



**FAO-BASED RESPONSIBLE FISHERY MANAGEMENT CERTIFICATION  
SURVEILLANCE REPORT**

*For The*  
**Alaska Sablefish Commercial fishery**

Applicant Group  
Alaska Seafood Marketing Institute

**Assessors:**  
Dave Garforth (Lead Assessor)  
Vito Ciccia Romito (Assessor)  
Geraldine Criquet (Assessor)  
Earl Krygier (Assessor)

**Report Code:** AK/SAB/001.1/2012

**Global Trust Certification Ltd.**  
Head Office, 3rd Floor, Block 3,  
Quayside Business Park,  
Mill Street, Dundalk, Co. Louth.  
**T: +353 42 9320912**  
**F: +353 42 9386864**  
**web: [www.GTCert.com](http://www.GTCert.com)**



**GlobalTRUST**  
DELIVERING CERTAINTY



## Table of Contents

I.	Summary and Recommendations .....	3
II.	Assessment Team Details .....	4
1.	Introduction .....	5
1.1.	Recommendation of the Assessment Team .....	6
2.	Fishery Applicant Details .....	6
3.	Unit of Certification .....	7
4.	Surveillance Meetings.....	8
5.	Assessment Outcome Summary .....	12
6.	Conformity Statement .....	16
7.	FAO-Based Conformance Criteria Fundamental Clauses for Surveillance Reporting.....	17
A.	The Fisheries Management System .....	17
B.	Science and Stock Assessment Activities .....	27
C.	The Precautionary Approach .....	40
D.	Management Measures .....	45
E.	Implementation, Monitoring and Control .....	53
F.	Serious Impacts of the Fishery on the Ecosystem .....	60
8.	Performance specific to agreed corrective action plans .....	68
9.	Unclosed, new non conformances and new corrective action plans .....	68
10.	Future Surveillance Actions .....	68
11.	Client signed acceptance of the action plan.....	68
12.	Recommendation and Determination.....	68
13.	References .....	69
	Appendix 1 (Assessment Team Details).....	78

## I. Summary and Recommendations

The Alaska Seafood Marketing Institute, requested assessment of the Alaska sablefish (black-cod) commercial fisheries to the FAO Based Responsible Fisheries Management (RFM) Certification Program. The application was made in April 2010. Assessment commenced in April 2010 with assessment validation before proceeding to full assessment and final certification determination in October 2011.

This report is the **1<sup>st</sup> Surveillance Report (ref: AK/SAB/001.1/2012)** for the Alaska sablefish federal and state commercial fisheries following Certification award against the FAO-Based RFM Program, awarded on October 11<sup>th</sup> 2011. The objective of the surveillance report is to monitor for any changes/updates (after 12 months) in the management regime, regulations and their implementation since the previous assessment (in this case full assessment) and to determine whether these changes (if any) and current practices remain consistent with the overall confidence rating scorings of the fishery allocated during initial certification.

In addition to this, any areas reported as “items for surveillance” or corrective action plans in the previous assessment are reassessed and a new conclusion on consistency of these items with the Conformance Criteria is given accordingly.

The certification covers the Alaska sablefish (*Anoplopoma fimbria*) commercial fishery employing demersal longline, pot and trawl gear within Alaska jurisdiction (200 nautical miles EEZ) under federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.

The surveillance assessment was conducted according to the Global Trust Certification procedures for FAO – Based Responsible Fisheries Management Certification using the FAO – Based RFM Conformance Criteria V1.2 fundamental clauses as the assessment framework.

The assessment was conducted by a team of Global Trust appointed Assessors comprising of one externally contracted fishery expert and Global Trust internal staff. Details of the assessment team are provided in Appendix 1.

