MSC Public Certification Report

US Pacific Sablefish v.5

August 2011

The fishery evaluated in this report:

Species:	*Anoplopoma fimbria*
Geographic Area:	Bering Sea and Gulf of Alaska
Fishing Method:	demersal longline
Fishery Management:	National Marine Fisheries Service, North Pacific Fisheries Management Council, Alaska Department of Fish Game

Accredited Certification Body:
Scientific Certification Systems
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Assessment Team

Dr. Sabine Daume	Team Leader
Dr. Steve Martell	Principle 1
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Versions Issued

Version No.	Date	Description Of Amendment
1	14 January 2011	Client Draft Report
2	24 February 2011	Peer Review Draft Report
3	25 May 2011	Public Comment Draft Report
4	29 June 2011	Final Report with Certification Decision
5	2 August 2011	Public Certification Report after Objection Period

MSC scheme documents:

MSC Accreditation Manual Issue 4
MSC Fisheries Assessment Methodology (FAM) Version 2.1
MSC Fisheries Certification Methodology (FCM) Version 6.1
MSC TAB Directives
MSC Policy Advisories

Contents

PREAMBLE

This report is the sole responsibility of SCS. All advice and comments from Assessment Team members, peer reviewers, client, fishery managers and the MSC have been reviewed by SCS and incorporated into the report by SCS as required.

ABBREVIATIONS

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ADF&G	Alaska Department of Fish and Game
AHP	Analytical Hierarchy Process
AI	Aleutian Islands
AKD	Alaska Enforcement Division
ALFA	Alaska Longline Fishermen's Association
APA	Administrative Procedures Act
ASI	Accreditation Services International
ATA	Alaska Trollers Association
AWT	Alaska Wildlife Troopers
B and B_0	Biomass and un-fished biomass
$B_{17.5}$	Sablefish Limit Reference Point
B_{40}	Sablefish Target Reference Point—estimated 40% of B_0
CB	Certifying Body
CDQ	Community development Quota
CIE	Center for Independent Experts
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	Catch Per Unit Effort
DAT	Default Assessment Tree
EBS	Eastern Bering Sea
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ETP	Endangered, Threatened and Protected species
ERA	Ecological Risk Assessment
ESD	Ecologically Sustainable Development
F	Fishing mortality rate
FABC	Allowable Biological Catch
FAM	Fisheries Assessment Methodology v2.1
FAO	Food and Agriculture Organization [of the United Nations]
FOFL	Over Fishing Limit
FVOA	Fishing Vessel Owner's Association (client group)
GCEL	General Council's Office of Enforcement and Litigation
GOA	Gulf of Alaska
HAPC	Habitat Areas of Particular Concern
HCR	Harvest Control Rule
IFQ	Individual Fishing Quota
IUCN	International Union for Conservation of Nature
MCMC	Markov Chain Monte Carlo Method

MCS	Monitoring Control and Surveillance
MMPA	Marine Mammal Protection Act
MSA	Magnuson Stevenson Act
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Association
NPFMC	North Pacific Fisheries Management Council
OFL	Overfishing Level
OLE	Office of Law Enforcement
PI	Performance Indicator
RAM	Restricted Access Management
RI	Rhode Island
SAFE	Stock Assessment of Fisheries Evaluation
SCS	Scientific Certification Systems
SG	Scoring Guidepost
SSB and R	Spawning Stock Biomass and Recruitment
SSC	Scientific and Statistical Committee
t	metric ton
TAB	Technical Advisory Board [of the MSC]
TAC	Total Allowable Catch
TL	Total Length (nose to middle of forked tail)
US	United States
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WaDFW	Washington Department of Fish and Wildlife
WWF	World Wildlife Foundation
YOY	Young of the Year

INTRODUCTION

The Marine Stewardship Council (MSC) is a non-profit organization dedicated to the long-term protection or "sustainability" of marine fisheries and related habitats. First started as a joint initiative between Unilever and the World Wildlife Fund (WWF), the MSC is now a fully independent organization that is governed by an independent Board of Directors advised by a panel of scientific, economic, and fishery experts.

The MSC's original mission statement promoted responsible, environmentally appropriate, socially beneficial, and economically viable fisheries practices, as well as the maintenance of biodiversity, productivity and ecological processes of the marine environment. The current MSC mission statement provides a slightly more focused mission and reads,

"Our mission is to use our ecolabel and fishery certification programme to contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practices, influencing the choices people make when buying seafood, and working with our partners to transform the seafood market to a sustainable basis."

Dedicated to promoting "well-managed" or "sustainable" fisheries, the MSC initiative intends to identify such fisheries through means of independent third-party assessments and certification. Once certified, fisheries will be awarded the opportunity to utilize an MSC promoted eco-label to gain economic advantages in the marketplace. Through certification and eco-labeling, the MSC intends to promote and encourage better management of world fisheries, many of which have been suggested to suffer from poor management.

The Marine Stewardship Council developed the original standards for sustainable fisheries management in a three-step process: 1) Assemble a group of experts in Bagshot (UK) to draft an initial set of Principles and Criteria; 2) Conduct an 18-month process to review the standard in 8 major international venues; and 3) Convene a second set of experts in Warrenton, Virginia (Airlie Conference Center, USA) to revise and finalize the MSC Principles and Criteria.

The MSC Fisheries Certification Methodology used for this report, the Marine Stewardship Council Fisheries Assessment Methodology (FAM) and Guidance to Certification Bodies Including Default Assessment Tree and Rick-Based Framework Version 2.1 was issued on 1 May 2010.

1. SUMMARY

1.1 The Re-Assessment Process

Scientific Certification Systems, Inc. conducted a pre-assessment of the US Pacific sablefish longline fishery as recommended by the MSC program. After review of the pre-assessment, the applicants for certification authorized the formal, full assessment of the fishery. All aspects of the assessment process were carried out under the auspices of Scientific Certification Systems, Inc., an accredited MSC certification body, and in direct accordance with MSC requirements.

The first full assessment of the US Pacific sablefish longline fishery was conducted using an Assessment Tree that was finalized in December 2004. The Public Comment Draft Report was published February 2006, the final report was published in April that same year. No objections to the certification decision were made and the fishery was first certified as sustainable seafood in May 2006 with the caveat of two conditions. Both conditions were related to management review and objective response to management review. Both conditions were able to be closed out by the second surveillance audit. The US Pacific sablefish longline fishery remained in

compliance with the MSC standards and Principles for the remainder of the certificate. The fishery then entered the first re-assessment.

The MSC re-assessment follows the same requirements of a full assessment. Since the time of the original certification, the MSC has released updated versions of the Fisheries Assessment Methodology (v. 2.1, May 2010), Fisheries Certification Methodology (v.6.1) and published the Default Assessment Tree (v2.1, May 2010). The most recent MSC scheme documents were used in the fishery re-assessment. The most recent MSC scheme documents were used in the fishery re-assessment. All conditions were closed out at the 4th annual surveillance audit.

Special care was taken that harmonization of the findings of this assessment with the Canadian Pacific Sablefish Fishery, first certified in 2010 by Moody Marine, continued. In recognition of the linkages and similarities between the two fisheries, Moody`s report stated that the original US Sablefish assessment was considered during their assessment and the scores were considered. The present re-assessment of the US Pacific Sablefish Fishery considered the score and conditions of the Canadian Sablefish Fishery. However since there is no overlap of the stock, fishing area or management of the fishery harmonization was not considered relevant.

To be thorough and transparent, SCS provided opportunities for input at all stages of the assessment process.

The general steps followed were:

- Announcement of the Intention for the fishery to undergo a full assessment (11 May 2010)

  At this first step of the assessment process, SCS provided the MSC thorough background information on the fishery and informed the public that the fishery intended to undergo a full MSC assessment. Identified stakeholders were informed of that intention directly through email, phone calls or both.

- Team Selection (March-April 2010)

  At this first step of the re-assessment process, SCS sought input from interested parties. SCS sent out an advisory through direct email and posting on select web sites requesting comment on the nominations of persons capable of providing the expertise needed in the assessment. After a comment period of 10 working days, SCS was able to confirm the assessment team.

- Finalize use of the Fisheries Assessment Methodology (FAM) and Default Assessment Tree (DAT) (June-July 2010)

  After the assessment team was confirmed, it was decided that the DAT was suitable to use for the re-assessment of the fishery. The intent to use the DAT was published to the MSC website for a period greater than 30-days for public comment from industry and stakeholders. No comments were received and the use of the DAT for this re-assessment was confirmed 30 July 2010.

- Input on fishery performance (May-August 2010)

  SCS requested that the applicants compile and submit written information to the assessment team illustrating the fishery's compliance with the required performance indicators (PI). At the same time, SCS requested that stakeholders submit their views on the fishery management system's functions and performance.

- Meetings with industry, managers, and stakeholders (8-9 July and 18-19 August 2010)

SCS planned for and conducted two site visits. The first site visit was on the 8th and 9th of July, 2010 in Seattle, WA at the headquarters of the National Marine Fisheries Service (NMFS). A second on-site meeting was conducted with additional NMFS staff at the National Oceanic Atmospheric Association (NOAA) headquarters as well as the NOAA Fisheries Science Center. Stakeholders were invited to participate in both meetings through direct email dialogue and postings on the MSC website. A list of on-site participants may be found in table 1 below.

- Scoring fishery (20 August 2010)

  The assessment team and SCS staff scored the fishery using the required MSC methodology and the DAT of the FAM in a closed meeting. All scores were reached by consensus.

- Drafting report (August-October 2010)

  The assessment team in collaboration with the SCS lead assessor, Sabine Daume, drafted the report in accordance with MSC required process.

- Selection of peer reviewers (18 November 2010)

  SCS, as required, released an announcement of potential peer reviewers soliciting comment from stakeholders on the merit of the selected reviewers. No negative comments were received.

- Release of Public Comment Draft Report (19 May, 2011)

  SCS released a draft report for public comment, soliciting stakeholder response through posting on MSC website and direct email to known potential stakeholders. Public comments were requested to speak to specifics in the report and evidence requested where appropriate. Received comments together with the team responses to each of the comments can be found in Appendix III.

- Release of the Final Report with Certification Decision (29 May, 2011)

  A certification decision was issued based on the merits of the fishery against the scoring guideposts of the performance indicators and compliance with the MSC FCM and FAM. The performance of the fishery is considered acceptable by SCS and SCS recommends certification of the US North Pacific sablefish fishery.

- Release of the Public Certification Report (9 August, 2011)

  This version (version 5), of the MSC re-assessment of the US North Pacific sablefish fishery is the final version of this report. The fishery has been assessed and is considered to be within the acceptable parameters of a well managed and sustainable fishery. This fishery is thereby re-certified to the standards of the MSC. Products originating from the Unit of Certification are eligible to carry the MSC blue eco-label symbolizing that they originate from a sustainable source. The client group has committed to annual surveillance audits of the fishery where the accredited CB will verify continued compliance with the sustainability standards of the MSC.

1.2 Meeting Conditions for Continued Certification

To be awarded an MSC certificate for the fishery, the applicants must agree in written contract to develop an action plan for meeting the required 'Conditions' if there are any identified for the fishery; a plan that must provide specific information on what actions will be taken, who will take the actions, and when the actions will be completed. The Action Plan must be approved by SCS as the certification body of record. The applicant must also agree in a written contract to be financially and technically responsible for surveillance visits by an MSC accredited certification body, which would occur at a minimum of once a year, or more often at the

discretion of the certification body (based on the applicant's action plan or by previous findings by the certification body from annual surveillance audits or other sources of information). The contract must be in place prior to certification being awarded. Surveillance audits will be comprised in general of (1) checking on compliance with the agreed action plan for meeting pre-specified 'Conditions', and (2) sets of selected questions that allow the certifier to determine whether the fishery is being maintained at a level of performance similar to or better than the performance recognized during the initial assessment.

1.2.1. General Conditions for Continued Certification

The general 'Conditions' set for the Fishing Vessels Owners Association (client) are:

- Client must recognize that MSC standards require regular monitoring inspections at least once a year, focusing on compliance with the 'Conditions' set forth in this report (as outlined below) and continued conformity with the standards of certification.
- Client must agree by contract to be responsible financially and technically for compliance with required surveillance audits by an accredited MSC certification body, and a contract must be signed and verified by SCS prior to certification being awarded.
- Client must recognize that MSC standards require a full re-evaluation for certification (as opposed to yearly monitoring for update purposes) every five years.
- Prior to receiving final certification, the Client shall develop an 'Action Plan for Meeting the Condition for Continued Certification' and have it approved by SCS.

1.2.2. Specific Conditions for Continued Certification

In addition to the general requirements outlined above, Client must also agree in a written contract with an accredited MSC certification body to meet the specific conditions as described in Section 9. There were no conditions placed on this fishery. The US North Pacific longline sablefish fishery will be monitored for continued compliance with MSC principles in the next surveillance audit.

2.3. Certification Determination

It is the consensus judgment of the assessment team and of the SCS Certification Determination Committee that the US Pacific Sablefish Fishery complies with the MSC Principles and Criteria. Therefore, SCS as the certification body of record recommends that the fishery be issued an MSC Fishery certificate. The lead assessor for the assessment team presented all evidence to the SCS Certification Panel, which agreed with the assessment team's decision and authorized certification of the fishery.

2. BACKGROUND TO THE REPORT

2.1 Assessment Team/Authors

Dr. Sabine Daume, Project Manager, SCS, Assessment Team Leader
Dr. Daume is responsible for leading SCS's Sustainable Seafood Certification program, which includes both fishery and chain of custody certification under the auspices of the Marine Stewardship Council (MSC), using the MSC methodology and standards. Dr. Daume has been involved and/ or lead numerous pre and full assessments as well as surveillance audits. Dr. Daume is a marine biologist with special expertise in the biology and ecology of exploited marine resources. She has over 10 years experience working closely with the fishing and aquaculture industry in Australia. In her role as the Senior Research Scientist at the Department of Fisheries in Western Australia, she lead research projects related to fishery and fisheries habitats of temperate and tropical invertebrate species. In addition Dr. Daume has been trained by the MSC to use the Risk Based Framework (RBF) of the new Fisheries Assessment Methodology for data deficient fisheries as well as is a Lead Auditor under the ISO 9001:2001 standard.

Dr. Steven Martell, Associate Professor, University of British Columbia, Principle 1
Dr. Martell earned his Ph.D. in fisheries science in 2002 from the University of British Columbia. He brings expertise in fisheries stock assessment, modeling, and devising sustainable harvest strategies. The objective of his research is to better understand of the ecology of harvested species and how to better manage exploitation of natural marine and freshwater systems. He has a special interest in designing monitoring programs, adaptive management experiments, computer models and statistical tools for better understanding the dynamics of natural populations and developing harvest policies that are robust to uncertainties.

Dr. Timothy Essington, Associate Professor, University of Washington, Principle 2
Dr. Essington earned his Ph.D. in zoology in 1999 from the University of Wisconsin. His research focuses on food web interactions involving fish in marine, estuarine, and freshwater habitats. He brings expertise in a wide range of marine ecosystems: from high seas pelagic systems to the inland seas of Puget Sound with a quantitative emphasis, involving modeling and statistical analysis of complex data sets. He is also a principal scientist with the Climate Impacts Group; in this capacity, he leads work that aims to better understand the consequences of climate change on regional fishery ecosystems.

Dr. Jon Sutinen, Professor Emeritus, University of Rhode Island
Dr. Sutinen earned his Ph.D. in economics in 1973 from the University of Washington. He is a Professor Emeritus of Environmental and Natural Resource Economics at the University of Rhode Island. His area of expertise is fisheries economics, and his primary research interests are fisheries management and regulation. During the past 30 years, he has conducted extensive research in three thematic areas: (1) compliance and enforcement in fisheries, (2) the design of markets and other institutional arrangements for tradable fishing allowances, and (3) the political economics of fisheries governance. He brings extensive experience advising and assisting government agencies and stakeholder groups, in the US and abroad in the areas of his expertise.

Also involved in coordinating and editing was:

Ms. Adrienne Vincent, Program Associate, SCS, Coordinator
Ms. Vincent is a marine biologist that has worked closely with finfish species of commercial importance including California halibut (*Paralichthys californicus*) and white seabass (*Atractoscion nobilis*). After completing her B.Sc. in biology from the University of Oregon she completed an e.M.B. in marine science with the Oregon Institute of Marine Biology and focused on marine species management, estuarine trophic relationships, and plankton distribution based on real time oceanographic conditions. Ms. Vincent thereafter joined the State Managed Finfish Project with the California Department of Fish and Game where she worked on stock assessment and management issues. Since with SCS, she has been involved with the MSC assessments of US Pacific halibut, HIMI Toothfish, Annette Island Salmon, Canada Atlantic halibut and Scotian shelf shrimp. Ms. Vincent is a certified lead auditor under the International Standard Organization (ISO) 90011:2008 certification requirement.

2.2 Summary of Meetings

The sites and people chosen for visits and interviews were based on the assessment team's need to acquire information about the management operations of the fisheries under evaluation. Agencies and their respective personnel responsible for fishery management, fisheries research, fisheries compliance, and habitat protection were identified and contacted with the assistance of the client group and stakeholders.

The assessment team met with managers and scientists on two occasions, once in Seattle, Washington and the other in Juneau, Alaska, USA. As with all assessments, there are always a number of issues that come to light when reviewing all the information with critical management and scientific personnel. Questions that arose after the both meetings were handled through email and phone calls with the client and any other necessary entities.

Table 1. Assessment Meetings & Attendees

8-9 July, 2010 Seattle, WA USA	Dr. Sabine Daume (SCS); Ms. Adrienne Vincent (SCS); Dr. Steve Martell (Univ. of BC); Dr. Tim Essington (Univ. of WA); Dr. Jon Sutinen (Univ. of RI); Mr. Bob Alverson (FVOA) Dr. Loh-lee Low (NMFS); Mr. Tom Wilderbuer (NMFS); Dr. Martin Loefflad (NMFS)
18-19 Aug, 2010 Juneau, AK USA	Dr. Sabine Daume (SCS); Ms. Adrienne Vincent (SCS); Dr. Steve Martell (Univ. of BC); Dr. Tim Essington (Univ. of WA); Dr. Jon Sutinen (Univ. of RI); Dr. Dana Hanselman (NOAA); Mr. Chris Lunsford (NOAA); Mr. Phil Rigby (NOAA); Ms. Peggy Murphy (NOAA); Ms. Rachel Baker (NOAA); Ms. Mary Furuness (NOAA); Ms. Jessica Gharrett (NOAA); Mr. Ronald Antaya (NOAA); Mr. Jim Humphrys (MSC)
Throughout the Assessment stakeholders were contacted	ATA, ALFA, WWF, David Suzuki Foundation, Ecotrust, US FWS, Wa DFW, NPSFMC, EcoLaw, Alaska Conservation, Earth Justice, Makah Tribe, BSFA, Alaska Marine, Inlet Keeper, PTI Alaska, PWSRCAC, Kenai, MFCN, Pew

2.3 Submission of Data on the Fishery

One of the most significant, and difficult, aspects of the MSC certification process is ensuring that the assessment team gets a complete and thorough grounding in all aspects of the fishery under evaluation. In even the smallest fishery, this is no easy task as the assessment team typically needs information that is fully supported by documentation in all areas of the fishery from the status of stocks, to ecosystem impacts, through management processes and procedures.

Under the MSC program, it is the responsibility of the applying organizations or individuals to provide the information required proving the fishery or fisheries comply with the MSC standards. It is also the responsibility of the applicants to ensure that the assessment team has access to any and all scientists, managers, and fishers that the assessment team identifies as necessary to interview in its effort to properly understand the functions associated with the management of the fishery. Last, it is the responsibility of the assessment team and CB to make contact with stakeholders that are known to be interested, or actively engaged in issues associated with fisheries in the same geographic location.

3. ALASKAN WATERS, US SABLEFISH LONGLINE FISHERY

A brief description of the US sablefish fishery assessed in this project is provided in the following subsections. The descriptions are general in nature and brief as much of this information is more fully discussed in Section 10, Assessment Team Performance Evaluations.

3.1 Unit of Certification

Sablefish (*Anoplopoma fimbria*) caught by demersal longline gear and found within the waters of the Bering Sea, Aleutian Islands and the Gulf of Alaska, USA are considered in this assessment.

