a particular case to this end.

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

(c) If a fishing vessel for which a permit has been issued under the MSA is used in the commission of an offense prohibited by section 307 of the MSA, NOAA may impose permit sanctions, whether or not civil or criminal action has been undertaken against the vessel or its owner or operator. In some cases, the MSA requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. In sum, the MSA treats sanctions against the fishing vessel permit to be the carrying out of a purpose separate from that accomplished by civil and criminal penalties against the vessel or its owner or operator.

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

F. Serious Impacts of the Fishery on the Ecosystem

Fundamental 13

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

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

Summarized evidence:

Ecosystem reports and studies:

The Final Programmatic Supplemental Environmental Impact Statement is an extensive review of the Alaska Groundfish Fisheries (PSEIS) (NMFS 2004). It provides information about effects of Alaska's groundfish fisheries on the ecosystem and effects of the ecosystem on the groundfish fisheries.

The North Pacific Research Board (NPRB) was created by Congress in 1997 to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean with a priority on cooperative research efforts designed to address pressing fishery management or marine ecosystem information needs. While the NPRB has invested millions of dollars on obtaining this objective, they have also developed two special projects that seek to understand the integrated ecosystems of the BSAI and GOA. For the Gulf of Alaska Integrated Ecosystem Research Program, more than 40 scientists from 11 institutions are taking part in the \$17.6 million Gulf of Alaska ecosystem study that looks at the physical and biological mechanisms that determine the survival of juvenile groundfish in the eastern and western Gulf of Alaska. The study includes two field years (2011 and 2013) followed by one synthesis year.

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

by two more years for analysis and reporting.

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

Ecosystem Effects on Alaskan flatfish stocks

The prey and predators of BSAI and GOA flatfish are well understood. The composition of most flatfish prey varies by species, time and area. NOAA's AFSC REFM division has done extensive diet studies on multiple species occurring in Alaska's commercial fisheries.

Bycatch and ETP species

Gear modifications have been implemented in the BSAI and are being tested in the GOA to lift the sweep off the seafloor and hence limit detrimental effects on the seafloor. Trials in the BSAI have found a 90% decrease in bottom habitat interaction and reduction in unobserved mortality of crab from interacting with the trawl sweeps. Additionally there are several regulations in place towards seabird avoidance for vessels fishing with hook-and-line gear.

Pacific halibut, Pacific herring, Pacific salmon and steelhead, king crab, and Tanner crab are prohibited species and must be avoided while fishing for groundfish and must be returned to the sea with a minimum of injury, except when their retention is required or authorized by other applicable law. Groundfish species and species under this FMP for which TAC has been achieved shall be treated in the same manner as prohibited species. When a target fishery attains a PSC limit apportionment or seasonal allocation, the bycatch zone or management area to which the PSC limit applies will be closed to that target fishery for the remainder of the year or season.

Bycatch is managed operationally by assessing bycatch species (see SAFE-reports), having bycatch caps (PSC and MRA), using data collected and validated by the observer program to account for total catches. Measures applied to minimize catch, waste and discards of non-target species are described in the Management Measures for the BSAI and GOA Groundfish Fisheries given in the FMPs. Of notice in 2013, the BSAI Alaskan plaice fishery, which had significant discards, was closed in May of 2013 due to the initial TAC having been reached. Vessels fishing flatfish in the BSAI were prohibited from retaining Alaska plaice and forced to move their operations away from areas with high Alaska plaice catches. All retained and discarded catch of the managed (target) species count toward their TAC.

The AFSC also monitors the catch of non-target species in groundfish fisheries in the EBS, GOA and AI ecosystems. There are three categories of non-target species: 1) forage species (gunnells, stichaeids, sandfish, smelts, lanternfish, sand lance), 2) species associated with Habitat Areas of Particular Concern-HAPC species (seapens/whips, sponges, anemones, corals, tunicates), and 3) non-specified species (grenadiers, crabs, starfish, jellyfish, unidentified invertebrates, benthic invertebrates, echinoderms, other fish, birds, shrimp). Stock assessments have been developed for

all groups in the other species (sculpins, unidentified sharks, salmon sharks, dogfish, sleeper sharks, skates, octopus, squid) category, so AFSC does not include trends for "other species" in the Ecosystem SAFE.