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

## II. Assessment Team Details

**Dave Garforth, Lead Assessor**

Global Trust Certification Ltd.  
Quayside Business Centre,  
Dundalk, Co.Louth, Ireland,  
T: +353 (0)42 9320912  
F: +353 (0)42 9386864  
M: +353 (0)87 7978480

**Vito Ciccia Romito, Assessor**

Global Trust Certification Ltd.  
Quayside Business Centre,  
Dundalk, Co. Louth, Ireland.  
T: +353 (0)42 9320912  
F: +353 (0)42 9386864

**Geraldine Criquet, Assessor**

Global Trust Certification Ltd.  
Quayside Business Centre,  
Dundalk, Co. Louth, Ireland.  
T: +353 (0)42 9320912  
F: +353 (0)42 9386864

**Earl Krygier, Assessor**

Anchorage,  
Alaska,  
USA.

## 1. Introduction

### Unit of Certification

The sablefish (black-cod) commercial (federal and state) fisheries, employing demersal longline, pot and trawl gear within Alaska jurisdiction (200 nautical miles EEZ) under federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management underwent their 1<sup>st</sup> surveillance assessment against the requirements of the FAO-Based RFM Conformance Criteria Version 1.2 Fundamental clauses.

This 1<sup>st</sup> Surveillance Report documents the assessment result for the continued certification of commercially exploited Alaska sablefish fishery to the FAO-Based RFM Certification Program. This is a voluntary program that has been supported by ASMI who wishes to provide an independent, third-party certification that can be used to verify that these fisheries are responsibly managed according to the FAO-Based RFM Program.

The assessment was conducted according to the Global Trust procedures for FAO-Based RFM Certification using the fundamental clauses of the FAO-Based RFM Conformance Criteria Version 1.2 (Sept 2011) in accordance with EN45011/ISO/IEC Guide 65 accredited certification procedures. The assessment is based on the fundamental clauses specified in the FAO-Based RFM Conformance Criteria.

The assessment is based on 6 major components of responsible management derived from the FAO Code of conduct for Responsible Fisheries (1995) and Guidelines for the Eco-labeling of products from marine capture fisheries (2009).

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

These six major components are supported by 13 fundamental clauses (+ 1 in case of enhanced fisheries) against which a capture fishery certified under the FAO-Based RFM Program is assessed during a surveillance assessment.

A summary of the site meetings is presented in Section 5. Assessors comprised of both externally contracted fishery experts and Global Trust internal staff (Appendix 1).

This report documents the 1<sup>st</sup> Surveillance Assessment (2012) of the Alaska sablefish commercial federal and state fisheries, originally certified on October 11<sup>th</sup> 2011, and the recommendation of the Assessment Team and the Certification Committee for continued FAO-Based RFM Certification.

## 1.1. Recommendation of the Assessment Team

Following this 1<sup>st</sup> surveillance assessment, in 2012, the assessment team recommends that continued Certification under the FAO-Based Responsible Fisheries Management Certification Program is maintained for the management system of the applicant fishery, the sablefish (black-cod) commercial federal and state fisheries, employing demersal longline, pot and trawl gear within Alaska jurisdiction (200 nautical miles EEZ) under federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.

## 2. Fishery Applicant Details

<b>Applicant Contact Information</b>			
Organization/ Company Name:	<b>Alaska Seafood Marketing Institute</b>	Date:	<b>April 2010</b>
Correspondence Address:	<b>International Marketing Office and Administration Suite 200</b>		
Street :	<b>311 N. Franklin Street</b>		
City :	<b>Juneau</b>		
State:	<b>Alaska AK 99801-1147</b>		
Country:	<b>USA</b>		
Phone:	<b>(907) 465-5560</b>	E-mail Address:	<b><i>info@alaskaseafood.org</i></b>
<b>Key Management Contact Information</b>			
Full Name:	<i>(Last)</i> <b>Rice</b>	<i>(First)</i> <b>Randy</b>	
<i>Position:</i>	<b>Seafood Technical Program Director</b>		
Correspondence Address:	<b>U.S. Marketing Office Suite 310</b>		
Street :	<b>150 Nickerson Street</b>		
City :	<b>Seattle</b>		
State:	<b>Washington 98109-1634</b>		
Country:	<b>USA</b>		
Phone:	<b>(206) 352-8920</b>	E-mail Address:	<b><i>marketing@alaskaseafood.org</i></b>
<b>Nominated Deputy:</b>	<b>As Above</b>		
<b>Deputy Phone:</b>	<b>As Above</b>	<b>Deputy E-mail Address:</b>	<b><i>rrice@alaskaseafood.org</i></b>