3.2 Target Species and Life History

Sablefish are a bathydemersal cod-like fish and are one of only two members in the Anoplopomatidae family and the only member of the genus *Anoplopoma*. Other common names include black cod, butterfish, and coalfish. They are usually found in soft bottom muddy habitat at depths of 300 to 2,700 m. Adults are opportunistic feeders that prey on other fish and invertebrates including walleye pollock, capelin, herring, sandlance, Pacific cod, squid, pandalid shrimp and jellyfish. Sablefish spawn in the water column at depths of 300 to 500 m near the edges of the continental slope. Eggs develop at depth, but larvae migrate to the surface off shore. In Alaska, spawning is in late March. Spawning occurs earlier in the year in the southern latitudes. The length at which 50% of the female fish are mature is 58 to 60 cm and corresponds with an age of 5 years. Young of the year (YOY) in Alaska occur in the central and eastern Gulf. Pelagic juveniles (< 20 cm) drift inshore during their first summer. By the second summer they are 30 to 40 cm thereafter migrating to deeper water and reach adult habitat at 4 to 5 years. Sablefish is a long-lived species. The oldest specimen recorded was 94 years old and 120 cm. Regarded as a mild flavored white fleshed fish, sablefish are high in omega 3 fatty acids and considered a delicacy in many parts of the world. Sablefish is also a popular sushi item in Japan (Hanselman *et al*, 2009a; FishBase, 2010).

Fig. 1 Map of the Gulf of Alaska and Bering Sea (Musser, K. 2007)

3.3 Distribution

Sablefish have a wide distribution in the northeastern Pacific Ocean and range from northern Mexico north to the Gulf of Alaska and west toward the Aleutian Islands and into the Bering Sea. They also occur in the northwestern Pacific Ocean near the Bering Sea coasts of Kamchatka, Russia south to Hatsu Shima Island in southern Japan. Juvenile sablefish, generally less than 40 cm TL, spend their first few years on the continental shelf. The greatest concentration of juveniles in Alaskan waters occurs on the continental shelf of the Gulf of Alaska in most years, though the Bering Sea shelf is used significantly in some years and very little in other years. Adults tend to occur along the continental slope and in deep fjords generally at depths greater than 200 m (Hanselman *et al*, 2009a; FishBase, 2010).

4. FISHERY AND MANAGEMENT SYSTEM

4.1 Evolution of the fishery

At the end of the 19th century and the first half of the 20th century, sablefish were utilized primarily by US and Canadian fishermen from California to Alaska. Catches were relatively small and averaged less than 2,000 t from 1930 to 1957. Thereafter, Japanese and Russian longliners began to fish the eastern Bering Sea and expanded the fishery. In 1962, catches peaked at 25,989 t. In the 1960s Japanese trawl fleets moved in and the longline fishery moved to the Aleutian Islands and Gulf of Alaska. In 1972 another peak was reached at 36,776 t. Populations declined and in the 1970s regulations were adopted in order and reduced the total catch. Relying on the Magnuson-Stevens Act, catches were restricted to about one fifth of the 1972 peak. Foreign and domestic fleet gear types were similar to each other and most utilized squid for bait. The sablefish season was gradually reduced, so much so, that in some years the season was open only for a few days resulting in "derby" style fishing through the mid-1990s. Individual Fishery Quotas (IFQ) were adopted in 1995 and the season length increased to 8 months/year. The fishery is now 8.5 months from March 1 to November 15 and corresponds with the timing of the Pacific halibut fishery.

Juvenile recruitment success can be variable. There was increased recruitment in the 1970s which fueled the fishery into the 1980s. The population declined somewhat through the 1990s, but experienced a strong 1997 year class. The population appears to be experiencing modest increases most recently.

Longline demersal gear is set with an anchor and a long string with leader lines at "snoods" that are attached to the main line. At the terminal end, baited J- or Circle-hooks are tied. Hooks may be baited by hand or machine. Average set long-line length is 9 km with an average hook spacing of 1.2 m (Hanselman *et al*, 2009a).

4.2 Management system

Sablefish are currently monitored by the National Marine Fisheries Service (NMFS), a branch of the National Oceanic Atmospheric Association (NOAA) which gives input to the North Pacific States Fisheries Management Council (NPSFMC) and Alaska Department of Fish and Game (ADFG). The fishery used to employ a gear based allocated quota system (50% of the Total Allowable Catch(TAC) to fixed gear (long-lines) and 50% to trawl), but in 1995 the fishery moved to an IFQ system. As part of the amendment, 20% of the fixed gear allocation is set aside for a CDQ reserve in the Bering Sea and Aleutian Islands. In 1997, maximum retainable allowances (0 to 7%) were set for sablefish as bycatch in other fisheries and varies by target species and location. Pots are banned for fishing sablefish in the Gulf of Alaska, but allowed in the Aleutian Islands (Hanselman *et al*, 2009a).

5. FISHERY`S IMPACT ON ECOSYSTEM

5.1 Ecosystem

The scope of this report includes waters off the coast of Alaska including the Gulf of Alaska and the Aleutian Islands. Sablefish are part of a complex of predatory groundfish that inhabit soft sediment at considerable depth. They prey on smaller fishes and invertebrates and may be preyed upon by sharks and whales. The nuances of the sablefish/predator relationship are not well understood due to difficulty in sampling shark and whale stomach contents. Preliminary results from the first order trophic interactions have been provided from the ECOPATH model.

The physical oceanography of the region has been described by Dodimead *et al.,* 1963. Surface and waters down to 200 meters flow easterly across the Pacific Ocean into the southern Gulf of Alaska and then swing counter clockwise through the Central Gulf of Alaska and westerly along the Aleutian Islands. The wind-driven surface currents may break through the Aleutians and move northward through the Bering Sea. Deeper

water flows on to the west entering the Bering Sea at the western extremities of the Aleutian Island chain. The biological productivity of the region is influenced by the annual variation in these current patterns.

5.2 Habitats

The continental shelf in the Gulf of Alaska varies in width and substrate characteristics. Along the Alexander Archipelago in the south, the shelf is narrow and the slope to the abyssal plain steep. However, north of Cape Spencer, the shelf broadens to form the most extensive shelf area south of the Bering Sea. Several submarine canyons interrupt the shelf in this region and are known to be productive fishing areas. The shelf in this region extends some 50 miles seaward as it swings west towards Kodiak Island. West of Kodiak and south of the Alaska Peninsula the shelf remains relatively wide, but narrows as it approaches Unimak Pass.

5.3 Bycatch — retained and discarded species

In an MSC assessment, "bycatch" consists of the catch of all species that are not included in the Unit of Certification. The bycatch is further categorized as those that are non-target but are "retained" vs. "discarded" bycatch. In this report, the discarded species are designated "bycatch" while the species that are retained for sale are considered "retained". Species that are caught or affected by the fishery that are considered endangered, threatened or protected are considered separately. In an MSC assessment, bait used in the fishery, if caught by the same fishermen or bought from other sources, is considered "bycatch" (FAM v2.1, 2010). Species that are not caught in the fishery, but are used as bait or species that may be affected indirectly by the fishery are also considered and discussed in Principle 2 Performance Indicator rationals for "bycatch species." The Scoring Guidepost (SG) 60 and SG 80 in the Default Assessment Tree (DAT) refer to "main" species in the retained and discarded bycatch. Main species are those that comprise 5% or more of the total catch by weight. The SG 100 considers all species regardless of the percent of the total catch. Prior to scoring for Principle 2, the assessment team decided whether a species would be considered under the retained or discarded bycatch Performance Indicators.

5.3.1. Retained bycatch species

Retained species in the US Sablefish fishery include Pacific halibut (*Hippoglossus stenolepis*), Pacific cod, thornyheads (*Sebastolobus* sp.), rougheye rockfish, yelloweye rockfish and Pacific ocean perch. All retained species in this fishery were found to be within biologically based limits and are not considered to be over-fished at this time. Thornyheads consist of short spine, long spine and broadfin. Short spine are the most common in the fishery between the three. Rougheye rockfish and dark spotted rock fish look very similar to each other and are recorded as the same species on the fish tickets.

5.3.2. Discarded bycatch species

Bycatch that are discarded include giant grenadier, skates, spiny dogfish, black footed albatross, Layson albatross, northern fulmars, and various gulls. Often, skates are recorded on fish tickets in an "other skates" category though the long nose and big skates have their own designation on the form. Giant grenadier, spiny dogfish and skate populations are not considered to be over fished at this time. Black footed and Layson albatross populations are affected by the longline gear type and their populations have seen a decline. More recently, however, both the black footed and Layson albatross populations appear to be at levels that are not irreverably or detrimentally affected by the sablefish longline fishery. The same may be said about the Northern fulmar and gull populations.

5.4 Endangered, threatened and protected (ETP) species

ETP species are those that are recognized by national legislation and/or binding international agreements to which the jurisdictions controlling the fishery under assessment are party (FAM 2.1, 2010). The assessment team considered any species that is listed as endangered by the US Endangered Species Act as well as the any species listed on the Convention on International Trade in Endangered Species (CITES) list to be an ETP

species. The short tailed albatross was designated endangered in 2006 by the Endangered Species Act and is the only species considered ETP that the fishery interacts with.

5.4.1. Trophic relationships

Juvenile sablefish prey on euphausiids and copepods, with larvae heavily dependent on a single species. Early juvenile survival rates seem to be correlated with prey abundance. As sablefish grow, they become opportunistic feeders consuming fish such as pollack, eulachon, capelin, Pacific herring, cod and sand lance. Stomach contents analysis also contain squid, cephalopods, and jellyfish. Because sablefish have such a varied diet once beyond the larval stage, only overall changes in ecosystem productivity are thought to affect growth rates. Juvenile (YOY) sablefish are preyed upon by larger fish including coho and chinook salmon. Other potential predators that are on the continental shelf include arrowtooth flounder, Pacific halibut and cod, bigmouth sculpin, big skate and Bering skate—though actual analyses reveal that actual predation is rare. As adults, sablefish may compete with the continental groundfish suite for food resources. Sperm whales are thought to predate on adult sablefish based on some stomach content work in California.

6. TRACKING AND TRACING OF FISH AND FISH PRODUCTS

6.1 Traceability within the Fishery

For the sablefish fishery, all commercial landings are required to be recorded and reported. In Alaska, compliance in the fishery is monitored and enforced by the NMFS' Alaska region Restricted Access Management (RAM) Division. Quota share holders are issued Landing Cards by NMFS-RAM, which must be presented at registered "transaction" locations when catch is off-loaded. The catch weight is then electronically debited from the holder's IFQ for that year. All landing card data is transmitted directly to NMFS-RAM databases. Fishermen must also alert the "transaction" station six hours prior to arrival to allow NMFS-RAM officials to observe landings. This is known as "haling out."

6.1 Points of Landing

All ports where sablefish are landed are required to have a registered code and scale to weigh the catch. This information is recorded on the landing slip which is required to be filled out by a registered weigh-master or registered dockside staff safeguarding against inaccurate or miss-reporting.

6.2 At-sea Processing

Most processing occurs at shore-side plants where landings are monitored. Currently there are no freezer-processor vessels in the Fishing Vessels Owner's Association (unit of certification).

6.2 Eligibility to enter Chains-of-Custody

This report does not cover processing beyond the point of landing. This report acknowledges that sufficient monitoring takes place to identify the fishery of origin for all landed fish via landing slips where the amount of catch and the fishing area are recorded for each line set during the fishing trip. This is sufficient to allow a chain-of-custody to be established from the point of landing forward for all products derived from the fishery. MSC chain-of-custody certifications were not undertaken in this project, and therefore, are undertaken on a separate and individual basis for those entities that may wish to identify and/or label products derived from the fishery. Only those fishers that belong to the certificate are eligible to enter the chain-of-custody where the products can then carry the blue MSC eco-label. Other eligible fishers (see 7.3) may join the certificate at the discretion of the certificate holder. A complete list of all current members of the Fishing Vessels Owner's Association can be found in Appendix IV.

6.3 Eligibility Date

The eligibility date may begin as much as six months before the release of the Public Comment Draft Report, which was on 19 May, 2011. Any products caught after the eligibility date are eligible to carry the MSC blue ecolable. Six months before the release of the PCDR was 19 November, 2010. Because this fishery is currently certified, the new certificate number will apply to products originating from this fishery upon the expiration of the older certificate which expired 9 August, 2011.

7. OTHER FISHERIES IN THE AREA AND SUMMARY OF PREVIOUS CERTIFICATION EVALUTIONS

7.1 Other Fisheries

The fleet also targets Pacific halibut by long-line, typically once in shallower water. Other fisheries in the area include rockfish (*Sebastes* sp.), pollock, haddock, Pacific hake, Pacific cod, salmon (*Oncorhynchus* sp.), spiny dogfish and various flatfishes (Pleuronectiformes). The MSC standard has been applied to many of the fisheries in the region.

7.2 Re-Certification of the fishery

The US Sablefish fishery, also referred to as the black cod fishery, was first certified under the MSC standard for sustainable seafood in April 2006. The first assessment used an assessment tree created by the first assessment team. The assessment was started before the MSC Default Assessment Tree had been finalized and took into account comments from stakeholders and the MSC. The fishery had two conditions placed on it at the time of certification regarding management review and objective response to management review. Progress was sufficient to maintain certification by the first surveillance audit and both conditions were closed out by the second. The fishery remained in compliance with the MSC standard throughout the first certification period of 5 years. The US Sablefish fishery has now entered the first re-assessment and is assessed using the Performance Indicators of the MSC Default Assessment Tree v. 2.1 (May 2010). A fishery in compliance with the MSC standard will sufficiently meet the criteria of the MSC three Principles.

7.3 Other Eligible Fishers

All sablefish in the waters off Alaska, including the Bering Sea, Aleutian Islands, Gulf of Alaska as well as the are re-assessed in this report. Only those fishers landing sablefish by demersal long line as well belonging to the client group, Fishing Vessels Owner's Association, are currently eligible to enter further chains-of-custody and carry the MSC blue eco-label of sustainability under this certificate application. If additional fishers landing sablefish that are within the scope of this re-assessment and would like to join the certificate, they may contact the client group to work out a fair and equitable cost sharing mechanism.

8. MSC PRINCIPLES AND CRITERIA

8.1 MSC Principle 1 – Stock Status and Harvest Strategy

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted; the fishery must be conducted in a manner that demonstrably leads to their recovery.

Intent:
The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favor of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

MSC Criteria:

1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.
2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.
3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

8.2 MSC Principle 2 – Ecosystem

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Intent:
The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

MSC Criteria:

1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.
2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimizes mortality of, or injuries to endangered, threatened or protected species.
3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

8.3 MSC Principle 3 – Management

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Intent:
The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

MSC Criteria:
A. Management System: The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.

The management system shall:

1. demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process;

2. be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings;
3. observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability;
4. incorporates an appropriate mechanism for the resolution of disputes arising within the system;
5. provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing;
6. act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty;
7. incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion;
8. require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted;
9. specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:
10. set catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species;
11. identify appropriate fishing methods that minimize adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
12. provide for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames;
13. have mechanisms in place to limit or close fisheries when designated catch limits are reached;
14. establish no-take zones where appropriate;
15. contain appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specify corrective actions to be taken in the event that they are.

B. MSC Operational Criteria:
Fishing operations shall:

16. make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimize mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive;
17. implement appropriate fishing methods designed to minimize adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
18. not use destructive fishing practices such as fishing with poisons or explosives;
19. minimize operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.;
20. be conducted in compliance with the fishery management system and all legal and administrative requirements; and
21. assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

8.4 Interpretations of MSC Principles for Performance Assessments

Along with developing a standard for sustainable fisheries management, the MSC also developed a certification methodology that provides the process by which all fisheries are to be evaluated. ASI accredits certification bodies that can show that the expertise and experience necessary to carry out MSC evaluation is present in the

organization. In addition, each certification body must demonstrate its fluency with the MSC standards and evaluation methods through the use of these in a fishery evaluation

The methods are provided in great detail through documents that can be downloaded from the MSC website (www.msc.org). The Fisheries Assessment Methodology (FAM) Version 2.1, released 1 May 2010 is being used for the assessment of the US Sablefish longline fishery.

The MSC Principles and Criteria are general statements describing what aspects need to be present in fisheries to indicate that they are moving toward sustainable management. The certification approach or methodology adopted by the MSC requires that any assessment of a fishery or fisheries move beyond a management verification program that simply provides third-party assurances that a company's stated management policies are being implemented. The MSC's 'Certification Methodology' is designed to be an evaluation of a fishery's performance to determine if the fishery is being managed consistent with emerging international standards of sustainable fisheries.

9. ASSESSMENT TEAM PERFORMANCE EVALUATIONS

After completing all the reviews and interviews, the assessment team is tasked with utilizing the information it has received to assess the performance of the fishery. Under the MSC program, an Assessment Tree is determined for this task. The proposed Assessment Tree is made available for public comment for a period of 30 days. All comments are considered and the Assessment Tree revised where appropriate. The finalized Assessment Tree is used to evaluate the performance of the fishery. Unless determined unsuitable for the particular fishery, the MSC Default Assessment Tree is used whereby the weighting of the Performance Indicators is pre-determined. The Risk-Based Framework may also be used for data poor fisheries. The Assessment Tree may also be modified to suit the specifics of the fishery. In such a case, the process for assessing the fishery is performed by prioritizing and weighting the Performance Indicators (PI) relative to one another at each level of the performance hierarchy established when the assessment team develops the Assessment Tree for the fishery. Each PI has three associated Scoring Guideposts (SG) set at 60, 80 and 100. The SGs have specific elements that must be met for the fishery to get at least a partial score for the particular SG. Each PI under each Principle is weighted so that each of the three Principles is equal to one another. If a fishery scores less than 60 for any PI, it is excluded from certification. The process requires that all team members work together to discuss and evaluate the information they have received for a given performance indicator and come to a consensus decision on weights and scores. Scores and weights are then combined to get overall scores for each of the three MSC Principles. A fishery must have normalized scores of 80 or above on each of the three MSC Principles to be recommended for certification. Should an individual PI receive a score of less than 80, a 'Condition' is established that when met, would bring the fishery's performance for that indicator up to the 80 level score representing a well-managed fishery.

The Default Assessment Tree v.2.1 was used for this assessment.

Below is a written explanation of the assessment team's evaluation of the information it received and the team's interpretation of the information as it pertains to the fishery's compliance with the MSC Principles and Criteria.

9.1 MSC Principle 1

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

1.1.1		
The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing.		
SG 60	**SG 80**	**SG 100**
It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired. The stock is at or fluctuating around its target reference point. The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired. There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.

Score: 90

1.1.1 Scoring Rationale

The default target reference point for Sablefish is 40% of the unfished spawning stock biomass. Current projected estimates for the 2010 female spawning stock biomass is at 89% of B40, or 99,897 t (Hanselman et al., 2009). Uncertainty in the projected spawning stock biomass is calculated based a posterior probability distribution (generated by MCMC methods) and ranges between 90,000 t to 110,000 t. The current estimate of B40 is 112,726 t. Recruitment is not estimated using an assumed stock-recruitment relationship; recruitment is estimated as an overall mean recruitment with annual deviations between 1933-2008. The last above average recruitment year class was in 2000, and current trends of recruitment estimates are trending downward.

In the most recent assessment (Hanselman et al., 2009) there is no underlying stock-recruitment relationship defined for GOA sablefish; therefore, it is not possible to quantify average recruitment levels (and associated uncertainty) for a given spawning stock biomass. Typical groundfish stocks, including sablefish, generally maximize productivity when spawning stock biomass is reduced to 30-40% of its unfished level (Hilborn et al., 2002). The probability of recruitment overfishing increases as the spawning stock falls below 20% of the unfished levels. Current estimates of sablefish spawning stock biomass are very near the target reference point of B40% and trending upwards since 2000; therefore, it is likely that recruitment would not be impaired due to low spawning biomass. Estimated trends in spawning biomass have been increasing slightly since 2000, much of the increase is due to dominant 1997 and 2000 cohorts becoming sexually mature.

The team determined that all elements of the SG 60 and 80 are met. However the fishery does not meet the first element of 100 scoring guide post because there is no underlying stock-recruitment relationship for defined for this stock, so we cannot quantify recruitment with a high degree of certainty. It does meet the second element, allowing a score of 90.

1.1.1 Trace References:

Hanselman et al., 2009a; Hilborn et al. 2002.