Total catch of non target species is estimated from observer species composition samples taken at sea during fishing operations, scaled up to reflect the total catch by both observed and unobserved hauls and vessels operating in all FMP areas. From 1997-2002, these estimates were made at the AFSC using data from the observer program and the NMFS Alaska Regional Office. Catch since 2003 has been estimated using the Alaska Region's new Catch Accounting system. These methods should be comparable. This sampling and estimation process does result in uncertainty in catches, which is greater when observer coverage is lower and for species encountered rarely in the catch. Until 2008, observer sample recording protocols prevented estimation of variance in catch; however, the AFSC is developing methods to estimate variance for 2008 on which are planned to be presented in future SAFE reports.

Status and trends: In all three ecosystems, non-specified catch comprised the majority of non target catch during 1997-2011. Non-specified catches are similar in the EBS and GOA, but are an order of magnitude lower in the AI. Catches of HAPC biota are highest in the EBS, intermediate in the AI and lowest in the GOA. The catch of forage fish is highest in the GOA, low in the EBS and very low in the AI.

In the EBS, the catch of non-specified species appears to have decreased overall since the late 1990s. Scyphozoan jellyfish, grenadiers and sea stars comprise the majority of the non-specified catches in the EBS. The 2008-2009 and 2010-2011 increase in non-specified catch was driven by jellyfish. Grenadiers (including the Giant grenadier) are caught in the flatfish, sablefish, and cod fisheries. Jellyfish are caught in the pollock fishery and sea stars are caught primarily in flatfish fisheries. HAPC biota catch has generally decreased since 2004. Benthic urochordata, caught mainly by the flatfish fishery, comprised the majority of HAPC biota catches in the EBS in all years except 2009-2011, when sponges and sea anemones increased in importance. The catch of forage species in the EBS increased in 2006 and 2007 and was comprised mainly of eulachon that was caught primarily in the pollock fishery; however, forage catch decreased in 2008-2010. The forage catch increased again in 2011, primarily due to capelin and eulachon.

In the AI, the catch of non-specified species shows little trend over time, although the highest catches were recorded in 2009-2010. The non-specified catch dropped in 2010-2011, primarily due to a reduction in the catch of giant grenadiers. Grenadiers comprise the majority of AI non specified species catch and are taken in flatfish and sablefish fisheries. HAPC catch has been similarly variable over time in the AI, and is driven primarily by sponges caught in the trawl fisheries for Atka mackerel, rockfish and cod. Forage fish catches in the AI are minimal, amounting to less than 1 ton per year, with the exception of 2000 when the catch estimate was 4 tons, driven by (perhaps anomalous) sandfish catch in the Atka mackerel fishery.

The catch of non-specified species in the GOA has been generally consistent aside from a peak in 1998 and lows in 2009 and 2010. Grenadiers comprise the majority of non-specified catch and they are caught primarily in the sablefish fishery. Sea anemones comprise the majority of the variable but generally low HAPC biota catch in the GOA and they are caught primarily in the flatfish fishery. The catch of forage species has undergone large variations, peaking in 2005 and 2008 and

decreasing in 2006-2007 and 2009-2010. The catch of forage species increased in 2010-2011, primarily due to eulachon and other osmerids. The main species of forage fish caught are eulachon and they are primarily caught in the pollock fishery.

The state of the prohibited and forage species is considered in the setting MSY- and OY-levels. A programmatic supplemental environmental impact statement (PSEIS) was completed in June, 2004. The preferred alternative identified in the PSEIS retained the existing OY range. In addition to impacts on the stocks and stock complexes in the "target species" category the PSEIS analyzed impacts on prohibited species, forage fish, non-specified species, habitat, seabirds, and marine mammals. Ecosystem-level variables analyzed were pelagic forage availability, removal of top predators, introduction of non-native species, energy removal, energy redirection, species diversity, functional diversity (in terms of both trophic relationships and structural habitat), and genetic diversity. Effects were partitioned into direct and indirect effects, persistent past effects, reasonably foreseeable future external effects, and cumulative effects. For the preferred alternative, approximately half of the ecosystem-level effects were determined to be insignificant, conditionally significant/positive, or significant/positive; none were determined to be significant/negative.