### 3. Unit of Certification

Unit of Certification			
U.S. ALASKA SABLEFISH (Black Cod) COMMERCIAL FISHERIES			
Fish Species (Common & Scientific Name)	Geographical Location of Fishery	Gear Type	Principal Management Authority
Sablefish (black-cod) <i>Anoplopoma fimbria</i>	Gulf of Alaska and Bering Sea & Aleutian Islands.	Benthic longline, Pot, Bottom Trawl.	National Marine Fisheries Service (NMFS);  North Pacific Fishery Management Council (NPFMC);  Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF).

**4. Surveillance Meetings**

Date	Organization	Staff Represented	Overview/Key Items
17 <sup>th</sup> Sept. 2012	United Fishermen of Alaska (meeting took place at ASMI Juneau office).	Mark Vinsel, Executive Director. GT: Vito Romito - Assessor, Dave Garforth - Assessor.	<p>United Fishermen of Alaska (UFA) is an umbrella association representing 37 Alaska commercial fishing organizations from fisheries throughout Alaska and its offshore waters. Their mission is to promote and protect the common interest of Alaska’s commercial fishing industry, as a vital component of Alaska’s social and economic well-being. Core functions include; providing a legislative presence for members, act as a forum for communication within the fishing industry, maintain a state wide trade organization with staffed office and provide Public relations and educational programs on behalf of members.</p> <p>Points discussed: Unit of certification; Community Development Quota in Western Alaska; Coastal community Coalition in the GOA; Alaska Coastal Management Plan defeated 61 to 39; participation of UFA in NEPA process (Kensington mine Juneau); CFEC permitting for State waters; Alaska Longline Fisheries Association (bycatch hotspot program); Fisheries Conservation Network; National Pollutant Discharge Elimination System (NPDES) permit program; Vessel Monitoring Systems; Alaska Groundfish Databank; sperm whales depredation of sablefish; SEAK large increase in whale presence; implementation of observer program in 2013.</p>
18 <sup>th</sup> Sept. 2012	Alaska Department of Public Safety, Division of Alaska Wildlife Troopers, 2760 Sherwood Lane, Suite 1A PO Box 111201, Juneau AK 99811-1201	Lt. Steven Hall	<p>Alaska Wildlife Troopers (AWT) is a Division of Alaska Department of Public Safety with responsibility for the protection of Alaska fisheries within State waters. The Division’s resources and strategy for monitoring fishery activity and enforcement purposes and interaction with other agencies (ADFG, NMFS, US Coast Guard, Board of Fisheries) were discussed.</p> <p>Points discussed: unit of certification; type of violations; AWT stations and responsibility; State</p>