1.1.2		
Limit and target reference points are appropriate for the stock.		
SG 60	**SG 80**	**SG 100**
Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated. The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity. The target reference point is such that the stock is maintained at a level consistent with BMSY or some measure or surrogate with similar intent or outcome.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant precautionary issues. The target reference point is such that the stock is maintained at a level consistent with BMSY or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of

	For low trophic level species, the target reference point takes into account the ecological role of the stock.	certainty.

Score: 80

1.1.2 Scoring Rationale

The limit and target reference points for sablefish is B17.5% and B40% respectively, and the target fishing mortality rates is based on F40%, or the fishing mortality rate that would reduce the spawning stock biomass to 40% of its unfished level. These reference points are considered to be reasonable and appropriate for groundfish species including sablefish. The reference points are estimated with each assessment and are likely to be set above a level at which there is an appreciable level of impairing reproductive capacity. For the GOA sablefish, there is no formal stock-recruitment relationship defined. The neighboring assessment of sablefish in BC waters to the south does estimate the stock-recruitment relationship and estimates of steepness values for that stock are greater than 0.45 (the lower bound considered in Cox and Kronlund, 2008). In other words, if the spawning stock biomass is depleted to 20% of its unfished level, then the expected average recruitment is 45% of its unfished level. This is not considered to be an appreciable risk of impairing long-term reproductive capacity. There is also historical evidence of strong recruitment events during periods of low spawning biomass for the Gulf of Alaska stock, so there is no reason to believe that this would not occur again in the future.

The team determined that all elements of the SG 60 and 80 are met. However, we were not able to justify a score higher than 80 because there is no underlying stock recruitment relationship for this stock and therefore could not consider relevant precautionary issues, or if the B40 proxy is good surrogate measure that takes into account precautionary issues with a high degree of certainty (Haltuch et al. 2008).

1.1.2 Trace References

Cox, S. and Kronlund, A., 2008; Haltuch et al., 2008.

1.1.3		
Where the stock is depleted, there is evidence of stock rebuilding.		
SG 60	**SG 80**	**SG 100**
Where stocks are depleted rebuilding strategies which have a reasonable expectation of success are in place. Monitoring is in place to determine whether they are effective in rebuilding the stock within a specified timeframe.	Where stocks are depleted rebuilding strategies are in place. There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modeling or previous performance that they will be able to rebuild the stock within a specified timeframe	Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the shortest practicable timeframe.

Score: N/A

Performance Indicator 1.1.3 is not scored when there is no stock rebuilding mechanism in operation.

1.2.1		
There is a robust and precautionary harvest strategy in place.		
SG 60	**SG 80**	**SG 100**
The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points. The harvest strategy is likely to work based on prior experience or plausible argument. Monitoring is in place that is expected to determine whether the harvest strategy is working.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points. The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points. The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels. The harvest strategy is periodically reviewed and improved as necessary.

Score: 85

1.2.1 Scoring Rationale

The harvest strategy in place for GOA sablefish is to set catch limits based on a fixed fraction of the vulnerable stock based on a $F_{40\%}$ strategy. If estimates of spawning stock biomass fall below B_{40}, the harvest rate is linearly adjusted downwards to 0 at 17.5% of the unfished biomass. Therefore the harvest strategy is responsive to the state of the stock and should the stock fall below the target reference point would permit rebuilding of the stock before it falls below the limit reference point. This harvest strategy is similar to the 40:10 adjustment that is in use by the Pacific Fisheries Management Council and extensive simulation testing of this harvest control rule has been conducted using generalized age-structured models (Punt et al., 2007). The harvest strategy currently satisfies all of the elements of the 60 and 80 guideposts. In addition it also meets the first element of the scoring guidepost 100 because it is responsive to the state of the stock and is designed to achieve management objectives. However, the assumed level of recruitment variation in the GOA sablefish assessment is beyond the range that has been explored in simulation studies. Therefore, a score of 100 cannot be justified because the harvest control rule and the apportionment scheme that is currently in place has not been fully evaluated using simulation studies.

1.2.1 Trace References

Punt, A., et al., 2007

1.2.2		
There are well defined and effective harvest control rules in place.		
SG 60	**SG 80**	**SG 100**

Generally understood harvest control rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached. There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. The selection of the harvest control rules takes into account the main uncertainties. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	The design of the harvest control rules take into account a wide range of uncertainties. Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.

Score: 90

1.2.2 Scoring Rationale

Sablefish are managed under Tier 3 of the North Pacific Fisheries Management Councils (NPFMC) harvest rules (see Table below from DiCosimo *et al*., 2010) which implies that the information is reliable to obtain point estimates of biomass (B), B_{40}, $F_{35\%}$ and $F_{40\%}$. If the current status of the stock is greater than B_{40} (Tier 3a), then the Over Fishing Limit (F_{OFL}) is set at F35%, and F_{ABC} is set at $F_{40\%}$. Tier 3b comes into effect if the biomass is less than or equal to B40 and greater than B17.5 where

$F_{OFL} = F_{35\%}$ (B/ $B_{40\%}$ – 0.175) / (1 – 0.175) and $F_{ABC} = F_{40\%}$ (B/$B_{40\%}$ – 0.175) / (1 – 0.175)

If the stock falls below 17.5% of its unfished level then all fishing ceases. The harvest control rule is consistent with a strategy that reduces fishing mortality rates to zero as limit reference points are approached. However the onus is on reliably estimating reference points and current biomass.

The Harvest Control Rule (HCR) does not take into consideration all of the uncertainties; specifically natural mortality is fixed in this assessment, growth is assumed fixed, and there is no underlying stock recruitment relationship that is estimated to determine if the $F_{40\%}$ harvest rate is a reasonable proxy for long-term sustainability. Therefore it was not possible to score 100 for this scoring guide post.

Table 2: North Pacific Fisheries Management Council description of the groundfish tier system used to estimate reference points (DiCosimo *et al*, 2010).

Description of the groundfish tier system used by NPFMC since 1999 for defining fishing–mortality rate related to overfishing level (F_{OFL}) and to acceptable biological catch (F_{ABC}) based on the type of information available (Info).

Tier 1	Info: reliable point estimates of B and B_{MSY} and reliable pdf of F_{MSY}	
	(1a) Stock status: $B/B_{MSY} > 1$	$F_{OFL} = m_A$: $F_{ABC} \times m_H$
	(1b) Stock status: $a < B/B_{MSY} \leq 1$	$F_{OFL} = m_A \times (B/B_{MSY} - a)/(1 - a)$; $F_{ABC} \leq m_H \leq (B/B_{MSY} - a)/(1 - a)$
	(1c) Stock status: $B/B_{MSY} \times a$	$F_{OFL} = F_{ABC} = 0$
Tier 2	Info: reliable point estimates of B, B_{MSY}, F_{MSY}, $F_{35\%}$, and $F_{40\%}$	
	(2a) Stock status: $B/B_{MSY} > 1$	$F_{OFL} = F_{MSY}$; $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%})$
	(2b) Stock status: $a < B/B_{MSY} \times 1$	$F_{OFL} = F_{MSY} \times (B/B_{MSY} - a)/(1 - a)$; $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%}) \times (B/B_{MSY} - a)/(1 - a)$
	(2c) Stock status: $B/B_{MSY} \leq a$	$F_{OFL} = F_{ABC} = 0$
Tier 3	Info: reliable point estimates of B, $B_{40\%}$, $F_{35\%}$, and $F_{40\%}$	
	(3a) Stock status: $B/B_{40\%} > 1$	$F_{OFL} = F_{35\%}$; $F_{ABC} \leq F_{40\%}$
	(3b) Stock status: $a < B/B_{40\%} \leq 1$	$F_{OFL} = F_{35\%} \times (B/B_{40\%} - a)/(1 - a)$; $F_{ABC} \leq F_{40\%} \times (B/B_{40\%} - a)/(1 - a)$
	(3c) Stock status: $B/B_{40\%} \leq a$	$F_{OFL} = F_{ABC} = 0$
Tier 4	Info: reliable point estimates of B, $F_{35\%}$, and $F_{40\%}$	$F_{OFL} = F_{35\%}$; $F_{ABC} \leq F_{40\%}$
Tier 5	Info: reliable point estimates of B and natural mortality rate M	$F_{OFL} = M$; $F_{ABC} \leq 0.75 \times M$
Tier 6	Info: reliable catch history from 1978 to 1995	OFL = average catch (1978–1995), unless otherwise established by SSC; ABC $\leq 0.75 \times$ OFL

a, 0.05 for Tiers 1–3, by applying the 10% rule (Rosenberg *et al*., 1994) to half of the B_{MSY} reference point; B, current biomass; subscripts MSY, 35%, and 40%, biomass related to the maximum sustainable yield, or to 35% or 40% of the unexploited biomass (or to the F related to those); pdf, probability density function; m_A and m_H, arithmetic and harmonic mean of the pdf.

1.2.2 Trace References

DiCosimo, J., et al. 2010.

1.2.3		
Relevant information is collected to support the harvest strategy.		
SG 60	**SG 80**	**SG 100**

Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy. Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. There is good information on all other fishery removals from the stock.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available. All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.

Score: 90

1.2.3 Scoring Rationale

In general information for the assessment of sablefish is relatively data rich in comparison to other stock assessments. There have been significant changes in growth over time that would improve the overall information and accuracy of reference points used in the harvest control rule. More information, or a better understanding of the recruitment dynamics (i.e., a stock recruitment relationship), would allow the stock to move to a Tier 2 status within the NPFMC system.

In summary, data used in the stock assessments dates back to 1960 and consists of commercial catch, and catch statistics from the Japanese longline fishery, US longline fishery, US trawl fishery, and surveys from the Japan-US cooperative longline survey, domestic longline survey, and the NMFS GOA trawl survey. Relative abundance and age/length composition data are available from both commercial and survey gears.

All criterion in the 80 scoring guide post are met, and all information that is required for the harvest control rule are monitored on an annual basis. However, the state of Alaska also conducts a separate assessment on what is thought to be the same stock of fish. We were not able to score higher than 90 on this criterion because stock structure is still somewhat questionable and the robustness of the state and federal management procedures is unknown.

1.2.4		
There is an adequate assessment of the stock status.		
SG 60	**SG 80**	**SG 100**
The assessment estimates stock status relative to reference points. The major sources of uncertainty are identified.	The assessment is appropriate for the stock and for the harvest control rule, and is evaluating stock status relative to reference points. The assessment takes uncertainty into account.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery. The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.

	The stock assessment is subject to peer review.	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored. The assessment has been internally and externally peer reviewed.

Score: 95

1.2.4 Scoring Rationale

The annual stock assessment is appropriate for the Tier 3 harvest control rules that are used by the NPFMC and is able to estimate current biomass and reference points reasonably well. There is sufficient contrast in the numerous data sets that the model is fit to, to reasonable estimate overall population scale and average recruitment with annual deviations conditional on assumed values of observation errors and process errors in the model. The model does take into account some uncertainty and is reviewed internally and externally by the Gulf of Alaska and Bering Sea Plan Teams, North Pacific Fisheries Management Council and the Scientific and Statistical Committee on an annual basis. The assessment of stock status meets all the criterion of the 80 scoring guide posts. A score of 100 cannot be justified in this case because the assessment has not been tested and shown to be robust to uncertainties. Although alternative hypotheses and assessment approaches are planed (a split sex model is planned for the fall of 2010), these have not been rigorously explored at this point. Also, reviews by the Center for Independent Experts (CIE) are conducted only periodically (roughly every 5years).

9.2 MSC Principle 2

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

2.1.1

The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.

SG 60	SG 80	SG 100
Main retained species are likely to be within biologically based limits or if outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species. If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.	Main retained species are highly likely to be within biologically based limits, or if outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	There is a high degree of certainty that retained species are within biologically based limits. Target reference points are defined and retained species are at or fluctuating around their target reference points.

Score: 90

2.1.1 Scoring Rationale: Table 3 provides a summary of all retained species, based on data from NOAAs catch accounting system. The main retained species (>10 mt / year) are at healthy population levels and halibut-directed fishing operations capture relatively small fractions of the total catches of these species. Thus, this fishery meets all requirements of SG 80. Target reference points are defined for most major retained species, and for those that do not have biomass reference points, exploitation reference points are clearly defined and stocks are well within accepted limits (these are detailed below). For these species we conclude that criteria of SG 100 are met (see below). Retained catches of all other species are less than 10 mt / year, and although there are not detailed assessments for each species, this level of catch is very small and therefore there is a high likelihood that this fishery has limited impact on the status of these stocks (Table 3). In other words, retention of these species is rare and likely negligible in impact. However, stock assessments are not conducted for many of the retained species that are captured at low levels, so population status and target reference points are not defined for many of these species. Below we detail the catch levels of main retained species and background assessment data for each. We therefore assign an intermediate score of 90 to reflect the fact that (1) for those species retained in notably quantities stock status has been evaluated and found to be within biological limits and (2) for minor species that are captured infrequently, there are no stock assessments and no determination of target reference points.

The main retained groundfish species are Pacific halibut (largely captured as part of ITQ system by fishers holding both sablefish and halibut quota), Pacific cod, and several species of rockfishes. A significant amount of giant grenadier is retained and sold (ca. 60 t / yr), but because most grendadier catch is discarded at sea we instead treat this species under "bycatch species". Similarly, we treat arrowtooth flounder as bycatch because most of this catch is discarded. Because halibut population and its fisheries are treated in detail in a separate MSC assessment document, we do not treat them here and therefore focus on remaining species.

For years 2007 – 2009, the average annual (total) catch of pacific cod, estimated from extrapolating data from observer coverage and industry-provided catch reports (see "information") was 27.7 t / yr. The Gulf of Alaska Pacific cod stock is not considered overfished and overfishing is not occurring (Thompson *et al*. 2009). Over this same time period, total catch (directed and incidental) ranged between 46,646 and 51,501 t / year. The landings from sablefish-directed longline operations therefore constitutes a small fraction of the total catch on a stock that is deemed to be within biological limits.

Total catch of rockfish and rockfish-like species has averaged 407 t / year, and consists of 25 species. The most dominant species are (1) Thornyheads (238 t/yr); (2) Shortraker rockfish (67.7 t/ yr); (3) rougheye rockfish (66.3 t/ yr) (4) Pacific Ocean Perch (13.3 t / yr); and (5) yelloweye rockfish (10.2 t / yr). These five species account for > 95% of all rockfish catches in sablefish. Most of this catch is retained and sold.

Thornyheads: Thornyheads (*Sebastolobus* species) are assessed using tier 5 criteria (because of the absence of age information needed for age-structured assessment models; Lowe and Ianelli 2009; see Table 2). Three main species are in this genus (shortspine, longspine, and broadfin), but shortspine thornyheads dominate survey biomass and landings. Biological reference points (e.g. B_{MSY}, $B_{40\%}$) are not estimated, but F_{ABC} and F_{OFL} are estimated. Although the assessment methodology provides conservative advice on annual catch quotas, in recent years landings have been well below catch limits. For 2010, the recommended allowable biological catch was 1,770 t (roughly 7 times the total catch in sablefish-directed catch). Total catch (all gears) from 2007 -2009 ranged from 631 t to 798 t / yr. Because landings rarely approach allowable biological catch status (because it is not targeted but only incidentally captured by longline and trawl fisheries), the stock is deemed to be healthy and not overfished (Lowe and Ianelli, 2009).

Shortraker rockfish: These species are assessed in a tier-5 assessment as the dominant component of the "other slope rockfish category" (Clausen 2009). As such, the reference point exploitation rate seeks to maintain

F below 0.75 M; here M is estimated to be 0.03. The most recent assessment estimates exploitable biomass to be 40,600 t, yielding an overfishing limit of 1,200 t. The estimated allowable biological catch (entire Gulf of Alaska) is 914 t for 2010. Total catch (all fisheries) in 2008 and 2009 averaged ca. 560 t/ yr, well below the overfishing limit. Catch in sablefish-directed operations comprise slightly more than 12% of total landings.

Rougheye rockfish: Genetic analysis has revealed that landings of species labeled "rougheye rockfish" consist of two morphologically similar species; rougheye and blackspotted rockfish. Because they cannot be reliably identified in the field, data are collected in aggregate and labeled "rougheye rockfish" and are similarly assessed in aggregate. The current Gulf of Alaska assessment of this species (Tier 3a assessment; Shotwell *et al*. 2009) estimates total female spawning biomass at 14,055 t, and recommends allowable biological catch level of 1,284 t. The stock is neither considered to be overfished nor is it approaching an overfished level.

Pacific Ocean Perch: Gulf of Alaska Pacific Ocean perch are a Tier 3a – assessed species (Hanselman *et al*. 2009 a), and current female spawning biomass is estimated to be ca. 95,000 t. The 2009 maximum allowable catch was 15,111 t, and the stock is not considered overfished and is not approaching overfishing status.

Yelloweye rockfish: Yelloweye rockfish are assessed as the dominant component of "demersal shelf rockfish", but only for the Southeast-Outside management region located in the SE Gulf of Alaska (Brylinsky *et al*. 2009). Allowable Biological Catch (ABC) in this region during the past five years has been approximately 400 t / yr but actual total catches have been about one-half of this level. In general, catches are dominated by incidental catches rather than directed fishing operations. Yelloweye rockfish catch in sablefish directed catch (entire fleet) is roughly 5% of the total landings. Because catches are below the ABC limits, the stock is not deemed to be subject to overfishing or approaching an overfished state. Allowable annual catch is more conservative than would be recommended based on standard Tier 4 definitions, to account for the longevity and habitat-specific residency.

Table 3. Average retained catches, by species, in sablefish-directed trips, 2007-2009.

Arrowtooth/Kamchatka Flounder	15.30
Aurora Rockfish	0.37
Black Rockfish	0.12
Blackgill Rockfish	0.10
Boccacio Rockfish	0.02
Canary Rockfish	0.04
Copper Rockfish	0.01
Dark Rockfish	0.01
Dover Sole	5.33
Dusky Rockfish	3.18
Eels or eel-like fish	0.01
Flathead Sole	1.56
Giant Grenadier	68.38
Greenland Turbot	1.42
Greenstripe Rockfish	0.04
Grenadier (rattail)	12.00
Halibut	724.57
Harlequin Rockfish	0.11
Lingcod	1.58

Northern Rockfish	0.67
Octopus	0.01
Pacific Cod	31.85
Pacific Ocean Perch	13.70
Pollock	1.25
Quillback Rockfish	0.09
Redbanded Rockfish	5.17
Redstripe Rockfish	0.21
Rex Sole	2.27
Rock Sole	0.02
Rougheye Rockfish	69.33
Sculpins	0.23
Shark, Other	0.02
Shark, Pacific Sleeper	0.02
Shark, Spiny dogfish	0.04
Sharpchin Rockfish	0.01
Shortraker Rockfish	73.46
Silvergrey Rockfish	0.43
Skate, Big	1.17
Skate, Longnose	4.14
Skate, Other	6.09
Thornyhead Rockfish (Idiots)	241.05
Tiger Rockfish	0.02
Vermillion Rockfish	1.76
Yelloweye Rockfish	11.63
Yellowmouth Rockfish	0.19
Yellowtail Rockfish	0.19

2.1.1 Trace References

Brylinsky, C. et al. 2009; Clausen, D.M., 2009; Hanselman, D.H. et al, 2009b; Lowe, S. and Ianelli, J., 2009; Shotwell, S.K., et al., 2009; Thompson, G., Ianelli, J.N., 2009.

2.1.2		
There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.		
SG 60	**SG 80**	**SG 100**
There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery	There is a partial strategy in place, if necessary that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species. The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports high confidence that the strategy will work.

does not hinder their recovery and rebuilding. The measures are considered likely to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its overall objective.

Score: 90

2.1.2 Scoring Rationale:
There is a clear strategy in place to manage the retained species which consists of (1) extensive catch accounting system (2) observer program to estimate discarded catch (3) fishery independent surveys conducted by NOAA- Fisheries (4) statistical stock assessments for all of the main retained species (5) a tiered system of assessments that provides for more precautionary annual catch limits when assessments use less precise methods. The tiered, precautionary procedure for setting annual catch limits provides a high likelihood that stocks will be maintained at levels above their reference points and, and clear procedures exist for restricting catch limits if stock rebuilding is necessary. The evidence for successful implementation of this management strategy is manifest by the healthy stock status for main retained species, the ability to access reported landings and estimated total landings data as well as annual stock assessment reports for these species. The fishery meets most of the SG 100 elements (a strategy in place, some evidence that the strategy is achieving its overall objective). We feel that there is not yet high confidence that the strategy will work and there is not clear evidence that the strategy is being implemented successfully because of limitation in the observer program which makes estimates of discarded catch relatively imprecise (described below). A score of 90 reflects that some, but not all elements of the scoring guideposts for 100 are met.