Habitat interaction are not considered significant in the flatfish fisheries partly because of the development of trawl sweep modification, already implemented in the BSAI Region and to be implemented in the GOA in 2014. Bycatch is recorded in detail and endangered species interactions with Steller sea lions and short-tailed albatross are tightly monitored and regulated. The current ESA biological opinion specifies that the expected take of Short tailed albatross (bycatch) in the longline fishery is four in any 2-year period. In the event that a fifth bird is bycaught, an ESA Section 7 consultation involving the U.S. Fish and Wildlife Service and the National Marine Fisheries Service must be initiated. This process can lead to additional regulatory action on the fishery. Reports for 2012 show that the bycatch rate for seabirds in fisheries is 40% below the 5-year average, with no short-tailed albatross catches. Also, NMFS uses Stellar sea lion protection measures (SSLPM) to ensure the groundfish fisheries off Alaska are not likely to jeopardize the continued existence of the western population of Steller sea lions or adversely modify their critical habitat. The management measures disperse fishing over time and area to protect against potential competition for important Steller sea lion prey species near rookeries and important haulouts.

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

Further Information

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Table 1: Global Trust Assessment Team Members

Name	Role	Name	Role
Vito Ciccio Romito, SAIG/Global Trust Certification Ltd. Quayside Business Park Dundalk, Co. Louth Ireland	Lead Assessor	Dr. Geraldine Criquet, SAIG/Global Trust Certification Ltd. Quayside Business Park Dundalk, Co. Louth Ireland	Assessor
Erica Fruh, SAIG/Global Trust Certification Ltd. Oregon, USA	Assessor	Jeff Fargo, Consulting Fishery Scientist, British Columbia, Canada	Assessor
R.J. (Bob) Allain Consulting Fishery Scientist, Brunswick, Canada	Assessor		

<http://sustainability.alaskaseafood.org>

Table 2: Peer Reviewers

Rick Stanley	Dr. Steven Parker
<p>Rick Stanley received a M.Sc. in Zoology from the University of British Columbia in 1977. Following work on overseas fisheries projects in Indonesia (1978) and El Salvador (1979), he worked for the Department of Fisheries and Oceans Canada (DFO) as a research biologist at the Pacific Biological Station in Nanaimo Canada until August 2013. During those years with DFO, he was senior author or co-author of 19 peer-reviewed stock assessments on British Columbia populations of various species of rockfishes (<i>Sebastes</i> spp.). He also served on the working groups and review committees of assessment on many other species of groundfish and invertebrates. In addition to stock assessment activity, he has published primary papers on the general biology of rockfishes including papers on</p>	<p>Steven Parker is a fisheries scientist at the National Institute of Water and Atmospheric Research in Nelson, New Zealand. He received a PhD in Zoology for the University of Maine at Orono in 1995, and worked for the Oregon Department of Fish and Wildlife for a decade focusing on rockfish biology and ecology, bycatch reduction technologies and trawl gear development for the West Coast flatfish fisheries, the Pacific hake fishery observation programme, and served as the State of Oregon's Representative on the North Pacific Fisheries Management Council's Science and Statistical Committee. Since 2008, Steven has been involved in the Fish Stock Assessment working group for the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR),</p>

ageing, parasites and reproductive biology, as well as acoustic biomass estimation. An additional focus of Mr. Stanley's work at DFO was the development of fishery catch monitoring programs and bottom trawl surveys for groundfish. Following his retirement from DFO in August 2013, Mr. Stanley began work as a self-employed fisheries consultant.	which assesses and manages fisheries in the Southern Ocean. His work there focuses on toothfish migration and ecology, the effects of fishing on fragile benthic habitats, tagging and telemetry, and biological inputs into stock assessment.
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Table 3: Certification Committee Members

Bill Paterson, Legal / Technical / Certification and Accreditation Expert SAIG/Global Trust Certification Ltd.	
Dr. Samuel Shephard Fishery Scientist Independent Scientist.	Dr. Norman Graham Fishery Scientist Marine Institute, Ireland.
Also in Attendance	
Vito Ciccio Romito: Fishery Scientist SAIG/Global Trust Certification Ltd. (Fishery Presentation to Certification Committee only)	
Geraldine Criquet: Fishery Scientist SAIG/Global Trust Certification Ltd. (Fishery Presentation to Certification Committee only)	