			<p>fisheries administrative penalties; penalty sections in statutes (16.05.723); federal administrative penalties and court system; dockside sampling by ADFG; parallel fisheries system (temporal rather than spatial); permits revoking system; CFEC issuance and revoking of permits); no major changes in State sablefish fisheries; fall fisheries largely longline fisheries with minimal violations; Quota share are divided between fleet and if catch is over, it is debited or added to the next year; sports fishing for sablefish is increasing.</p>
<p>18<sup>th</sup> Sept. 2012</p>	<p>Alaska Department of Fish and Game, Division of Commercial Fisheries PO Box 115526 1255 W 8<sup>th</sup> St. Juneau, AK. U.S.A.</p>	<p>Sue Aspelund - Deputy Director; Scott Kelly - SEAK (Region I) Regional Supervisor; Forrest Bowers - SEAK Region regional Management Coordinator (Shellfish/Groundfish); Sherry Dressel - SEAK Region Biometrician III; Kristen Green - SEAK Region groundfish project leader; Tim Baker – Central Region (Region II) Regional Management coordinator – Lower Cook Inlet, Upper Cook Inlet, and Groundfish/Shellfish; Elisa Russ – Acting Central Region Groundfish and Shellfish Management biologist; Maria Wessel</p>	<p>ADFG’s mission is to protect, maintain, and improve the fish, game, and aquatic plant resources of the state, and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle. They manage the Pacific cod state fisheries in Prince William Sound, Cook Inlet, Kodiak, Chignik, South Alaska Peninsula, and Aleutian Islands.</p> <p>Their main role is to conserve and develop the fishery resources of the state. This involves stock assessment activities, setting seasons, catch limits, management methods and means for the state’s subsistence, commercial, sport, guided sport, and personal use fisheries, and it also involves setting policy and direction for the management of the state’s fishery resources. The Board of Fisheries (BOF) is charged with making allocative decisions, and the department is responsible for management based on those decisions.</p> <p>Points discussed: Unit of certification; socio-economic studies and allocation function of the BOF; State fisheries access; fisheries regulations regarding trawl and pot gear usage in State waters; identification of critical habitat areas in State waters; fish tickets; regulation about discards; biodegradable twines and escape mechanisms in State waters; State management of endangered species; observer coverage; discard rates estimated from survey (pre-season longline survey); common bycatch species include skates. Thorny rockfish, grenadiers, pacific sleeper shark; bycatch species managed as bycatch limits (species specific); seabird bycatch (none); MMPA regulation to comply with reporting of marine mammals; seabird avoidance devices requirements; Emergency Order authority to scale down bycatch limits, gear modifications through the BOF; SEAK and inside waters trawl ban; annual pre-season survey; biomass estimation from survey data; target generally aims at conserving 50% of the biomass;</p>

		<p>– Prince William Sound groundfish and Shellfish Assistant Management biologist; Mark Stichert – Westward Region (Region IV) Kodiak, Chignik and Alaska Peninsula Shellfish/Groundfish Area Manager; Trent Hartill - Westward Region (Region IV) Kodiak, Chignik and Alaska Peninsula Shellfish/Groundfish Area Manager Biologist. GT: Vito Romito - Assessor, Dave Garforth - Assessor.</p>	<p>decisions made looking at different aspects of fishery, age structure, maturity, age at maturity etc...; SEAK GHL is separate from federal TAC; depredation of survey caught sablefish by whales; not significant effect of whale depredation on survey; Cook inlet GHL derived from Central GOA ABC; PWS limited entry fishery; lower bycatch limits in PWS and Cook Inlet with mandatory retention of rockfish; Aleutian Islands large incidence of whale depredation and therefore increasing use of pots.</p>
<p>20<sup>th</sup> Sept. 2012</p>	<p>North Pacific Fisheries Management Council. 605 West 4th, Suite 306, Anchorage, AK, U.S.A.</p>	<p>Chris Oliver – Director; David Witherell – Deputy Director; Jane DiCosimo – Senior Plan Team coordinator.  GT: Vito Romito - Assessor, Dave Garforth - Assessor.</p>	<p>The North Pacific Fishery Management Council (NPFMC) is one of eight regional councils (<a href="http://www.fisherycouncils.org">www.fisherycouncils.org</a>) established by the Magnuson Fishery Conservation and Management Act in 1976 (which has been renamed the Magnuson-Stevens Fishery Conservation and Management Act) to oversee management of the nation's fisheries. With jurisdiction over the million square mile Exclusive Economic Zone (EEZ) off Alaska, the Council has primary responsibility for groundfish management in the Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI), including cod, pollock, flatfish, mackerel, sablefish, and rockfish species harvested mainly by trawlers, hook and line longliners and pot fishermen. The</p>