2.1.3		
Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.		
SG 60	**SG 80**	**SG 100**
Qualitative information is available on the amount of main retained species taken by the fishery. Information is adequate to qualitatively assess outcome status with respect to biologically based limits. Information is adequate to support measures to manage main retained species.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery. Information is sufficient to estimate outcome status with respect to biologically based limits. Information is adequate to support a partial strategy to manage main retained species. Sufficient data continue to be collected to detect any increase in risk level (e.g.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations. Information is sufficient to quantitatively estimate outcome status with a high degree of certainty. Information is adequate to support a comprehensive strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.

	due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.

Score: 90

2.1.3 Scoring Rationale: This fishery has significant sources of fishery dependent and fishery independent data with observer data coupled with stock assessments for all main retained species. Information used in managing this fishery comes from several sources detailed below. All elements for SG 80 are met, and the information on retained species can be considered accurate and verifiable, and that monitoring of species is sufficient to assess mortalities. However, current limitations in the observer program – central to the estimation of discards – are important and limit the degree of certainty with which outcome status and management effectiveness is known. A score of 90 reflects the general high amount of quality information and the current limits.

(1) Fishery independent surveys: NOAA- Fisheries conducts annual longline and trawl surveys in the Gulf of Alaska and in the Eastern Bering Sea / Aleutian Islands. This information is used directly in assessments.

(2) Catch accounting system: Participants in the sablefish quota fishery are required to use one of two electronic reporting systems. The first documents only landings of ITQ- species (halibut / sablefish) as a way to track each participant's annual catch and check against individual quotas. The second, eLandings is a more comprehensive system that inputs all catches, including self-reported discards as well as all retained and sold landings for all species. Catches can be submitted on-board the fishing vessel daily, so that the e-landing system thereby provides real time catch accounting. Paper logbooks are required to be maintained and submitted for all vessels greater than 60', unless fishing for halibut in which case all vessels greater than 25' must participate in the logbook program. These are largely used for enforcement and not for catch estimation to land fish in the state of Alaska requires the use of fish tickets that describe the amount and composition of all fish sold. Thus, together the fish ticket and eLandings system provide precise quantitative information on the amount of fish landed.

(3) Observers: Currently, 30% of sablefish – directed trips on vessels > 60' require an on-board observer (NPFMC 2009b). The observer program underwent significant changes in 2003 to better meet information needs based on identified weaknesses of earlier procedures (lack of statistical procedures to estimate catch and uncertainties therein, randomizing observer deployments, requirements of observers to make computations). In 2008 the observer program was again redesigned to provide sample-specific information (instead of aggregated data), increased use of systematic sampling procedures and decreased reliance on observer calculations (Cahalan *et al*. 2010). The industry (participants) currently choose which trips will be observed and are free to dictate the location of fishing and the duration of the trip. As a result, there is concern that this non-random assignment of observers is not providing representative data. The NPFMC and NMFS considered changes to the observer program that to grant greater control to NMFS to deploy observers in a systematic fashion. Preferred alternative 3 was adopted 8 October, 2010 and the program is expected to be implemented in 2013.

Annual catches of all species is based on a "blended" approach that uses both observer data and industry-provided data to generate estimated total catch (retained + discarded) (Cahalan *et al*. 2010). At-sea-discard estimates are based on models that relate observer data and reported retained landings to total catches. For longline operations, observers sample some fraction of the hooks retrieved on an individual sets and extrapolate to derived estimates of total catch / set. Not all sets are directly monitored. Catch is reported in weight, which is converted to numbers of fish based on mean weight of individual fish. Data are reported electronically

(daily) to provide up-to-date information on catch rates. Estimation methods follow a "post-stratification of hauls and deliveries based on gear and area fished, target species… and vessel type" (Cahalan *et al*. 2010). For longline, catch estimates for unsampled sets are based on the amount of gear fished and average catch per unit effort from the sampled sets (Cahalan *et al*. 2010).

To generate estimated catch rates for unobserved sets, each set is matched to another observed set. For hauls within the same FMP area as other sampled hauls, this matching system uses one of 4 methods to match unobserved sets to sampled sets. The closest match is a set sampled in the same day, and farthest match can be as many as 7 days removed from observed sample (Cahalan *et al*. 2010).

2.1.3 Trace References
Cahalan, J., et al., 2010; NPFMC, 2009b.

2.2.1		
The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.		
SG 60	**SG 80**	**SG 100**
Main bycatch species are likely to be within biologically based limits, or if outside such limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding. If the status is poorly known there are measures or practices in place that are expected result in the fishery not causing the bycatch species to be biologically based limits or hindering recovery.	Main bycatch species are highly likely to be within biologically based limits or if outside such limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	There is a high degree of certainty that bycatch species are within biologically based limits.

Score: 90

2.2.1 Scoring Rationale:
The sablefish fishery incidentally captures several species of fish and sea birds. Based on information available on population status of main species or vulnerable species suggests that they are highly likely to be within biologically- based limits. For fish species, there is a high degree of certainty that bycatch species are within biologically based limits, and incidental takes of albatrosses are within biological limits. There is less information available on population status and potential biological removals for the most commonly-captured seabird species. Moreover, status of minor stocks, and annual catch levels are not reported (a comprehensive list of species reported in logbooks is presented in Table 3). We conclude that for all main fish species that are captured, SG 100 is met, but for minor species and seabirds SG80 is met. For that reason an intermediate score of 90 is assigned.

Fish:
The principle bycatch species are grenadiers (principally giant grenadier, *Albatrossia pectoralis*). Estimates of total catch for 2003 – 2009 are ca. 8,000 t / yr for grenadiers. Grenadiers are not part of the groundfish fishery management plan for the Gulf of Alaska or the Bering Sea / Aluetian Islands. Because formal assessment is not currently required by the FMP, a brief assessment is conducted instead (Clausen and Rodgveller 2009). The trawl survey-based estimated biomass for the Gulf of Alaska is between 480,000 -718,000 t for 2005, 2007 and

2009 surveys, while the 2009 longline survey produced an estimated 1,210,000 t (this is a relative population weight, and index of relative biomass; Clausen and Rodvellwer 2009). A longline survey estimate for eastern Bering Sea is 795,000 t (relative population weight). Total grenadier catches (averaged 1997 – 2009) are 15,792 t / year, with most (10,544 t / yr) taken in the Gulf of Alaska. Calculation of overfishing level is based on Tier 5 methods (biomass multiplied by natural mortality—see Table 4), and for 2009 equals 167,255 t. Thus total landings are well below the estimated reference point. Sablefish-directed fishing operations accounts for over one-half of all grenadier catches.

Sablefish operations also catch notable levels of skates (ca. 150 t / yr.), mostly species in the "other skates" category (all skate species excluding longnose and big skate). For the Gulf of Alaska, the estimated overfishing level is 2,791 t / year while total catches have rarely exceeded 500 t / year. In the eastern Bering Sea / Aleutian Islands, the overfishing level is 8,227 t / year, with most bycatch occurring in the Pacific cod fishery. Total landings have been near the overfishing level since 2005. Survey-based biomass limits show no discernable downward trend indicating overfishing (Ormseth *et al*. 2009a, b).

Sablefish operations also catch notable levels of arrowtooth flounder. Catches averaged 408 mt / yr between 2003-2007 in sablefish-directed longline sets. Total population biomass in the Bering Sea / Aleutian Islands is > 1 million mt, and the population is not considered overfished (Wilderbuer et al. 2010). Total population biomass in the Gulf of Alaska is estimabed to be > 2 million mt and is not overfished (Turnock, 2010). For both areas total catch has been well below allowable biological catch.

The final main bycatch species is spiny dogfish (*Squalus acanthias*). Sharks are currently managed under the "other species" complex in the GOA and EBS FMP. Average catch levels in sablefish fishing, 2003 – 2007 was 134 t / year. Spiny dogfish is primarily captured in the flatfish trawl and cod longline fisheries (Tribuzio *et al*. 2009). Spiny dogfish are managed under Tier 6 procedures (harvest specifications based on historical catch levels), producing an overfishing level of 689 t / yr, and there is no evidence of overfishing (Tribuzia *et al*. 2009).

Seabirds:

All longline vessels are required to use seabird avoidance devices that have been demonstrated to markedly reduce seabird mortality. The adoption of these measures have reduced seabird takes by one-third (Fitzgerald *et al*. 2008), and albatross takes by 85% (Fitzgerald *et al*. 2008). Seabird takes are substantially greater in the Eastern Bering Sea compared to either the Gulf of Alaska or Aleutian Island regions. There is no published analysis of seabird bycatch rates specific to the sablefish longline fishery, but Fitzgerald *et al*. (2008) report on trends among all demersal longline fisheries for the EBS, AI and the GOA. Because of the spatial distribution of fishing effort among the two main longline fleets (larger catcher processer fleets targeting cod vs. smaller vessels targeting sablefish), we can use trends in the GOA (where sablefish fishing operations dominate) as a proxy for the sablefish fleet. In general, seabird bycatch is lower in the GOA compared to the EBS. The annual average bycatch rate (birds / 1,000 hooks) in the GOA has declined over 2002 – 2006 compared to the overall mean (1993-2006). Total birds / year declined markedly from the early 1990's to late 1990's, and have remained low since. 2006 (the last year on record) had higher number of seabirds taken in the GOA (815, 95% 531-1252), doubling the number from the previous year (424, 95% CI 314-573). Much of this increase was due to bycatch of gulls (Fitzgerald *et al*. 2008).

Sablefish fisheries are responsible for 85% of the Black-footed albatross takes (average GOA longline takes 2002- 2006 = 75 yr^{-1}). Sablefish fisheries are responsible for 40% of all Layson albatross takes (average GOA longline take = 37 yr^{-1}). Fishery-specific bycatch rates are not available for other species in published reports, but other species commonly captured in sablefish longlining include northern fulmar (average 2002 – 2006 = 357 yr^{-1}) and gulls (average 2002 – 2006 = 161 yr^{-1}).

Dietrich and Fitzgerald (2010) asked whether seabird bycatch rates were related solely to individual set characteristics (time, season, location) or whether individual vessel effects were significant predictors of seabird bycatch. They found that (1) total seabird bycatch in sablefish fisheries have increased between 2004 – 2007, chiefly due to increased catches of Northern Fulmars and that (2) there were significant differences in catch rates among vessels after accounting for number of hooks and the time, season and location of fishing. Vessel effects were most pronounced for shearwaters and albatrosses. They concluded that a more rigorous vessel-specific monitoring of standardized bycatch rates would permit the entire fleet to identify vessels with exceptional bycatch rates and thereby seek to introduce incentives of those vessel operators to change fishing operations to reduce bycatch.

Laysan and Black-footed albatross population trends are monitored through nest surveys on breeding colonies, principally on three islands in the Hawaiian archipelago. These colonies account for 97% and 77% of the total breeding population for Layson and Black-footed albatross, respectively. For both species, the current primary threat is incidental catch in pelagic longlining (Naughton *et al*. 2007), taking ca. 5,000 black-footed and 2,000 Laysan albatrosses annually. Thus, the rate of albatross kills in the demersal longline fishery represent a much smaller threat. Both species were heavily depleted in the late 1800's / early 1900s by feather hunting.

For black-footed albatross, the observed nest counts in the Hawaiian breeding colonies indicate no discernable trend since 1992 when surveys began (Flint 2007), and compilation of data from all breeding colonies supports this conclusion (Arata and Stievert 2009). Over longer time periods, breeding population of black-footed albatrosses have increased from 17,785 to 54, 592 between early 1920's and mid 1950's, but populations have apparently stabilized since then. Still, IUCN currently lists black-footed albatross as endangered "on the basis of a projected future rapid population decline over the next three generations, taking into account estimated rates of incidental mortality in longline fisheries in the North Pacific Ocean" (IUCN 2010). 2007 breeding pair numbers from the Hawaiian Islands are 52,068, and the world breeding population in 2005 was estimated at 59,000 pairs. Overall, pelagic longline and gillnet have been the most important source of incidental mortality for Black-footed albatrosses (Naughton *et al*. 2007) and pelagic longline fisheries are deemed the most important current threat to the black-footed albatross (Arata and Stievert, 2009), taking ca. 5,000 birds per year. Population viability analysis indicates a 40% chance of population decline over the next 60 years (Arata and Teivert 2009) for the Laysan Island colony. Matrix models developed from stage-specific demographic parameters that include bycatch mortality suggest that current estimated bycatch levels can be sustained by the population without causing population decreases.

For Laysan albatross, pre-hunting breeding population size was as high as 2 million pairs (on Laysan Island alone), but was reduced to 17,930 by the early1920's. Since that time, total breeding pair counts have increased to 600,000, and on some islands (e.g. Midway) current levels greatly exceed historical levels owing to land use changes that expanded capacity to host breeding pairs (Arata and Stievert 2009). Current breeding population size over the three major Hawaiian colonies is roughly 550,000 pairs. IUCN lists Laysan albatross as "vulnerable" (IUCN 2010). Like the black-footed albatross, incidental kills in pelagic longlining are deemed the principal threat.

Population viability analysis indicates a 45% probability of a population decline over the next 60 years on Laysan Island, and a 30% chance of decline on French Frigate Shoals. Matrix models developed from stage-specific demographic parameters and including bycatch mortality in fisheries suggest that current estimates of bycatch levels (2,500 / year) can be sustained by the population without causing population decreases, and consequently Arata and Sievert (2009) conclude that longline fishing does not appear to be threatening the long-term viability of Laysan albatross.

There is less information about status and trends of other seabirds. The most common seabird taken in demersal longlines in Alaska is Northern Fulmar (*Fulmarus glacialoides*). Available data indicate that Northern fulmar populations have been increasing or been stable over 1970's – 2003 (Dragoo *et al*. 2006). Glaucous-winged gull (*Larus glaucesens*) counts are available for 6 sites in Alaska; at one counts have been decreasing, four show no change and one shows an increase over time. Notably, the two sites with the largest numbers of breeding pairs and that account for the vast majority of bird counts (Middleton Island, Aiktak Island) have either had increasing populations since the 1970's or no change (Dragoo *et al*. 2006). There is no population assessment available for either of these two species, so biological reference points are not available. Boldt and Zador (2009) provide trends of bird colonies on Pribilof Islands (kittiwakes, murre), which show a trend of increasing reproductive success over the past 5 years, but that average levels during this period are below the long term mean.

Table 4. List of all species reported captured by sablefish-directed trips, 2003-2007, based on logbook data.

Alaska Plaice Flounder
Arrowtooth/Kamchatka Flounder
Aurora Rockfish
Bairdi Tanner Crab
Black Rockfish
Blackgill Rockfish
Boccacio Rockfish
Canary Rockfish
China Rockfish
Coho Salmon
Copper Rockfish
Crab, Golden King (Brown)
Crab, Opilio Tanner (Snow)
Dark Rockfish
Dover Sole
Dusky Rockfish
Eels or eel-like fish
Flathead Sole
Giant Grenadier
Greenland Turbot
Greenstripe Rockfish
Grenadier (rattail)
Harlequin Rockfish
Lingcod
Miscellaneous Flatfish
Northern Rockfish
Octopus
Pacific Cod
Pacific Ocean Perch
Pollock
Prowfish
Quillback Rockfish
Ratfish
Redbanded Rockfish
Redstripe Rockfish
Rex Sole
Rock Sole
Rosethorn Rockfish
Rougheye Rockfish
Sculpins

Shark, Other
Shark, Pacific Sleeper
Shark, Salmon
Shark, Spiny dogfish
Sharpchin Rockfish
Shortraker Rockfish
Silvergrey Rockfish
Skate, Big
Skate, Longnose
Skate, Other
Skilfish
Starry Flounder
Thornyhead Rockfish (Idiots)
Tiger Rockfish
Triangle Tanner Crab
Vermillion Rockfish
Yelloweye Rockfish
Yellowfin Sole
Yellowmouth Rockfish
Yellowtail Rockfish
Halibut

Bait:

The Alaska sablefish fishery uses two primary forms of bait: Pacific herring (*Clupea productus*) from Alaska, market squid (*Loligo opalescens*) from U.S. west coast, and Argentinian squid (*Illex argentina*). In typical operations, a single herring will bait two hooks and a single squid will bait three hooks. There has been no formal effort to calculate total amount of bait used in this fishery. Average catch per hook (1995 – 1998) is 0.39 kg (Sigler and Lunsford 2001). For comparison, an age-4 herring weighs roughly 0.1 kg, or 0.05 kg / hook yielding a nearly 8 fold difference between bait and catch mass. Herring populations consist of multiple distinct stocks, often separated by distinct nearshore spawning areas. Thus an Alaska-wide herring stock assessment is not available. One SE Alaska herring stock, Lynn Canal, was petitioned for ESA listing, but NMFS found that listing as threatened or endangered was not warranted. Alaska uses a precautionary management for herring, where commercial harvest on herring stocks is not permitted in an area unless stock forecasts of annual population levels exceed a minimum threshold biomass. Fisheries for these include bait and sac-roe, and the bait is used in several Alaska fisheries (e.g. crab, halibut, sablefish). SE Alaska stocks have generally been increasing in abundance over the past decade (Hebert 2009), and Sitka Sound herring stocks are currently at the highest observed levels (ADFG 2010). Assessments for market squid are not available, but consideration of the fishery and life histories suggest that current fishing levels are sustainable and not having severe adverse impacts on the population (PFMC, 2001). We are unaware of any recent stock assessment that is available, but Basson *et al*. (1996) demonstrate a method to post-hoc estimate spawning stock size using a depletion estimation technique (the fishery targets primarily spawning individuals). We note that *Illex argentinus* catches are used as bait in fisheries around the world: sablefish fisheries are likely a minor use although there have been no directed calculations to this effect.

2.2.1 Trace References

Arata, J.A., et al., 2009; IUCN, 2010; Flint, E., 2007; Clausen, D.M. and Rodgveller C.J., 2009; Dragoo, D.E., 2006; Naughton, M.B., et al., 2007; Ormseth, O.A. and Matta, B., 2009a; Ormseth, O.A., et al., 2009b; Tribuzio, C.A., et al., 2009; Sigler, M.F. and Lunsford, C.R., 2001; Fitzgerald, S.M. et al., 2008; Melvin E.F., et al., 2001; Boldt, J. and Zador, S., 2009; Dietrich, K.S. and Fitzgerald, S.M., 2010, Wilderbuer T.K. et al. 2010.; Turnock, B.J. 2010.

2.2.2		
There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.		
SG 60	**SG 80**	**SG 100**
There are measures in place, if necessary, which are expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. The measures are considered likely to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/species).	There is a partial strategy in place, if necessary, for managing bycatch that is expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or the species involved. There is some evidence that the partial strategy is being implemented successfully.	There is a strategy in place for managing and minimising bycatch. The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports high confidence that the strategy will work. There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.

Score: 90

2.2.2 Scoring Rational:

Skates are specified in the Gulf of Alaska FMP and the Bering Sea / Aleutian Islands FMP , and are thereby subject to assessments and annual catch limits that will maintain stocks within acceptable biological limits. Presently, the main bycatch species (grenadiers) are not specifically listed in the Gulf of Alaska or Bering Sea / Aleutian Islands fishery management plan. Consequently, there is no limit to catch, and no official reporting requirements. However, the catch levels of grenadiers are nearly one-tenth the allowable biological catch levels that would be set if annual catch limits were required (Clausen and Rodgveller, 2009). Thus, for those species that are sensitive to the levels of fishing mortality, there is a partial strategy in place, there is an objective basis of confidence that the partial strategy will work and some evidence that it is being implemented successfully. Spatial closures are used to reduce impacts on marine mammals. Seabird bycatch is managed by requiring all longline vessels > 55' to use approved seabird avoidance measures (except when poor weather does not permit their use). Fitzgerald *et al*. (2008) report nearly 100% compliance with these requirements, and Melvin *et al*. (2001) demonstrated a > 80% reduction in bird kills when paired streamer lines were deployed in sablefish longline sets. NOAA and the NPFMC have the authority to institute time / area closures, if needed, if seabird bycatch levels become elevated. The observer program (although limited, see "Retained species") provides data rapidly to decision makers that could be used to institute in-season changes to avoid bycatch. There is therefore a comprehensive strategy in place to manage seabird bycatch, and there is a high degree of confidence that it will be successful. Limitations in information on seabird population monitoring and in the observer program are significant and consequently there is not clear evidence of management effectiveness. Main bait species (Alaska herring) use a precautionary and adaptive management plan that prohibits fishing unless stock projections are above a minimum threshold level.