			<p>Council also makes allocative and limited entry decisions for halibut, though the U.S. - Canada International Pacific Halibut Commission (IPHC) is responsible for conservation of halibut. Other large Alaska fisheries such as salmon, crab and herring are managed primarily by the State of Alaska.</p> <p>Points discussed: BOF and Council inter-agency meetings; NPFMC acceptance of electronic comments; total catch accounting, databases in continual development; AFKIN catch accounting and observer program; new requirements for increased observer coverage in BSAI and GOA vessels due to restructured groundfish observer program and 2013 implementation; economic SAFE; closed access federal fisheries in GOA and the BSAI; reduction of halibut PSC; NMFS survey, fishery SAFE and ecosystem SAFE; BSIERP ecosystem modeling; circle hooks, scare lines, line shooters requirements for longline vessels; sablefish in trawlers is only caught as bycatch (legally amount allowed); limits in shark bycatch; observer coverage in sablefish fleet will increase; no issues with catch of juvenile sablefish (juveniles tend to segregate in shallow water and hooks and bait used is too big).</p>
<p>14<sup>th</sup> Sept. 2012</p>	<p>Alaska Seafood Marketing Institute, 150 Nickerson Street Suite 310 Seattle, WA, U.S.A.</p>	<p>Randy Rice – Seafood Technical Program Director. GT: Vito Romito - Assessor, Dave Garforth - Assessor.</p>	<p>The Alaska Seafood Marketing Institute is the client for the FAO RFM Alaska Pacific cod assessment. ASMI is a public-private partnership between the State of Alaska and the Alaska seafood industry established to foster economic development of a renewable natural resource. ASMI is playing a key role in the repositioning of Alaska’s seafood industry as a competitive market-driven food production industry. Its work to boost the value of Alaska’s seafood product portfolio is accomplished through partnerships with retail grocers, foodservice distributors, restaurant chains, foodservice operators, universities, culinary schools, and the media. It conducts consumer campaigns, public relations and advertising activities, and aligns with industry efforts for maximum effectiveness. ASMI also functions as a brand manager of the Alaska Seafood family of brands.</p> <p>Points Discussed: Unit of Certification; federal and state fisheries updates.</p>

## 5. Assessment Outcome Summary

### Fundamental Clauses Summaries:

- 1. The U.S. Alaska sablefish commercial fishery is managed by the North Pacific Fishery Management Council (NPFMC) and the NOAA's National Marine Fisheries Service (NMFS) in the federal waters (3-200 nm); and by the Alaska Department for Fish and Game (ADFG) and the Board of Fisheries (BOF) in the state waters (0-3 nm). In federal waters, the Alaskan sablefish fishery is managed through the NPFMC's GOA and BSAI Groundfish Fishery Management Plans (FMPs) written and amended subject to the Magnuson Stevens Act (MSA). The FMPs established an Individual Fishing Quota (IFQ) management program for this fishery. State sablefish fisheries are managed outside the IFQ program using a Guideline Harvest Level (GHL). The US Coast Guard and the Alaska Wildlife Troopers enforce fisheries regulations in federal and state waters respectively.*
- 2. The NMFS and the NPFMC participate in coastal area management-related institutional frameworks through the federal National Environmental Policy Act (NEPA) processes. These include decision-making processes and activities relevant to fishery resources and users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users. The NEPA processes provide public information and opportunity for public involvement that are robust and inclusive at both the state and federal levels. With regards to conflict avoidance and resolution between different fisheries, the North Pacific Fishery Management Council (NPFMC) and the Board of Fisheries (BOF) tend to avoid conflict by actively involving stakeholders in the process leading up to decision making. Both entities provide a great deal of information on their websites, including agenda of meetings, discussion papers, and records of decisions. The Council and the BOF actively encourages stakeholder participation, and all their deliberations are conducted in open, public sessions. Effectively, these meetings provide forums for avoidance of potential fisheries conflicts.*
- 3. The Magnuson Stevens Fishery Conservation and Management Act (Magnuson Stevens Act, MSA) is the primary domestic legislation governing management of the nation's marine fisheries. Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that requires conservation and management. These include Groundfish FMPs for the Gulf of Alaska and the Bering Sea & Aleutian Islands which incorporate the sablefish fisheries in those regions. Both FMPs present long-term management objectives for the Alaska sablefish fishery. In state waters (0-3 nm), five Alaska sablefish fisheries are managed by ADFG and the BOF outside the IFQ program using a Guideline Harvest Level (GHL). The Aleutian Islands District and Western District of the South Alaska Peninsula Area Sablefish Management Plan (5 AAC 28.640) governs the harvest of sablefish in the Area as described in 5 AAC 28.555(b). 5 AAC 28.360 defines the Cook Inlet Sablefish Management Plan. Sablefish harvest, possession, and landing requirements for Prince William Sound Area are governed under 5 AAC 28.272. Southeast Alaska State managed sablefish (Chatham and Clarence strait) regulations are specified under 5 AAC 28. Groundfish Commercial Fisheries Regulations. These regulations document long term management objectives for these fisheries.*

4. *The NMFS and ADFG collect fishery data and conduct fishery independent (longline and trawl) surveys to assess the sablefish fishery and ecosystems in GOA and BSAI areas. GOA and BSAI SAFE documents provide complete descriptions of data types and years collected. Fishery data is collected from fixed gear (longline and pot) vessels which target sablefish in the IFQ fishery plus trawl fisheries that catch sablefish as retained bycatch in other fisheries such as rockfish and sole. Records of catch and effort for these vessels are firstly recorded through the e-landing (electronic fish tickets) catch recording system and secondly collected by observers and by vessel captains in voluntary and required logbooks. The NMFS announced to NPFMC on June 7<sup>th</sup> 2012 the approval of amendment 86 to the FMP for Groundfish of the BSAI Management Area and Amendment 76 to the FMP for Groundfish of the GOA (RIN 0648-BB42). These amendments restructure the funding and deployment system for observers in the North Pacific groundfish fisheries and include vessels less than 60 ft. The new observer program shall be implemented starting January 2013. This program will also cover the halibut fishery.*
5. *The AFSC conducts annual sablefish longline surveys on the continental slope of the eastern Bering Sea, Aleutian Islands, and the GOA. The mission of the AFSC is to plan, develop, and manage scientific research programs which generate the best scientific data available for understanding, managing, and conserving the region's living marine resources and the environmental quality essential for their existence. Projected sablefish female spawning biomass (combined areas) for 2012 in federal waters is 101,325 (93% of  $B_{40\%}$ ) placing sablefish in sub-tier "b" of Tier 3. ADFG began in 1988 annual longline research surveys in both Northern southeast inside (NSEI) and Southern southeast inside (SSEI) subdistricts to assess the relative abundance of sablefish over time and differing environmental conditions. Mark-recapture studies for sablefish are also carried out in Southeast Alaska. The Cook Inlet fishery is managed using a Guideline Harvest Level (GHL) based on harvest history, fishery performance, and the federal survey for the area. The Aleutian Island fishery is set as 5% of the BSAI federal TAC. The Prince William Sound sablefish fishery is managed using a GHL and derived from the estimated area of sablefish habitat and a yield-per-unit-area model. Ecosystem considerations for this fishery are reported in the sablefish SAFE report.*
6. *The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The tier system specifies the maximum permissible Allowable Biological Catch (ABC) and of the Overfishing Level (OFL) for each stock in the complex (usually individual species but sometimes species groups). The sablefish stock in Alaska is managed under tier 3. For these stocks, the spawner-recruit relationship is uncertain, so that MSY cannot be estimated with confidence. Hence, a surrogate based on  $F_{40\%}$  is used, following findings in the scientific literature in the 1990s. For Tier 3 stocks, the MSY proxy level is defined as  $B_{35\%}$ . Projected 2012 spawning biomass is 37% of the unfished spawning biomass. The limit reference point is  $\frac{1}{2}$  MSY or  $B_{17.5\%}$ . NPFMC estimated a posterior probability of 0 that projected abundance will fall below thresholds of 17.5% [minimum stock size threshold (MSST) or limit reference point] of the unfished spawning biomass over the next 14 years. In NPFMC settings, thresholds are defined in the Council harvest rules. These are when the spawning biomass falls below MSY or  $B_{35\%}$  and when the spawning biomass falls below  $\frac{1}{2}$  MSY or  $B_{17.5\%}$  which calls for a rebuilding plan under the MSA.*