2.2.2 Trace References
NPFMC, 2009a; Fitzgerald, S.M., et al., 2008; Melvin, E.F., et al., 2001.

2.2.3		
Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.		
SG 60	**SG 80**	**SG 100**
Qualitative information is available on the amount of main bycatch species affected by the fishery. Information is adequate to broadly understand outcome status with respect to biologically based limits. Information is adequate to support measures to manage bycatch.	Qualitative information and some quantitative information are available on the amount of main bycatch species affected by the fishery. Information is sufficient to estimate outcome status with respect to biologically based limits. Information is adequate to support a partial strategy to manage main bycatch species. Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Accurate and verifiable information is available on the amount of all bycatch and the consequences for the status of affected populations. Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty. Information is adequate to support a comprehensive strategy to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective. Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.

Score: 80

2.2.3 Scoring Rationale:
The Alaska sablefish fishery meets all of the SG 80 elements: an on-board observer program provides bycatch estimates, stock assessments are conducted for the main fish species incidentally captured, and most vulnerable seabird species (albatrosses) are well monitored. The relatively low level of observer coverage, and the lack of random assignment of observers to trips make the information less reliable (Cahalan *et al*. 2010), and there is a paucity of monitoring of many seabird species (but see Dragoo *et al*. 2006). Because vessel operators subject to the 30% observer coverage (based on % of fishing days per quarter), choose when and where to carry observers, they may fish in different locations and at different times when observers are present. Also, vessels typically prefer to carry their required observer coverage later in the fishing season, because at that point they better know how many fishing days need to be covered by an observer (NPFMC 2010a). Thus the data may be biased if there are seasonal trends in bycatch. An intermediate score between 80 and 100, but closer to 80, is assigned to reflect these data deficiencies while also considering the high degree of monitoring of fish populations. In the course of this assessment, the NPFMC adopted preferred alternative 3 on 8 October, 2010 (See Appendix I), the "coverage-based" restructuring alternative. The amendment will increase the level of observer coverage in the GOA BS and AI but is not expected to be implemented until 2013. Subsequent surveillance audits of this fishery will monitor progress of the implementation of the program. It is expected that the implementation of preferred alternative 3 will significantly enhance the observer coverage by making the

lower size limit more flexible, grant NMFS greater authority to set observer coverage and to dictate which fishing trips are covered (NPFMC 2010a; see Appendix I). Main bait species (AK herring) are assessed consistently by ADFG, although squid are much more difficult to assess because they are annual species whose productivities are strongly governed by environmental conditions.

2.2.3 Trace References
Dragoo, D.E., et al., 2006; Cahalan, J., et al., 2010; NPFMC, 2010a.

2.3.1		
The fishery meets national and international requirements for protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.		
SG 60	**SG 80**	**SG 100**
Known effects of the fishery are <u>likely</u> to be within limits of national and international requirements for protection of ETP species. Known direct effects are <u>unlikely</u> to create <u>unacceptable impacts</u> to ETP species.	The effects of the fishery are known and are <u>highly likely</u> to be within limits of national and international requirements for protection of ETP species. Direct effects are <u>highly unlikely</u> to create <u>unacceptable impacts</u> to ETP species. Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a <u>high degree of certainty</u> that the effects of the fishery are within limits of national and international requirements for protection of ETP species. There is a <u>high degree of confidence</u> that there are <u>no significant detrimental effects (direct and indirect)</u> of the fishery on ETP species.

<u>Score: 80</u>

2.3.1 Scoring Rationale:
The only ETP species known to be adversely affected by the sablefish fishery is the short-tailed albatross (*Phoebastria albatrus*). The short-tailed albatross was listed as "endangered" in 2006 and thereby falls under protection of the U.S. Endangered Species Act. Before being subjected to intense hunting for feathers in the late 1800's / early 1900's, the short-tailed albatross was the most abundant albatross species in the North Pacific. Currently, roughly 2,400 short-tailed albatross are known to exist, and only 400 – 500 breeding pairs have been documented (U.S. Fish Wildl. Serv. 2008). Their breeding range is now restricted to two islands (Torishima and Senkaku). The first of these supports roughly 80% of all breeding pairs, but because this island is an active volcano and the biggest colony is subject to mud slides, the population is at significant risk. The population on Torishima is growing at a rate of 6% per year (U.S. Fish Wildl. Serv., 2008).

The principal threat to the short-tailed albatross is the possibility of stochastic events on Torishima Island, but other threats include incidental catches in fisheries, ingestion of plastics, toxic contaminants, and depredation by non-native species. The current recovery plan concludes that these secondary threats do not pose a significant risk of depletion provided that populations continue to grow at current levels and that efforts to transplant chicks to islands that were part of their historical range are successful (U.S. Fish Wildl. Serv., 2008).

Two short-tailed albatrosses were killed in the eastern Bering Sea from Pacific Cod longline fishing in late summer 2010. Prior to those events, there had been no reported kills since 1998. Since 2001 vessels larger than 55' are required to use seabird avoidance devices (tori lines) to minimize the probability of seabird

entanglements. These have been demonstrated to be highly effective (Melvin *et al*. 2001) at reducing the probability of albatross takes and there is a high degree of compliance (Fitzgerald *et al*. 2008). Moreover, annual fishing-caused mortality rates would have to be significantly greater than the current level to exceed biological limits and to significantly hamper recovery. Given the current levels of population increase and assuming that only 10% of all seabird kills are reported or observed, there would have to be 13 observed / reported short-tailed albatross kills per year to conclude that the level of mortality in fisheries is causing a population decline (U.S. Fish Wildl. Serv. 2008). Only 11 kills have been reported in total since 1988 and only two since 1998. Thus, there is a high likelihood that the effects of the sablefish fishery are within limits that would prevent their recovery. However, smaller amounts of takes would limit albatross' recovery rate and could be important.

Because the current observer coverage is limited (30% of fishing days for vessels > 60') and is not randomly assigned, it is possible that fishing vessels alter their fishing practices when observers on board and thereby observers do not witness short-tailed albatross takes. This consideration precludes a score of 100, because it is conceivable that greater short-tailed albatross are killed and therefore exceed the limit for Alaska fisheries (4 takes over a two year period).

The sablefish fishery also interacts with sperm whales, who are known to depredate sablefish on longline sets. There is no indication that this interaction adversely impacts sperm whale populations.

2.3.1 Trace References
USFWS, 2008; Fitzgerald, S.M., et al., 2008; Melvin, E.F., et al., 2001.

2.3.2

The fishery has in place precautionary management strategies designed to:
- meet national and international requirements;
- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;
- ensure the fishery does not hinder recovery of ETP species; and
- minimize mortality of ETP species.

SG 60	SG 80	SG 100
There are measures in place that minimize mortality, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species. The measures are considered likely to work, based on plausible argument (eg. general experience, theory or comparison with similar fisheries/species).	There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimize mortality that is designed to be highly likely to achieve national and international requirements for the protection of ETP species. There is an objective basis for confidence that the strategy will work, based on some information directly about the fishery and/or the species involved. There is evidence that the strategy is	There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimize mortality that is designed to achieve above national and international requirements for the protection of ETP species. The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work. There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is

	being implemented successfully.	evidence that the strategy is achieving its objective.

Score: 90

2.3.2 Scoring Rationale:
There is a comprehensive strategy in place to manage the fishery's impact on short-tailed albatrosses. The mandatory use of seabird avoidance measures, a closure of the entire Alaska groundfish fishery if more than 4 birds are killed in a two year period, and an observer program to monitor bird kills is in place. Population modeling suggests that levels of bycatch mortality would have to be nearly two orders of magnitude higher than the bycatch limit to cause population declines, thereby supporting a high confidence that this strategy will work. There is good evidence that the strategy is being implemented successfully (based on compliance with seabird avoidance device regulations), but not clear evidence because currently observers only cover 30% of trips and fishing vessels choose which trips to be observed. As the observer program restructuring takes place more evidence may become available and will be evaluated in subsequent surveillance audits.

2.3.3

Relevant information is collected to support the management of fishery impacts on ETP species, including:
- information for the development of the management strategy;
- information to assess the effectiveness of the management strategy; and
- information to determine the outcome status of ETP species.

SG 60	SG 80	SG 100
Information is adequate to broadly understand the impact of the fishery on ETP species. Information is adequate to support measures to manage the impacts on ETP species Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a full strategy to manage impacts. Sufficient data are available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty. Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives. Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.

Score: 85

2.3.3 Scoring Rationale:
Information on potential impacts of sablefish fishing on short-tailed albatross consists of (1) quantitative knowledge on the effectiveness of seabird avoidance devices (2) monitoring of compliance with regulations that require the use of these devices; (3) observer coverage to monitor the fishery for short-tailed albatross kills; and (4) extensive monitoring of short-tailed albatross populations and quantitative modeling to assess rates of population change. This information is sufficient to determine whether the fishery may be a threat to protection and recovery of short-tailed albatross estimate outcome status with a high degree of certainty, and is adequate to

support a comprehensive strategy to manage impacts. The scientific basis for developing and quantifying effectiveness of seabird avoidance devices and the capacity to monitor the short-tailed albatross population provides exceptionally high-quality information. The current limitations of the observer program (which track direct impacts by the sablefish fishery) are important. The observer program provides sufficient data to allow fishery related mortality to be estimated. However, because of the low (30% of fishing days for vessels > 60') degree of observer coverage and non-random assignment of trips to be observed, the information is not adequate to evaluate with a high degree of certainty whether the strategy is achieving its objective. Information is therefore sufficient to meet the first SG 100 element but not the final two elements.

2.4.1		
The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.		
SG 60	**SG 80**	**SG 100**
The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.

Score: 85

2.4.1 Scoring Rationale:

The fishery being assessed using bottom longline gear to capture sablefish. Here, lines of baited hooks are deployed by the fishing vessel, which sink to the ocean floor where sablefish forage. They are generally considered "fixed gear" because compared to other gears such as trawling, they do not operate by moving along the seafloor. For that reason, bottom longline gear is generally thought to have substantially less impact on bottom habitat compared to mobile gear (Chuenpagdee *et al*. 2003). Despite its classification as "fixed gear", the gear can move during soak time by ocean currents, and during gear retrieval. Consequently, the bottom line and the hooks can destroy some structural habitat, particularly biogenic habitats.

The Alaska Fisheries Science Center conducted a semi-quantitative assessment of all Alaska fisheries with respect to their potential impacts too habitats and subsequent impacts on the productivity of managed species. Here, they ranked fishery impacts according to (1) intensity of fishing effort (2) sensitivity of habitat features to contact with fishing gear (3) recovery rates of habitat features (4) distribution of fishing effort relative to different types of habitats (NMFS 2005). They use a simple quantitative model that relates habitat impacts in terms of the expected degree of loss of habitat function relative to an unfished state. Model inputs include the distribution of fishing effort, estimates of the impacts of fishing effort on particular habitat types (with respect to specific attributes and functions), and estimated habitat recovery rates

As expected based on the reasoning above, sablefish longlining was estimated to have minimal impact on overall habitat. For soft substrates in the Eastern Bering Sea, the index of relative impact was 0.1% for sand / mud biostructure and 0.7% for slope biostructure i.e. current levels and distribution of fishing impact was estimated to reduce these biostructural habitats by 0.1 to 0.7 percent. For sablefish fishing in the Gulf of Alaska, slope biostructure long term effect index was 0.1%, and in the Aleutian Islands was 0%. Importantly,

the document concludes that the levels of total groundfish fishing activities in Alaska waters was not sufficient to cause significant reductions in the production capacity of the managed species.

Although this document is clear in stating limitations in the analysis (NMFS 2005), the CIE review was critical of the model principally due to the absence of validation procedures for the model and poorly resolved parameter estimates (AFSC, 2008) The AFSC Habitat and Ecological Processes Research Program is working to provide more detailed information on habitat distributions (see "information below") in part to address these limitations.

One particularly vulnerable habitat type is biogenetic structure such as sponges and corals. Sablefish longlining impacts corals by entangling and dislodging them (as evidenced by coral bycatch, Hanselman *et al*. 2009a). Areas of high coral density (coral gardens) have been identified, some in SE Alaska but most in the Aluetian Islands. All bottom-contact fishing in these areas are prohibited (see Management).

The most important corals in Alaska waters are gorgonians, scleractinians and soft corals (*Gersemia* spc.). The distribution of corals have been assessed through NOAA trawl survey catch rates (Heifitze *et al*. 2002) and via smaller scale submersible surveys / observations (McConnaughey *et al*. 2009; Stone 2006). Identifying trends in these corals is difficult because they are encountered infrequently (Martin 2009), but nonetheless no discernable trend in gorgonians or scleractinians are apparent (Martin 2009).

Stone (2006) and Heifetz (2009) recently conducted submserible surveys of deep water corals and sponges in the Aleutian archipelago to describe depth distributions and also the incidence of visible damage or other footprints of fishing activities. They report substantial rates of coral damage, which is greatest in areas opened to trawling and least in regions infrequently trawled. Stone (2006) compares the depth distributions of corals to those of longlining and finds that in general, longlining sets are slightly shallower than the depths with peak coral densities, but there was substantial overlap between coral and longlining depth distributions. Of course, these data do not permit one to link damage to any particular gear, as longlining, trawling and fish/ crab pots were all used in these areas.

Based on management measures that prohibit bottom-trawling in Aleutian Island and SE Alaska coral garden sites and the otherwise low impact of bottom longline gear on habitats, we conclude that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. Moreover, there is some evidence, based on models conducted by AFSC in support of this claim. However, limitations in data used to parameterize these models and the absence of model verification means that the evidence is not conclusive. We therefore score an intermediate score of 85 to reflect this.

2.4.1 Trace References

Martin, M. 2009; Chuenpagdee, R., et al., 2003; McConnaughey, R.A., et al., 2009; NMFS, 2005; AFSC, 2008; Stone, R.P., 2006; Heifetz, J., et al., 2009; Hanselman, D.H., et al., 2009b.

2.4.2		
There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.		
SG 60	**SG 80**	**SG 100**

There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance. The measures are considered likely to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/habitats).	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above. There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or habitats involved. There is some evidence that the partial strategy is being implemented successfully.	There is a strategy in place for managing the impact of the fishery on habitat types. The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work. There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.

Score: 90

2.4.2 Scoring Rationale:
In general, this fishery is not suspected of having significant impacts on habitat. However, bottom contact gear, including longlining, may harm some biogenic habitat, particularly habitat-forming coral species. There is a strategy in place for managing the impact of the fishery on coral habitats that consists of (1) closing coral garden sites to all bottom-contact fishing in the Aleutian Islands and (2) closing coral garden sites in SE Alaska to bottom-contact fishing gears; (3) monitoring trends in relative abundance via the NOAA- Fisheries trawl surveys and (4) use of on-board observers to document incidence of coral bycatch. This fishery meets all elements of the SG 80. There is a transparent set of criteria for identifying and classifying habitats as "Habitat Areas of Particular Concern" (NPFMC 2010b). We feel this strategy meets the first and second condition for SG 100, but not the final condition.

2.4.2 Trace References
NPFMC, 2010b.

2.4.3		
Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.		
SG 60	**SG 80**	**SG 100**
There is a basic understanding of the types and distribution of main habitats in the area of the fishery. Information is adequate to broadly understand the main impacts of gear use on the main habitats, including	The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery. Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent, timing and location of use of the fishing gear. Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types. Changes in habitat distributions over time are measured. The physical impacts of the

spatial extent of interaction.	outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	gear on the habitat types have been quantified fully.

Score: 80

2.4.3 Scoring Rationale:
The spatial distribution of fishing effort for the Alaska sablefish fishery is well documented via log books and observers, and these data have been used to map and weight the potential impacts of sablefish longlining on vulnerable habitats. The Alaska Fishery Science Center and the North Pacific Fishery Management council have developed criteria for identifying and classifying specific habitats as "habitat areas of particular concern" on the basis of rarity, ecological importance, sensitivity and level of disturbance (NPFMC 2010b). Coarse grain habitat mapping is already available and on-going efforts are seeking to provide finer grained, depth and habitat-specific information by sharing platforms with AFSC survey and NOAA vessels (AFSC, 2008). There is an effort to compile and organize habitat data, and summarized information is presented in McConnaughey *et al*. 2009. Martin (2009) describe trends in deep water corals and other biogenic habitat based on trawl survey bycatch and find little evidence for persistent trends in corals in the Bering Sea, Aleutian Islands or Gulf of Alaska.

Based on this information, hat all three elements for SG 80 are met. Fine scale information however is lacking, and VMS is not required on board longlining vessels so fishing locations can not be directly monitored. For those reasons neither of the SG 100 elements are met.

2.4.3 Trace References
NPFMC, 2010b; AFSC, 2008.

2.5.1		
The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
SG 60	**SG 80**	**SG 100**
The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

Score: 95

2.5.1 Scoring Rationale:
Like most large marine ecosystems, resolving interactions strengths among food web constituents in Alaska is made difficult by limited data and confounding effects of environmental forcing (Essington 2009). Two primary concerns are germane to evaluating the effects of sablefish fishing on ecosystem functioning. The first is whether depletion of sablefish causes a release of top-down control on sablefish prey species, potentially leading to cascading effects on the food web. The second is that removal of sablefish reduces the productivity

of any species that relies on sablefish for forage. Other indirect effects can arise if retained or bycatch species play key "top –down" or "bottom-up" roles in the ecosystem and thereby act to regulate food web structure.

Based on information that is available on sablefish feeding habits, relative abundance, position in the food web, and their stock status, the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function (SG 80). Moreover there is some evidence directly supporting this claim. We score a 95 to reflect the comparably high amount of information on ecosystem dynamics in this system but also to recognize limitations in knowledge of food web / ecosystem structure, function and dynamics therein.

Sablefish are mid- to upper trophic level opportunistic predators. Adults consume mostly benthic invertebrates and fishes (Yang and Nelson 2000, Yang *et al*. 2006). They do not constitute a dominant component of the feeding habits of any known predator, although feeding habits of large predators such as sperm whales are not well resolved (see Hanselman 2009a). However, the estimated natural mortality rate of sablefish and biomass of the population indicate relatively low levels of energy flow from sablefish to other predators.

There is some evidence that the fishery is highly unlikely to disrupt the key elements in the form of ecosystem models that have been developed for the Eastern Bering Sea, Aluetian Islands (Aydin *et al*. 2008) and the Gulf of Alaska (Gaichas and Francis 2008). None suggest an obvious critical or unique role of sablefish with respect to food web structure. Gaichas and Francis (2008) used network theory to identify potentially key species in the Gulf of Alaska food web on the basis of high connectivity and position as "hubs". Four species were identified as (Pacific cod, Pacific halibut, walleye pollock and arrowtooth flounder) as highly connected species.

The North Pacific Fisheries Management Council includes a chapter on ecosystem considerations in the annual assessment of stocks. This report provides an extensive accounting of the dynamics of key biophysical drivers and indicators of ecosystem and community structure (Boldt and Zador 2009). Apex predator biomass in the Eastern Bering Sea has been relatively stable over the past decade at a level roughly 35% less than the peak values witnessed in the late 1980s. Trends in biological trophic indicators for the Gulf of Alaska largely reflects the dynamics of arrowtooth flounder and walleye pollock. Diversity and species richness in the Gulf of Alaska show no trend, and apex predator biomass has been increasing (Bold and Zador 2009). Moreover, indicators of community structure in the Eastern Bering Sea (e.g. species richness, community size-sprectra) do not suggest that groundfish fisheries are having significant adverse effects but instead are more responsive changes in spatial distribution of stocks and environmental conditions (Mueter and Lauth 2009; Boldt *et al*. 2008).

To date there has been no direct and explicit attempt to test the hypothesis of removals of sablefish have caused changes in ecosystem structure, either through effects on habitats, non-target species, or by reducing sablefish density and thereby diminishing their role in ecosystem structuring and functioning. Still, there has also been no evidence of widespread ecological change caused by fishing, as has been documented elsewhere (Frank *et al*. 2006; Casini *et al*. 2008).

2.5.1 Trace References

Boldt, J. S., et al., 2008; Mueter, F. and Lauth, R., 2009; Aydin, K.S., et al., 2008; Yang, M-S and Nelson, M.W., 2000; Yang, M-S., et al., 2006; Gaichas, S.K. and Francis, R.C., 2008; Frank, K.T., et al., 2005; Casini, M., et al., 2008; Essington, T.E., 2009.

2.5.2
There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.

SG 60	SG 80	SG 100
There are measures in place, if necessary, that take into account potential impacts of the fishery on key elements of the ecosystem. The measures are considered likely to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/ ecosystems).	There is a partial strategy in place, if necessary, that takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance. The partial strategy is considered likely to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/ ecosystems). There is some evidence that the measures comprising the partial strategy are being implemented successfully	There is a strategy that consists of a plan, containing measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm. The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved. There is evidence that the measures are being implemented successfully.

Score: 100

2.5.2 Scoring Rationale:

The North Pacific Fisheries Management Council is one of the national leaders in implementing ecosystem-based management. The council's Fishery Management Plans specify a strategy to address, monitor and regulate ecosystem impacts of the fishery. This awareness of ecosystem-level constraints is evident in the decision to cap total ecosystem removals for the Eastern Bering Sea and Gulf of Alaska based on considerations of the maximum surplus production of these ecosystems (Mueter *et al*. 2009). Thus the first element of the SG 100 is met.

The fisheries management plan specifies ecosystem goals: Develop indices of ecosystem health as targets for management; Improve the procedure to adjust acceptable biological catch levels as necessary to account for uncertainty and ecosystem factors; Continue to protect the integrity of the food web through limits on harvest of forage species.; Incorporate ecosystem-based considerations into fishery management decisions, as appropriate (North Pacific Fisheries Management Council 2009). A central component of the plan to meet these goals is the "ecosystem considerations" chapter that accompanies the annual compilation of stock assessment documents (Boldt and Zador 2009). Here, relevant biophysical and ecological indicators are tracked. Stock assessments include specific consideration of ecosystem impacts of each fishery, and the annual catch limits (total allowable catch) are based on scientific advice that first estimates total allowable biological catch based on single-species perspectives that are then modified downwards to account for ecosystem considerations. This indicates that the second element of SG100 is met

Perhaps the most effective element that will act to prevent ecosystem impacts is a precautionary strategy to setting harvest levels: presently most stocks are well above their reference points, and only a small number of fisheries are part of overfishing rebuilding plan (e.g. king crab). Most groundfish, including sablefish, are either near or well above biomass levels that would produce maximum sustainable yield (Worm *et al*. 2009). Across all groundfish stocks, exploitation rates are between 10 and 13 % (Mueter 2009), and that groundfish biomass is

above the level that would produce total aggregate maximum sustainable yield (Mueter 2009). The measures enacted are likely to work, and there is evidence that the measures are succeeding.

2.5.2 Trace References

Mueter, F., 2009; Boldt, J. and Zador, S., 2009; Worm, B., et al., 2009.

2.5.3		
There is adequate knowledge of the impacts of the fishery on the ecosystem.		
SG 60	**SG 80**	**SG 100**
Information is adequate to identify the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity). Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.	Information is adequate to broadly understand the functions of the key elements of the ecosystem. Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but may not have been investigated in detail. The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known. Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred. Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated. The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are understood. Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred. Information is sufficient to support the development of strategies to manage ecosystem impacts.

Score: 95

2.5.3 Scoring Rationale:

Information on ecosystem structure and effects of sablefish fishing therein derives from data collected as part of Alaska Fisheries Science Center trawl and longline surveys, an extensive annual food habits collection program that dates to the 1980s, assessments for all main retained and discarded species, and monitoring of susceptible and vulnerable seabird populations. Moreover, there ongoing research has been synthesizing this information via quantitative modeling (Aydin *et al*. 2008; Gaichas and Francis 2008) and via comparative analyses (Gaichas *et al*. 2009, Link *et al*. 2009). Ecosystem indicators are tracked annually and reported in the Ecosystem

Considerations appendix of the Stock Assessment and Fishery Evaluation (SAFE) report (Boldt and Zador 2009).

Key limitations in the knowledge are the relatively imprecise estimates of total impacts to non-target species and their ecological roles. Effects of the fishery on biogenic structures are not precisely determined, and any secondary effects that this may induce are also not well known.

On the whole, there is a relatively high amount of information on the ecosystems in which this fishery operates and on the main impacts that the fishery might have. While we do not conclude that this information is perfect we view it to be sufficient to permit the identification of profound ecological effects of this fishery on the ecosystem.

2.5.3 Trace References
Boldt, J. and Zador, S. 2009; Link, J.S., et al., 2009; Gaichas, S., et al., 2009.

9.3 MSC Principle 3

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

3.1.1

The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:
- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;
- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and
- Incorporates an appropriate dispute resolution framework.

SG 60	SG 80	SG 100
The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2. The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system. Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the fishery. The management system or fishery is attempting to comply in a timely fashion with binding judicial decisions arising from any legal challenges. The management system has a mechanism to observe the legal rights created explicitly or	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective. The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges. The management system has a mechanism to formally commit to the legal rights created explicitly or

defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery. The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.

Score: 95

3.1.1 Scoring Rationale:

The Magnuson-Stevens Act[1] (MSA), in combination with the Marine Mammal Protection Act (MMPA),[2] the Endangered Species Act (ESA),[3] the Migratory Bird Treaty Act, National Environmental Policy Act (NEPA),[4] Administrative Procedures Act (APA),[5] and other treaties, laws, and policies govern the management system for the Alaskan sablefish fishery.[6] The US laws are fully consistent with and supportive of several international laws and agreements related to fisheries management.[7] The policies and practices based on these legal foundations constitute an appropriate and effective legal framework for delivering sustainable fisheries in accordance with MSC Principles 1 and 2.

[1] Public Law 94-265 as contained in 16 U.S.C. 38).

[2] The MMPA protects marine mammals by prohibiting take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

[3] The ESA conserves species that are in danger of extinction.

[4] NEPA requires Federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their major proposed actions.

[5] The APA insures that the public is kept informed of the organization, procedures, and rules of Federal agencies, provides for public participation, and prescribes uniform standards.

[6] Including the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, Coastal Zone Management Act, Fur Seal Act, and Fish and Wildlife Coordination Act.

[7] These include the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, an integral part of the FAO Code of Conduct for Responsible Fisheries (implemented in the US through the High Seas Fishing Compliance Act (16 U.S.C. 5501 *et seq.*), the UN Straddling and Highly Migratory Fish Stocks Agreement, the Convention on Biological Diversity, and the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, the basic instrument for the North Pacific Anadromous Fish Commission, which serves as a forum for promoting the conservation of anadromous stocks and ecologically-related species, including marine mammals, sea birds, and non-anadromous fish, in the high seas area of the North Pacific Ocean (Cialino 2010).

The management system resolves most disputes within its highly participatory, open, and transparent structure and processes. Section 302 of the MSA, and the APA, mandate the Regional Fishery Management Councils follow specific procedures for discussing and resolving disputes on fisheries policy. Dissatisfied parties affected by Council and NMFS decisions can appeal the decision to the Appeals Office in the NMFS Alaska Regional Office, which adjudicates appeals of initial administrative determinations made under the authority of 50 C.F.R. Part 679 and Part 680.[8] The jurisdiction of the Appeals Office's includes the Individual Fishing Quota (IFQ) Program for Pacific halibut and sablefish, the Western Alaska Community Development Program, and other management programs.

These dispute resolution mechanisms have proven to be effective at dealing with most issues, avoiding legal disputes, and are appropriate for the context of the sablefish fishery. In cases where the Council processes have not resolved disputes, the parties involved can and do, by law, resolve the disputes in the federal court system.[9] There is ample evidence (c.f. NAPA 2002) that the management system attempts to comply with binding judicial decisions; however, it is not clear whether and to what extent the system 'acts proactively to avoid legal disputes' as required by SG100.

The fishery management system explicitly recognizes and accounts for the rights of people dependent on marine fishing in the form of the Western Alaska Community Development Quota (CDQ) Program (as authorized and governed by the MSA as amended in 2006). First established in 1992, the CDQ Program receives annual allocations of quota for groundfish (including sablefish), halibut, crab, and prohibited species in the Bering Sea and Aleutian Islands Management Area to allow these communities to 'start and support regionally based, commercial seafood or other fisheries-related businesses' (Section 305(i)(1) of the MSA).[10]

The management system satisfies all of the elements for SG 80, and nearly all for SG 100. The management system, specifically NMFS, is reforming its institutional arrangements to reduce the burden of legal disputes and expedite the implementation of binding judicial decisions from legal challenges (NAPA 2005). Since there is no evidence that the system proactively acts to avoid legal disputes, this indicator gets a score of 95.

3.1.1 Trace References

Cialino, K. 2010; NRC, 1999; NAPA, 2002; NAPA, 2005.

3.1.2

The management system has effective consultation processes that are open to interested and affected parties.

The roles and responsibilities of organizations and individuals who are involved in the management process are clear and understood by all relevant parties.

[8] A chief administrative judge, one administrative judge, an appeals specialist and an administrative assistant staff the Appeals Office.

[9] NAPA (2002, 2005) provides an account and analysis of many of the legal disputes litigated in the federal court system.

[10] For more information on the CDQ program see NRC (1999) and the websites by the NPFMC (http://www.fakr.noaa.gov/npfmc/current_issues/CDQ/CDQ.htm), the NMFS Alaska Regional Office (http://www.fakr.noaa.gov/cdq/default.htm), and the Western Alaska Community Development Association (http://www.wacda.org/).

SG 60	SG 80	SG 100
Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction. The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained. The consultation process provides opportunity for all interested and affected parties to be involved.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used. The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.

Score: 90

3.1.2 Scoring Rationale:

The MSA (Section 302(g)) directs each Fishery Management Council to 'establish, maintain, and appoint members to committees and advisory panels'. The MSA specifies the roles and responsibilities of the individuals involved in the management process. The NPFMC consults with a variety of interested and affected parties through its committees, advisory panels, plan teams, and workgroups (NPFMC 2008). In response to Executive Order 13175, NMFS and the NPFMC have developed a formal framework for consultation and collaboration with Alaska Native representatives in the development of policies, legislation, regulations, and programs.[11] The FMPs for GOA and BSAI groundfish include the objective to increase Alaska Native consultation by collecting and incorporating local and traditional knowledge, and increase Alaska Native participation and consultation in fishery management.

The fishery management system for Alaska sablefish has effective consultative processes that are open to all parties, provides clear guidance to organizations and individuals involved in the management process (NPFMC 2008), with their roles and responsibilities explicitly defined for key areas of responsibility and interaction. The processes, which include regular meetings of the consultative groups and widely distributed documents, regularly seek and accept relevant information, including local knowledge. The system exhibits consideration of the information and explains how it is used, but not necessarily how it is not used.

The evidence indicates that the fishery management system satisfies all of the conditions for SG 80 and some of the conditions for SG 100. Therefore, this indicator receives a score of 95.

[11] Specific information on this effort is available on the NMFS Alaska Regional Office website on Tribal Consultation in Alaska (http://alaskafisheries.noaa.gov/tc/).

3.1.2 Trace References
NPFMC, 2008.

3.1.3		
The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.		
SG 60	**SG 80**	**SG 100**
Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy

Score: 100

3.1.3 Scoring Rationale:
The management system has clear long-term policy objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach. The MSA specifies the long-term objectives (especially National Standards 1, 8, 9) and establishes a formal set of processes for setting short-term objectives and management measures to achieve the long-term objectives.

The National Standards Guidelines (50 C.F.R. 600.310 et seq.) direct the authorities that develop and approve fishery management plans to apply the precautionary approach when setting control rules in a fishery. The Guidelines describe how to address uncertainty such that there is a low risk that limits are exceeded, and mandate that 'Control rules should be designed so that management actions become more conservative as biomass estimates, or other proxies, for a stock or stock complex decline and as science and management uncertainty increases' (50 CFR 600.310, National Standard 1). The policies, regulations and implementing guidelines explicitly mandate the application of the precautionary approach as defined and described by the international scientific community (FAO 1996).

The evidence indicates that the fishery management system clearly satisfies all of the elements for SG 100.

3.1.3 Trace References

FAO, 1996.

3.1.4		
The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.		
SG 60	**SG 80**	**SG 100**

The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.

Score: 100

3.1.4 Scoring Rationale:

The US fisheries management system provides economic and social incentives for sustainable fishing as part of fishery rationalization (for example, individual fishing quotas, catch shares, limited access) and cost-recovery programs. The NPFMC developed and approved an individual fishing quota (IFQ) program for the sablefish and halibut longline fisheries off Alaska that was implemented in 1995.

The evidence indicates that the incentives under the IFQ program are consistent with achieving the outcomes expressed by MSC Principles 1 and 2. According to Hanselman, *et al.* (2009a), the IFQ program has helped to increase the fishery's season length, decrease the harvest of immature fish and in turn improve the spawning potential of the stock, improve catching efficiency of sablefish, and reduces fishing costs. In addition, the number of active fishing vessels and hooks deployed has declined substantially since implementation of the IFQ program in 1995. Discards of undesired bycatch also declined in recent years.

The cost recovery program for the IFQ program ensures that fishing operations pay at least some of the costs of management and enforcement. The MSA (Section 304(d)(A)) requires that the NMFS cover the actual costs of managing and enforcing the Halibut and Sablefish IFQ program. The costs are the *incremental costs* of the program – the 'costs that would not have been incurred but for the IFQ Program. These costs amounted to $2.7 million in 2007 and $3.5 million in 2008. Approximately 2,400 IFQ permit holders pay a fee that can be no more than three percent of the annual ex-vessel value of the fish harvested under the program. Of the funds collected, 25% are deposited in the US Treasury and 75% are used only on IFQ program management and enforcement. The 2009 cost recovery fee was set at 1.6 percent of the 2009 ex-vessel value to cover the costs associated with management and enforcement of the IFQ Program in 2008. Two-thirds of the costs are attributed to NMFS Enforcement services, 11% to NMFS RAM, 9% to IPHC, with the balance (13%) scattered among five other sets of services. Personnel accounted for the largest component of costs at 73%, with the balance (27%) distributed almost evenly among five other categories (RAM, 2008).

In addition, the US implemented the National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries in 2001 that applies management measures to mitigate the incidental catch or bycatch and entanglement of seabirds. In Alaska, the fisheries management system has implemented measures to manage the ecological impacts of all hook-and-line fishing operations (including sablefish) in the GOA and BSAI. To minimize the take of seabirds, the use of seabird avoidance devices (tori lines) are required by hook-and-line fishing vessels in areas where seabird interactions occur.[12] According to the client (FVOA), tori lines are the only effective way to minimize seabird entanglement by hook-and-line fishing vessels. These measures have resulted in a significant decrease in seabird bycatch in recent years (Hanselman, *et al*. 2009a).

The annual SAFE reports for reviewing the sablefish fishery explicitly consider the effects of the IFQ program, many of which result from the incentives that are in place. The review also examines factors that may contribute to unsustainable fishing practices, flagging them for possible management action.

[12] See http://www.fakr.noaa.gov/protectedresources/seabirds/guide.htm for details on the Seabird Bycatch Reduction Program.

Although Alaska fisheries receive some subsidies (Sharp and Sumaila 2009) none appear to affect operations in the sablefish fishery.

It is not clear whether the US fisheries management system has a policy or program in place to ensure that subsidies and other negative incentives contribute to unsustainable fishing practices. The evidence indicates that the fishery management system satisfies all of the elements SG 100.

3.1.4 Trace References

Hanselman, et al., 2009a. Sharp, R. and Sumaila, U.R., 2009.

3.2.1		
The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
SG 60	**SG 80**	**SG 100**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery management system.	Short and long term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery management system.	Well defined and measurable short and long term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery management system.

Score: 100

3.2.1 Scoring Rationale:

Each of the management plans, the GOA and BSAI groundfish FMPs, set management policies for Alaska sablefish, and contain 46 short- and long-term objectives grouped into nine categories: (1) Prevent Overfishing; (2) Promote Sustainable Fisheries and Communities; (3) Preserve Food Web; (4) Manage Incidental Catch and Reduce By-Catch and Waste; (5) Avoid Impacts to Seabirds and Marine Mammals; (6) Reduce and Avoid Impacts to Habitat; (7) Promote Equitable and Efficient Use of Fishery Resources; (8) Increase Alaska Native Consultation; (9) Improve Data Quality, Monitoring and Enforcement.

These objectives are well-defined and measurable, consistent with achieving the outcomes expressed in MSC Principles 1 and 2, and are explicit within the fishery management system. The annual SAFE reports, and other assessments, provide measures of the extent to which the specific objectives are being achieved.

It seems clear from this evidence that the fishery management system satisfies all of the elements for SG 100.

3.2.1 Trace References

NPFMC, 2009b; NPFMC, 2009c.

3.2.2
The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.

SG 60	SG 80	SG 100
There are informal decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. Decision-making processes use the precautionary approach and are based on best available information. Explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. Formal reporting to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.

Score: 95

3.2.2 Scoring Rationale:

The NPFMC has established decision-making processes that result in measures and strategies to achieve specific objectives for the Alaska sablefish fishery. The Council decision-making processes, as specified in the MSA, and APA, have produced two fishery management plans for the sablefish fishery in the Gulf of Alaska and in the Bering Sea and Aleutian Islands. The plans contain a suite of management regulations to achieve the objectives.

The decision-making processes the NPFMC follows have a proven record of responding to serious and other important issues that are identified by research, monitoring, evaluation studies, and by consultation with stakeholders and other interested parties. The decision-making process relies heavily on the Council's Scientific and Statistical Committee, Advisory Panels, Plan Teams, Workgroups, and regular public hearings to identify issues of concern for fishery managers to address. All of these groups meet regularly and reports the serious and important issues to the Council for consideration in its decision-making deliberations.

As mandated by the MSA, and APA, the processes must be open and transparent, with supporting documents, minutes of meetings, and testimony published on the Council's website.

There are three key steps in the decision-making process that produces the management plans and regulations to achieve the objectives: First, the NPFMC develops a fishery management plan employing processes that proactively identify the issues and examines the implications of the proposed regulations may have beyond the fishery (other fisheries, the ecosystem, coastal communities, etc.). Second, the Secretary of Commerce evaluates the proposed plan, its wider implications, and whether it is consistent with all relevant laws. Third, NMFS, the US Coast Guard and their partners implement the provisions of the plan.

Adaptive management of fisheries and other natural resources is a well-established practice at all levels of government in the US. For marine resources, the President's Interagency Ocean Task Force produced several recommendations, since incorporated in Executive Order 13547, to apply ecosystem-based management and adaptive management to address ocean resource challenges (CEQ 2010). For marine fisheries specifically, the National Standards Guidelines for Standard 2 require that Fishery Management Councils amend FMPs 'as new information indicates the necessity for change in objectives or management measures' (Sec. 600.315(d)) and 'prepare and review annually a Stock Assessment and Fisheries Evaluation (SAFE) report for each fishery management plan' (Sec. 600.315(e)). SAFE reports contain information on the most recent condition of fish stocks, ecosystems, and the social and economic status of user groups.

The NPFMC follows the National Standards Guidelines (50 C.F.R. 600.310 et seq.) when developing fishery management measures. The Guidelines for National Standard 1 instruct the Council and NMFS to apply the precautionary approach when setting control rules in a fishery. The NPFMC also is subject to National Standard 2 of the MSA, which mandates that 'conservation and management measures shall be based on the best available scientific information' (50 CFR 600.315).

The Council and its committees, panels, teams and workgroups, often provide explanations for actions taken or not taken on findings and recommendations considered at their meetings. The explanations are in provided orally, in the form of minutes, and in the case of proposed management alternatives, in Environmental Assessments, Regulatory Impact Reviews, and Regulatory Flexibility Analyses. In addition, replies to comments submitted in connection with proposed regulations are published in the Federal Register. The NPFMC and NMFS Alaska Regional Office provide links to these documents on their websites.

This evidence demonstrates that the fishery-specific management system fully satisfies all of the elements for SG 80 and most, but not all, of the elements for SG 100.

3.2.2 Trace References

CEQ, 2010.

3.2.3		
Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.		
SG 60	**SG 80**	**SG 100**
Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective. Sanctions to deal with non-compliance exist and there is some evidence that they are applied. Fishers are generally thought to comply with the management system for the	A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence. Some evidence exists to demonstrate fishers comply with the management system under assessment, including,	A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules. Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence. There is a high degree of confidence that fishers comply with the management system under

fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	when required, providing information of importance to the effective management of the fishery. There is no evidence of systematic non-compliance.	assessment, including, providing information of importance to the effective management of the fishery. There is no evidence of systematic non-compliance.

Score: 85

3.2.3 Scoring Rationale:

Enforcement authorities operate a comprehensive monitoring, control and surveillance (MCS) system in the sablefish and other Alaska fisheries. The MSA charges two federal agencies with the authority to implement provisions of the Act: the National Marine Fisheries Service (NMFS) and the US Coast Guard. The Coast Guard enforces fisheries law and regulations at sea in conjunction with NOAA's Office of Law Enforcement and other federal, state, tribal, interstate and international organizations.[13] The State of Alaska Department of Public Safety (Wildlife Troopers, Marine Enforcement Section) also enforces federal regulations under the Magnuson-Stevens Fishery Conservation and Management Act and other laws[14] through a Joint Enforcement Agreement with NMFS (RAM 2009).

Ability to enforce management regulations

The Alaska Enforcement Division (AKD) of the NOAA Office of Law Enforcement (OLE), Alaska Wildlife Troopers (AWT) and the US Coast Guard (USCG) report the results of their MCS activities for the halibut and sablefish IFQ fisheries as a whole, since boarding and other inspections are 'intended to ensure compliance with all IFQ and IPHC regulations and do not focus on collecting species-specific data' (RAM 2009, p. 39).

The enforcement program for the Alaska fishery has clearly demonstrated the ability to enforce the fishery's management regulations. In 2009, for example, the AKD and AWT inspected 663 of the 7355 offloads of IFQ and CDQ landings of halibut and sablefish.[15] During the past 5 years, 10% of all offloads of IFQ and CDQ halibut and sablefish have been inspected (AKD 2010). The inspections by AKD and AWT in 2009 resulted in 41 IFQ sablefish violations or suspected violations (ADK 2009).

The USCG, which focuses its MCS efforts at-sea, reports the results of it IFQ enforcement at-sea cutter and air patrols. For the period 2005-2009, the USCG conducted an average of 155 cutter and patrol boat days and 984 air patrol hours (RAM 2009). The patrols produced in average of 172 at-sea boardings of IFQ fishing vessel. About 12 of the boardings involved violations or suspected violations (USCG 2010, Reichl 2009).

A serious shortcoming of the MCS program to date is the ability to monitor where sablefish fishing takes place with vessel monitoring systems or monitor bycatch and discards of seabirds and other protected species. This is due to change in the near future if the NPFMC approves an amendment that will require observers on hook-and-line sablefish fishing vessels (see Appendix I).

Sanctions and deterrence

[13] The Coast Guard and other enforcement authorities are also responsible for enforcing provisions of the MMPA, ESA, and international fisheries agreements.

[14] Other laws include the Endangered Species Act of 1973; the Lacey Act Amendments of 1981; and the Northern Pacific Halibut Act of 1982. Source: http://www.gov.state.ak.us/omb/11_omb/budget/PublicSafety/enacted/2011proj35825.pdf.

[15] An 'offload' is the removal of fish from a harvesting vessel to a specific buyer on a specific date and time.

Under the published policy for assessing civil penalties (GCEL 2010), there are three options available to an investigating agent for pursuing a violation of fisheries law and regulations. If a violation is not significant or is technical, the agent may issue a 'Fix-It Ticket' that allows the violator to correct the violation within a specified time period. For modestly significant violations, the agent may issue a 'Summary Settlement' notice, which allows the violator to pay a reduced penalty. Fix-It Ticket allowances and Summary settlement penalties follow the guidelines by developed and published by NOAA's Offices of Law Enforcement and of General Counsel.[16]

For violations that are significant[17], or for repeat violators, the agent refers the case to the NOAA General Counsel's Office for Enforcement and Litigation (GCEL) for further action. Penalty schedules, which specify the civil penalties for violations of federal fisheries regulations, have been developed for each region's fisheries.[18] The penalty schedule, Groundfish & Individual Fishing Quota Fisheries off The Coast of Alaska, contains sanctions for various violations of sablefish IFQ regulations. As an example, the possession or sale of 100 to 1,500 pounds of IFQ sablefish without an annual quota share carries a fine of $15,000 to $50,000, plus forfeiture or value of the illegal fish. For a person holding an IFQ overage during the final voyage of the year, carries a civil penalty ranging from $1 - $6 per pound, plus forfeiture of the entire catch overage or its value.

By law sanctions should be consistently applied, in other words, comparable sanctions should be issued for comparable violations. There is no evidence either way whether or not sanctions are consistently applied in the Alaska Region; however, no complaints of inconsistent or arbitrary treatment by enforcement authorities have come to our attention.

For US federal fisheries as a whole, a review of NOAA's fisheries enforcement program and operations found that fishers, particularly in the Northeast, perceive enforcement processes to be arbitrary and lack transparency, 'resulting in inconsistent penalties for similarly situated respondents' (OIG 2010). To overcome these concerns, NOAA recently issued a Draft Penalty Policy (GCEL 2010) for public comment.

Most observers of the fishery believe that the sanctions provide effective deterrence. Susan Auer, an attorney in the Alaska Regional General Counsel's Office, reported that there is very little recidivism – 'once charged, we don't see them again.' Also, the evidence on non-compliance supports this claim.[19]

Evidence on compliance;

The observers we interviewed (the client, enforcement authorities, managers, researchers) confidently report high levels of compliance in the Alaska sablefish fishery, and *some* evidence appears to confirm that sablefish fishers generally comply with management measures in the fishery.

The evidence on non-compliance in the fishery consists of the number of violations and civil penalty cases relative to the number of inspections and boardings. Over the past five years the AKD and AWT have annually inspected an average of almost 740 offloads of IFQ and CDQ halibut and sablefish, which resulted in an annual average of 527 individual civil penalty cases with a total of 770 violations, including 207 IFQ or CDQ violations. Two reports by AKD (2009, 2008) present a breakdown of the data on the numbers of cases with IFQ halibut and sablefish violations in 2008 and 2009. Of the average annual 655 total violations, 7% involved

[16] The Fix-IT Ticket and Summary Settlement Schedules are available at http://www.gc.noaa.gov/enforce-office3.html and at http://www.gc.noaa.gov/docs.html.

[17] The term 'significant' is related to the potential harm a violation may have on the resource (GCEL 2010).

[18] Available at http://www.gc.noaa.gov/enforce-office3.html.

[19] It should be noted, however, that King, et al. (2009) and Nordstrom, et al. (2006) criticize the effectiveness of the USCG fisheries enforcement program on a national scale.

IFQ sablefish.[20] Seven percent of the at-sea boardings of IFQ fishing vessels by the USCG detected violations over the period 2005-2009. As explained above, there is no breakdown among sablefish, halibut, and other types of violations. These 'apparent rates of non-compliance' suggest there are no serious concerns of widespread or systematic non-compliance in the Alaska sablefish fishery.[21]

Fishers providing information;

Regulations for the IFQ sablefish fishery require that fishers maintain logbooks and regularly report their catches, landings, and other measures of fishing activity to NMFS. There is generally widespread compliance with the logbook requirement, with only a few violations of the requirement every year (AKD 2009).

In sum, there is ample evidence that the MCS program satisfies all of the conditions for SG80 and, to a more limited extent, some of the conditions for SG 100. The score of 85 may be improved with the implementation of an improved observer program (see Appendix I), by more comprehensive analysis of data currently collected by enforcement authorities, and strategically allocating MCS resources to test and measure the program's ability to produce deterrence and compliance.

3.2.3 Trace References

AKD, 2008; AKD, 2010; GCEL, 2010; King, D., et al., 2009; Nordstrom, K.J., et al., 2006; RAM, 2009; Reichl, R., 2009; Sutinen, J.G., et al., 1990; USCG, 2010.

3.2.4		
The fishery has a research plan that addresses the information needs of management.		
SG 60	**SG 80**	**SG 100**
Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2. Research results are available to interested parties.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research results are disseminated to all interested parties in a timely fashion.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.

Score: 90

3.2.4 Scoring Rationale:

The Alaska Fisheries Science Center of NMFS operates an active research program on sablefish and related issues, such as seabirds bycatch by longline fishing vessels. Much of this research forms the basis for the annual SAFE reports on the sablefish fishery. Much of the research conducted on sablefish and other species is guided by the research priorities (NPFMC 2010c) promulgated by the NPFMC (which are

[20] IFQ halibut constituted 23%, charter halibut 3%, sport halibut 2%, and subsistence halibut 3%. Most of the violations (47%) involved violations of the GOA or BSAI groundfish regulations.

[21] Unfortunately, the apparent rates of non-compliance used by enforcement authorities are not recognized as reliable measures of illegal behavior in fisheries (see King, et al. 2009; Nordstrom, et al. 2006, Sutinen, et al. 1990).

required by the MSA).[22] The results of the research are timely in that they regularly feed into preparation of annual SAFE and other management reports, and they are widely disseminated on websites of the NPFMC, NMFS, and the Alaska Fisheries Science Center (http://www.afsc.noaa.gov).

In addition, a complementary research program is operated by the North Pacific Research Board. Established by Congress in 1997, the NPRB organizes and funds research to improve the understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems and thereby support effective management and sustainable use of marine resources in the region.[23] The results of the NPRB-funded research also support management decision-making by the NPFMC and NMFS.

The evidence indicates that the fishery management system satisfies all of the conditions for SG 80 and most of the conditions for SG 100. There is some question whether the research plan is sufficiently 'comprehensive', which, needless to say, is a value judgment.

3.2.4 Trace References

NPFMC, 2010c.

3.2.5		
There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.		
SG 60	**SG 80**	**SG 100**
The fishery has in place mechanisms to evaluate some parts of the management system and is subject to occasional internal review.	The fishery has in place mechanisms to evaluate key parts of the management system and is subject to regular internal and occasional external review.	The fishery has in place mechanisms to evaluate all parts of the management system and is subject to regular internal and external review.

Score: 95

3.2.5 Scoring Rationale:

The NPFMC revised its groundfish management policy in 2004 after a review of its management program. The policy is explained in Chapter 2 of the GOA and BSAI groundfish FMPs, which include sablefish long-line fishing. The policy involves 45 objectives grouped into major goals. The status of the work plan is updated and evaluated at each Council meeting.[24] Key parts of the sablefish management system are reviewed and evaluated on a regular basis. These are considered both internal and external since the review and evaluation is conducted at Council meetings, which are open and transparent, and involve numerous external participants. It is not clear to the assessment team, however, that *all* parts of the system are reviewed and evaluated. Therefore, we conclude that the fishery management system nearly satisfies the conditions for SG 100 and score this indicator at 95.

[22] Details on the research program are available at http://www.afsc.noaa.gov/abl/MESA/mesa_sa_sable.php.

[23] The science plan and other related information on the NPRB is available at http://www.nprb.org/about/foundation.html.

[24] The February 2010 status report is available at http://www.fakr.noaa.gov/npfmc/Tasking.htm

3.2.5 Trace References

NPFMC, 2010d.

10. CERTIFICATION RECOMMENDATIONS AND PERFORMANCE SCORES

The fishery achieved a normalized score of 80 or above on each of the three MSC Principles independently: Principle 1 – 87.5, Principle 2 – 88.7, Principle 3 – 94.8

In fact, no Performance Indicator fell below the Scoring Guidepost of 80. There are therefore no conditions placed on this fishery.

Table 5. Performance Indicator & Principle Scores

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle		Score	Contribution to Principle Score
One	1	Outcome	0.5	1.1.1	Stock status	0.5	0.25	0.333	90	22.50
				1.1.2	Reference points	0.5	0.25	0.333	80	20.00
				1.1.3	Stock rebuilding			0.333	na	
		Management	0.5	1.2.1	Harvest strategy	0.25	0.125		85	10.63
				1.2.2	Harvest control rules & tools	0.25	0.125		90	11.25
				1.2.3	Information & monitoring	0.25	0.125		90	11.25
				1.2.4	Assessment of stock status	0.25	0.125		95	11.88
Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667		90	6.00
				2.1.2	Management	0.333	0.0667		90	6.00
				2.1.3	Information	0.333	0.0667		90	6.00
		Bycatch species	0.2	2.2.1	Outcome	0.333	0.0667		90	6.00
				2.2.2	Management	0.333	0.0667		90	6.00
				2.2.3	Information	0.333	0.0667		80	5.67
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667		80	5.33
				2.3.2	Management	0.333	0.0667		90	6.00
				2.3.3	Information	0.333	0.0667		85	5.67
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667		85	5.67
				2.4.2	Management	0.333	0.0667		90	6.00
				2.4.3	Information	0.333	0.0667		80	5.33
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667		95	6.33
				2.5.2	Management	0.333	0.0667		100	6.67
				2.5.3	Information	0.333	0.0667		95	6.33
Three	1	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125		95	11.88
				3.1.2	Consultation, roles & responsibilities	0.25	0.125		95	11.88
				3.1.3	Long term objectives	0.25	0.125		100	12.50
				3.1.4	Incentives for sustainable fishing	0.25	0.125		100	12.50
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1		100	10.00
				3.2.2	Decision making processes	0.2	0.1		95	9.50
				3.2.3	Compliance & enforcement	0.2	0.1		85	8.50
				3.2.4	Research plan	0.2	0.1		90	9.00
				3.2.5	Management performance evaluation	0.2	0.1		90	9.00

Overall weighted Principle-level scores		
Principle 1 - Target species	Stock rebuilding PI1.1.3 not scored	87.5
Principle 2 – Ecosystem		89.0
Principle 3 - Management		94.8

11. ACTION PLAN FOR MEETING CONDITIONS

Because no Performance Indicator fell below the Scoring Guidepost of 80 for the entire assessment, there are no conditions for the client to meet with an action plan.

12. PEER REVIEW, PUBLIC COMMENT AND OBJECTIONS

A peer review has been conducted by two peer reviewers. Their comments and the response to the comments by the team can be found in Appendix II. As required, scientists nominated as peer reviewers for this report are posted on the MSC web site for stakeholder comment. After the final report with the certification decision was published on the MSC website, stakeholders were informed of their right to file an objection to the certification decision. The objection period was for a duration no less than 15 working days. No objections were received and the fishery was able to be re-certified to the MSC standard of a sustainable fishery.

This report was reviewed by:

Dr. Terrance J. Quinn II, University of Alaska Fairbanks
Terrance J. Quinn II has been a professor at the University of Alaska Fairbanks since 1985. His main fields of expertise include estimation of abundance of fish and marine mammal populations, fisheries stock assessment methods, quantitative ecology, and harvest strategies for sustainable fisheries. He is the co-author or co-editor of 4 books and about 100 scientific publications. He has been a member of the Statistical and Scientific Committee of the NPFMC since 1986 and a former chair of that body. He is a former member of the Ocean Studies Board of the National Academy of Sciences and served on five of their committees, including two as chair or co-chair. He is an Associate Editor of the Canadian Journal of Fisheries and Aquatic Sciences.

Dr. Patrick Sullivan, Cornell University
Dr. Patrick Sullivan is an associate professor of quantitative population and community dynamics at the department of natural resources at Cornell University in Ithaca, New York. As a researcher, his objective is to seek a new level of understanding about what drives the spatial and temporal dynamics of natural populations and how they respond to anthropogenic influences. He focuses on assessing changes in population abundance in association with ecosystem and sampling variability. He was the population dynamicist for the International Pacific Halibut Commission for the years 1988-1998 before joining the faculty in Natural Resources at Cornell University. He is currently on the Scientific and Statistical Committee that advises the New England Fisheries Management Council. He is also on the steering committee for the Center for Independent Experts that oversees the peer reviews of NMFS and other agencies' assessments of managed fisheries populations. He has provided external peer reviews for fisheries agencies in Iceland, New Zealand, Australia, Canada and Japan.

13. MSC LOGO LICENSING RESPONSIBILITIES

As the "applicant" for certification of the fishery, Fishing Vessel Owners Association (FVOA) and the associated affiliate Eat on the Wildside are the only entities that have the right to apply for a license to use the MSC logo. It is also the case that FVOA and Eat on the Wildside have the right to approve the use of the logo for other quota holders in the fishery at its discretion and by a means that is considered fair and equitable (based on MSC requirements). The MSC as the logo license owner has the sole right and responsibility to review and enforce its requirements with regard to the fair and equitable sharing of access to the fishery certificate. SCS as the certification body does not have any obligations to review, approve, or enforce the MSC requirements in this regard but will verify that the logo licensing agreement is in place during surveillance audits.

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APPENDIX I – COUNCIL FINAL MOTION ON OBSERVER RESTRUCTURING – BSAI AMDT 86 & GOA AMDT 76

North Pacific Fishery Management Council

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October 25, 2010

Mr. Stan Rhodes
Scientific Certification Systems
Watergate Office Towers, Suite 725
2200 Powell Street
Emeryville, CA 94608

Dear Mr. Rhodes:

I have been requested to apprise you of the status of the North Pacific Fishery Management Council's efforts at restructuring the groundfish observer program, as it relates to potential inclusion of the halibut/sablefish fisheries. Previous certifications of these fisheries noted the lack of observer coverage in these fisheries, and I understand they are now in the process of additional review for certification. At its recent October meeting, the Council approved a restructuring of the program which would levy a fee on exvessel value of all groundfish landed in federal waters, as well as all halibut landed by the longline fishery off Alaska. Importantly, the program would also allow for placement of fisheries observers, and/or electronic monitoring devices, on portions of the halibut fleet. Due to requirements for start-up funding of this program, full implementation of the program is anticipated in year 2013. The full Council motion is attached for your reference. We hope this information is useful to you in your certification review of these fisheries.

Sincerely,

Chris Oliver
Executive Director

CC: James Hekkers, Monterey Bay Aquarium
Robert Alverson, Fishing Vessel Owner's Association

Council Final Motion on Observer Restructuring

BSAI Amendment 86/GOA Amendment 76
October 8, 2010

The Council adopts Alternative 3, the "coverage-based" restructuring alternative as its preferred alternative, with the following components that include a modified version of Option 2:

Two tier system for general coverage categories: All vessels and processors in the groundfish and halibut fisheries off Alaska would be placed into one of two observer coverage categories. These categories would be established in regulation:

1. the "greater than or equal to 100%" (≥100%) coverage category, and
2. the "less than 100 percent" (<100%) coverage category.

Vessels and processors in the ≥100% coverage category would not be included under the ex-vessel fee-based program and would continue to obtain observers by contracting directly with observer providers ("status quo").

Vessels and processors that would be placed in the ≥100% include:

1. all catcher/processors and motherships participating in the groundfish and halibut fisheries,
2. all catcher vessels while fishing under a management system that uses prohibited species caps in conjunction with a catch share program, and
3. all shoreside and floating processors when taking deliveries of AFA or CDQ pollock.

100% coverage would not be mandated for vessels <60' with a history of CP and CV activity in a single year or any catcher processor vessel with an average daily production of less than 5,000 pounds[1], in the most recent full calendar year of operation prior to January 1, 2010. These vessels would make a one-time election as to whether they will be in the <100% coverage and ex-vessel based fee structure or the ≥100% coverage and (status quo) fee structure category.

All other catcher vessel landings in the groundfish and halibut fisheries, and processors taking deliveries of this catch, would fall into the <100% coverage category. Observer coverage for vessels and processors in the <100% coverage category would be managed under an ex-vessel fee based observer service delivery model with the following features:

Basis of the fee assessment: A fee would be assessed on the ex-vessel value of the landed catch weight of groundfish and halibut. The landed catch weight would be the weight equivalents used to debit quotas (e.g., round weight for groundfish and headed and gutted net weight for halibut) which are reported on the processor's or registered buyer's landing report submitted to NMFS.

Ex-vessel value fee percentage of 1.25%: The fee percentage would be set in regulation at 1.25% of the ex-vessel value of groundfish and halibut. The fee percentage will be reviewed annually by the Council after the second year of the program (see Option 2 annual reports, below).

Selection of vessels and processors for observer coverage: The selection of vessels and processors that must carry an observer under the restructured program would be determined through a sampling and deployment plan. Observer coverage rates (trips or vessels) would not be in regulation.

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[1]Staff note: The 5,000 pounds would be calculated as the round weight equivalent. The Council clarified that this would be calculated by dividing total annual production by the number of days of processing activity.

Standard ex-vessel prices to apply to (non-IFQ) groundfish landings to determine the ex-vessel value based fee liability would be based on standardized ex-vessel nominal prices calculated using data derived from COAR using the methodology developed by the CFEC for their gross earnings estimates.

Standard ex-vessel prices would be established for groundfish by species, port of landing, and gear. Three gear type categories would be established: pelagic trawl gear, non-pelagic trawl gear, and fixed gear (everything else besides trawl gear). Because of data confidentiality issues, standardized price data must be aggregated if there are fewer than 3 entities in a price category.

A 3-year rolling average would be used to calculate the standard ex-vessel prices for groundfish (excluding fixed gear IFQ/CDQ sablefish).

Standard annual ex-vessel prices for halibut and sablefish IFQ and CDQ: The most recent available standard annual ex-vessel price for IFQ halibut and IFQ sablefish developed for the IFQ cost recovery program would be applied to landings by:

- catcher vessels in the <100% observer coverage category of halibut IFQ,
- halibut CDQ,
- sablefish IFQ, and
- sablefish that accrues against the fixed gear sablefish CDQ allocation.

This standard ex-vessel price is established annually by port or port group from registered buyer reports.

How to define a catcher/processor: The determination of whether a vessel is a catcher/processor or a catcher vessel for assignment to an observer coverage category would be based on the designation that is on that vessel's Federal Fisheries Permit (FFP). Once established prior to the beginning of each fishing year, the designation as a catcher/processor or catcher vessel determines the vessel operation category assignment within the restructured observer program sampling and deployment plan for the calendar year. A different approach would be used for vessels that are included in the program, but not required to obtain an FFP. The appropriate approach would be determined during development of the proposed rule

<u>The following exclusions would be made</u>:

State water GHL and state-managed fisheries: Vessels participating in GHL groundfish fisheries and other state managed non-groundfish fisheries (e.g., lingcod) would be excluded from Federal observer coverage requirements, but non-GHL groundfish incidentally caught in the State GHL and other non groundfish managed fisheries that are landed by vessels with FFPs would be subject to the fee assessment.

Vessels with an FFP fishing in the State of Alaska parallel groundfish fisheries would be subject to the Federal observer coverage requirements and the ex-vessel fee assessment.

Catcher vessels delivering unsorted cod ends to a mothership: As is the case under status quo, observers would not be required on catcher vessels delivering groundfish in unsorted codends to a mothership. Because all motherships are in the ≥100% observer coverage category, no fee would be assessed on these groundfish landings, and observer coverage of the catch would occur on the mothership under the status quo system of observer coverage requirements.

Landings from catcher vessels in the <100% coverage category that deliver groundfish or halibut catch that is retrieved onboard the catcher vessel before delivery to the mothership ("sorted catch") would be subject to the fee assessment and observer coverage under the restructured program.

Start-up funding: Funds must be collected prior to deployment of observers under the restructured portion of the program to initiate contracts for observer deployment. Alternative 3 is expected to provide start-up funding in one year. During the start-up period ("year-0"), vessels and processors subject to the 1.25% fee assessment would continue to pay for current observer coverage requirements. Processors would be billed at the end of the year. Vessels and processors will only be required to pay the difference between the fee assessment and the actual year-0 observer costs under the status quo deployment model.

Federal funding for start-up costs: The Alaska Region NMFS will continue to seek federal funding for start-up costs of implementation of the restructured observer program. If federal funding is available, it would be used towards the initial deployment of observers under a restructured program.

Modified Option 2: Annual Report and Review of the Sampling and Deployment Plan and the 1.25% fee assessment:

The following statement replaces the existing language for Option 2:

NMFS will release an observer report by September 1 of each year. The report will contain the proposed stratum and coverage rates for the deployment of observers in the following calendar year, as well as a detailed financial spreadsheet by budget category on the financial aspects of the program. The Council may request its Observer Advisory Committee, Groundfish Plan Teams and/or the SSC to review and comment on this draft plan. NMFS will consult with the Council each year on the draft plan for the upcoming year, at a meeting of the Council's choosing that provides sufficient time for Council review and input to NMFS.

NMFS also would prepare an annual report on the observer program for presentation to the Council each year, including information on how industry participants have adapted to and been able to accommodate the new program. As part of this annual report, the 1.25% fee percentage would be reviewed by the Council after completion of the second year of observer deployment in the restructured program. The Council could revise the fee assessment percentage in the future through rulemaking after it had an opportunity to evaluate program revenues and costs, observer coverage levels, fishery management objectives, and future sampling and observer deployment plans. This report would be provided to the Council at the same time the annual deployment plan is being provided.

Development of regulations (deeming):

The Council requests to see the draft proposed regulations prior to their submission to the Secretary of Commerce.

Program review:

The Council approved a review of the observer program, to begin five years after implementation (i.e., first year of deployment is year one), to assess whether the goals and objectives of the problem statement to restructure the observer program have been achieved.

APPENDIX II – PEER REVIEW COMMENTS

In accordance with the FCM v6.1 section 3.8.2, peer reviews are unattributed

Overall Opinion of the Report		
	Peer Reviewer 1	**Peer Reviewer 2**
Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report? (Yes/No)	Yes	Yes
Peer Reviewer Justification	Yes, the fishery seems to be in good condition and well managed.	The assessment team provided clear rationale for their ratings. The assessment appeared to me to be objective and thoughtful for the most part.
Certification Body Response		
Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? (Yes/No)	NA	NA
Peer Reviewer Justification	No conditions were raised	There were no conditions
Certification Body Response	NA	

Client Action Plan Comments

Client Action Plan Comments (if included)		
	Peer Reviewer 1	**Peer Reviewer 2**
Do you think the client action plan is sufficient to close the conditions raised? (Y/N)	NA	NA
Peer Reviewer Justification	No action plan needed as no conditions were raised.	No Action Plan was necessary.
Certification Body Response	NA	

Peer Reviewers General Comments

Peer Reviewer General Comments (optional)	
Peer Reviewer 1	**Peer Reviewer 2**
The assessment report is clear, well written and scientifically sound. However, I have a couple of general comments that should be pursued: 1) Page 52 has a line which states "ADD information on cost-recovery program", so something appears to be missing here. 2) I noticed that nearly the same wording was	I did not find a single topic in which relevant information was not used. There were no conditions recommended, so the third column was uniformly N/A. Where I have disagreed with the rationale of the assessment authors, I recognize that my evaluation is necessarily subjective, because all of the criteria involve qualitative judgments about probabilities

used for the ecosystem sections (2.5, particularly 2.5.2 and 2.5.3) in the halibut report as the fisheries are nearly identical and under more or less the same management protocols governing ecosystem impact. Yet, the halibut assessment received lower scores. Perhaps not enough to make a difference, but lower nevertheless. Perhaps the score is lower because of the uncertainty associated with bycatch. If that is the case, then this should be identified in this section. Otherwise, I suggest they might be given a more consistent score.	(e.g., highly unlikely versus unlikely).
Certifying Body Response	
PR1,1: The missing text has been added on page 52. PR1,2: Changes were made to the halibut assessment report based on comment (2).	

Peer Reviewers Comments Related to Scores and Rationales

Principle 1

Performance Indicator 1.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	No spawner-recruitment relationship available.	It was not clear to me how the absence of a spawner-recruit relationship makes it difficult to quantify recruitment. The use of constant recruitment over a time regime actually is a type of spawner-recruit relationship. I would have scored this slightly higher.
Certification Body Response	The score was not changed because without a stock recruitment relationship, you cannot define the spawning biomass level at which recruitment would be impaired. Under the constant recruitment model, average recruitment is maintained even if the stock goes extinct.	

Performance Indicator 1.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Reference points might still be found without a SR relationship.	The authors use standard reference points commonly used in well-managed fisheries and have both target and limit reference points that take uncertainty into account. I would have scored this much higher.
Certification Body Response	The score was not changed here because proxy measures are assumed to represent reasonable reference points. The second paragraph of the rationale alludes to these reasons. In other words, it is possible that estimates of B_{MSY} could be greater than B_{40}, but we cannot know this unless there are estimates of stock productivity (S_R curve).	

Performance Indicator 1.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	NA
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	NA
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Stock does not need rebuilding	The stock is not depleted
Certification Body Response	NA	

Performance Indicator 1.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this	Yes	Yes

indicator? (yes/no)		
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Robust harvest strategy in place	A management strategy evaluation (MSE) would be valuable to determine if the harvest strategy is robust and precautionary.
Certification Body Response	NA	

Performance Indicator 1.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Harvest control rules in place	The MSE would be the appropriate place to determine the sensitivity of the harvest strategy to natural mortality. The lack of a spawner-recruit relationship is again mentioned in the rationale. It seems that this point is being used in too many categories
Certification Body Response	The lack of a spawner-recruit relationship is discussed in the rationales because it is analogous to resilience, or productivity of the stock at low stock sizes.	

Performance Indicator 1.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given	Yes	No

score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information for harvest strategy available.	The rating seems low given the vast amount of information that has been and is collected.
Certification Body Response	The score has been raised to 90 from 85 and a sentence added about uncertainty in the robustness of the state and federal management procedures.	

Performance Indicator 1.2.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Population is adequately assessed.	The assessment mentions only the CIE review but there is annual internal and external review of the assessment by the Gulf of Alaska and Bering Sea Plan Teams and by the Statistical and Scientific Committees of the North Pacific Fishery Management Council. Unlike many parts of the country, the sablefish assessment is done annually (as are most NPFMC assessments).
Certification Body Response	The score has been adjusted from 90 to 95 to reflect the annual external reviews by the SSC and the Gulf of Alaska and Bering Sea Plan Teams	

Principle 2

Performance Indicator 2.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes

Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Fishery not a risk to retained species	I agree that limitations in the observer program raise concerns about the amount of uncertainty in bycatch. I also agree that because most retained bycatch comes from managed stocks with assessment information that catches are likely to be within accepted limits. The assessment authors provide a detailed examination of bycatch by individual species.
Certification Body Response	NA	

Performance Indicator 2.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Management of retained species ok.	The assessment authors list 5 elements of the strategy to avoid risk to retained species. I also agree that most of the SG100 elements are met.
Certification Body Response	NA	

Performance Indicator 2.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this	Yes	Yes

indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information on risk to retained species available	The assessment authors describe in detail the information available on bycatch of other species, including fish and seabirds and on bait caught by direct fishing. Also described is the rationale for why this information suggests that these species are being harmed or their recovery is hindered.
Certification Body Response	NA	

Performance Indicator 2.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Risk associated with bycatch low.	The assessment authors describe in detail the information available on bycatch of other species, including fish and seabirds and on bait caught by direct fishing. Also described is the rationale for why this information suggests that these species are being harmed or their recovery is hindered.
Certification Body Response	NA	

Performance Indicator 2.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this	Yes	Yes

indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information on bycatch adequate	The assessment authors give a detailed breakdown about what strategies are being used for different groups. They correctly conclude there is a partial strategy for some groups and a complete one for others.
Certification Body Response	NA	

Performance Indicator 2.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Risk low for ETP species	The assessment authors give a strong rationale for how limitations in the observer program lead to uncertainty in bycatch estimates. Even though the assessment authors mentioned that NPFMC has approved changes to the observer program to correct many of these limitations, they did not adjust the rating upward. This is apparently due to the fact that the program will not be implemented until 2013 or later.
Certification Body Response	Response to reviewer 2: The reviewer is correct that the scores were not adjusted upwards because the program has not yet been implemented	

Performance Indicator 2.3.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information	Yes	Yes

available been used to score this indicator? (yes/no)		
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Risk low for ETP species	The assessment authors describe the status of the short-tailed albatross, the only species that is adversely affected by the sablefish fishery. The last two sentences in the last paragraph do not make sense. The sentences state that albatross recovery is being prevented and that smaller takes would limit recovery, which I believe is the opposite of what is intended. The limitations in the observer program are apparently responsible for the low score of 80. I doubt this is true. If it were more common, then it would be observed on sablefish vessels with observers.
Certification Body Response	We have reworded for clarity.	

Performance Indicator 2.3.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Management strategies for ETP species ok	This concise statement of the comprehensive strategy and higher score seem at odds with the low score in 2.3.1.
Certification Body Response	We scored an 80 in 2.3.1 with the belief that outcome status is not	

	precisely determined because fleet only has 30% observer coverage, while for 2.3.2 we are scoring the implementation of the a strategy to reduce fishery effects.

Performance Indicator 2.3.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information collected on ETP species ok	A score of 100 would only be possible if every longline set of every vessel were observed, an impossibility
Certification Body Response	100 coverage of trips would be sufficient to meet SG 100, even if some sets were not observed. The worry is that location of trips is different when observers are on board, and because less than one-half of trips are observed the data may not be representative.	

Performance Indicator 2.4.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Little harm to habitat structure	The assessment authors describe in detail the current knowledge and investigations that have been done to assess habitat effects. They correctly point out that further work is needed, particularly in model validation. I agree with the main conclusion, which is the

		fishery is highly unlikely to cause serious harm.
Certification Body Response	NA	

Performance Indicator 2.4.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Strategy in place to protect habitat	I agree that there is not yet sufficient information to evaluate whether current management measures are sufficient to limit harm to habitat.
Certification Body Response	NA	

Performance Indicator 2.4.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information available on risk to habitat	This is another case where SG100 is practically impossible to achieve. Determining the fine-scale distribution of habitat and its changes through time would cost millions of dollars and an impossible amount of field effort. I doubt that knowing the exact location of harvesters through VMS would create useful knowledge about fine-scale habitat

		effects. However, the rating is reasonable given the way the criteria are stated.
Certification Body Response	No change needed, though agree that the SG 100 bar is very difficult to achieve for habitat impacts because so little information is available. This is probably true for most fisheries.	

Performance Indicator 2.5.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Little to no harm to ecosystem	The assessment authors provide a strong rationale for the likely lack of an impact on ecosystem structure. There is evidence from biological studies, modeling, and data synthesis that supports this conclusion.
Certification Body Response	NA	

Performance Indicator 2.5.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Strategy in place to protect ecosystem	I agree that NPFMC is one of the leaders in implementing ecosystem-based fisheries management (EBFM). The assessment authors list several

		elements of the strategy used for EBFM, including conservative harvest levels, closed areas to help a variety of species, limited entry to avoid a race to fish, and ecosystem assessments.
Certification Body Response	NA	

Performance Indicator 2.5.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Information available on risk to ecosystem	The assessment authors concisely describe the large amount of information collected to investigate ecosystem effects
Certification Body Response	NA	

Principle 3

Performance Indicator 3.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Legal framework is sound	The assessment authors provide a detailed summary of which laws are used in the management system and how the system is participatory, open, and transparent. It describes how the

		management system helps the communities of Western Alaska through CDQ allocations. NPFMC has been hailed as one of the best fishery management councils in the nation.
Certification Body Response	NA	

Performance Indicator 3.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Process open and transparent	I agree that NPFMC has an effective consultative process. The Council and its two primary committees, the Advisory Panel and the Statistical and Scientific Committee, meeting concurrently at least 5 times a year and all three have provisions for public testimony. Letters and emails are encouraged and their website stores vast amounts of information about the process. Documents are produced regularly describing the Council's operations and issues being considered. A variety of other committees, teams, and workgroups are routinely formed when particular issues need more in-depth treatment.
Certification Body Response	NA	

Performance Indicator 3.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or	Yes	Yes

rationale used to score this indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Clear longterm objectives	See section 3.2.5 for additional information about the explicit management objectives developed and used by the Council. I agree that the management policy has clear long-term objectives that it incorporates the precautionary approach.
Certification Body Response	NA	

Performance Indicator 3.1.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Incentives and subsidies appear ok, however, there seems to be some information missing on page 52.	Given that the fishery is an ITQ system and gets no subsidies, I do not understand the stataement that it is not clear whether there is "a policy or program in place to ensure that subsidies and other negative incentives contribute to unsustainable fishing practices." First, fishing practices are not unsustainable and second, it is unclear what subsidies and negative incentives are present. I don't know of any.
Certification Body Response	Information on the cost recovery program has been added. I agree with Reviewer 2 and have revised the score to 100 and the text on this PI.	

Performance Indicator 3.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Aren't the fisheries objectives to catch fish and make a profit? Not sure how this differs from management objectives evaluated previously.	The objectives are concisely summarized and are clearly explicit.
Certification Body Response	NA	

Performance Indicator 3.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Decision making process ok	The decision-making process is well described. There is no explanation given of which aspects of decision-making do not meet SG100.
Certification Body Response	The available evidence does not show whether the decision making process fulfills the second scoring guidepost, which states: "Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions." However, the score has been raised to 95 from 90 on this PI.	

Performance Indicator 3.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Management measures appear enforceable	Given the comprehensive monitoring and enforcement program that is in place, the score seems somewhat low.
Certification Body Response	As explained in the last paragraph of the rationale, a higher score requires 'implementation of an improved observer program (see Appendix I), by more comprehensive analysis of data currently collected by enforcement authorities, and strategically allocating MCS resources to test and measure the program's ability to produce deterrence and compliance.'	

Performance Indicator 3.2.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	No
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Research plan in place. Not sure what comprehensive means.	Not mentioned here is that there is a North Pacific Research Board that uses the Council's Research Priorities in formulating Requests for Research Proposals (RFP) each year. Within the RFP is a complementary research program.
Certification Body Response	According to the MSC guidance on scoring this PI, a 'comprehensive research plan, in the context of SG100, refers to research that goes beyond the immediate short term needs of management to create a strategic body of research relevant to the long term management needs of the fishery.' There is no practical means of measuring the extent to which research is going beyond immediate short term need, etc. We have done so subjectively. Instead of 90, should the score be closer to 100, closer to 80?	

	We believe the score lies somewhere in between and have merely split the difference. The text has been revised to include mention of the NPRB.

Performance Indicator 3.2.5		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Consequences of management monitored and evaluated	For the fisheries to operate, environmental assessments and impact statements are required under NEPA. Thus the environmental aspects are reviewed annually. The Council also routinely reviews various programs and produces plan and regulatory amendments to address new problems that arise.
Certification Body Response	NA	

Any Other Comments (optional)		
	Peer Reviewer 1	**Peer Reviewer 2**
	None	None
Certification Body Response	NA	

APPENDIX III – PUBLIC COMMENTS

No public comments were received on this report.

APPENDIX IV: LIST OF CURRENT ACTIVE MEMBERS OF THE FISHING VESSEL OWNER`S ASSOCIATION

Vessel Name	*First Name*	*Last Name*
Aleutian Isle	Jim	Bodding
Allstar	Chris	Johnson
Alrita	Bill	Curtain
Alrita	Dave	Hedrick
Alrita	Rich	Wheeler
Alrita	Scott	Raphael
Angelique	Joe	Smatlan
Angelique	Dave	Clark
Arrow	David	Kelly
Augustine	Paul	Clampitt
Augustine	Dave	Olsen
Ballyhoo	Leonard	Herzog
Cormorant Isle	Laureen	Knutsen
Cormorant Isle	Donald	Knutsen
Cormorant Isle	Daryl	Knutsen
Evening Star	Arne	Lee
Falcon	Dwight	Riederer
Grant	Jack	Knutsen
Judi B	Nick	Delaney
Keltie	Arnold	Jardstrom
Kristiana	John	Crowley
Kristiana	Michael	Offerman
Lorelei II	Eric	Olsen
Martin	Rick	Gillman
Memories	Dave	Ericksen
Northern Prince	Kevin	Sather
Polaris	Wade	Bassi
Polaris	Rolf	McCartney

Vessel Name	*First Name*	*Last Name*
Republic	Duane	Torgeson
Resolute	Steve	Lindahl
Sea Angel	Charles	Noggle
Seymour	John	McHenry
St. John II	James R.	Olsen
St. John II	Gary	Olsen
Sunward	Norman	Ness
Tordenskjold	Marvin	Gjerde
Vansee	Per	Odegaard
Vigorous	Otto	Bogen
Woniya	Randy	Hawkinson
Woniya	Jeffrey	Smith

–END–