7. *The first element of the precautionary approach is the Optimum Yield (OY) for the groundfish complexes in the Bering Sea / Aleutian Islands (BSAI) and the GOA as a range of numbers. The sum of the TACs of all groundfish species (except Pacific halibut) is required to fall within the range. The second element of precautionary approach is the Tier system, based on knowledge and uncertainties of the stock in question. NPFMC inaugurated the Tier system in fisheries management: the harvest control rule depends on the amount of information available. The less the information about a given stock, the more conservative is the catch allowed. The third element of the precautionary approach is the ACL, OFL, ABC and TAC system. Allowable Biological Catch (ABC) is a scientifically acceptable level of harvest based on the biological characteristics of the stock and its current biomass level. Overfishing Level (OFL) is a limiting catch level, corresponding to fishing at MSY level, higher than ABC, which demarcates the boundary beyond which the fishery is no longer viewed as sustainable. In application, the NPFMC sets  $TAC \leq ABC < OFL$ . Bycatch from a given stock is limited by a Maximum Retainable Bycatch amount (MRB), which is determined as a percentage of retained catch (not including arrowtooth flounder). Alternatively, Prohibited Species Catches (PSC) limits close fisheries when reached.*
8. *The federal sablefish fishery is managed under an Individual Quota System (IFQ). Under the major State managed sablefish fisheries, the use of an equal quota share system is very much like individual fishery quotas, and produces the same efficiencies. The 2006 reauthorization of the MSA included the requirement that the Council's SSC specify Annual Catch Limits (ACLs) with accompanying accountability measures when setting annual harvest quotas. The guidelines stipulated that ACL may not exceed ABC and that if  $ACL=ABC=OFL$ , then the proposal will prevent overfishing with accountability measures. Because Council's groundfish FMPs are multiyear plans, their plans provide that if ACL is exceeded in one year, then accountability measures are triggered for the next year to assure compliance (50 CFR 600.310 (f)(5)) and to subsequently account for whatever catches, bycatch or discards previously unaccounted. The Federal FMP for the BSAI and GOA list the fishery closures that are in place throughout Alaska. These closures apply to different vessels and gear types. The NMFS and the ADFG have well-established regulations on fishing seasons and legal gear use. Longline, trawl and pot gear are all regulated to increase selectivity of the target species and to avoid bycatch and discards. In addition to this, management measures and operational methods (i.e. MRB, PSC) are in place to account for bycatch and discards of encountered bycatch species.*
9. *The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The rigorous process in place for over 30 years ensures that annual quotas are set at conservative, sustainable levels for all managed groundfish stocks. Model projections indicate that the sablefish stock in Alaska is neither overfished nor approaching an overfished condition. For Tier 3 stocks, the MSY proxy level is defined as  $B_{35\%}$ . Projected 2012 spawning biomass of sablefish is 37% of the unfished spawning biomass. The Maximum Sustainable Yield (MSY), defined in the BSAI and GOA groundfish FMPs, is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions, fishery technological characteristics (e.g., gear selectivity), and distribution of catch among fleets. The MSY allows defining the reference points used to manage the groundfish fisheries such that  $TAC \leq ABC < OFL$ .*

- 10.** *Any aspirant sablefish fisherman must have 150 days of sablefish fishing experience before being able to purchase sablefish IFQs. Obtaining sablefish IFQ share most often will require the purchaser to enter into loan capital arrangements with banks that will require comprehensive fishing business plans supported by competent, professional fishermen with demonstrable fishing experience. Several training opportunities are available to train crew members in Alaska.*
- 11.** *The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The federal violations in this fishery are reported to and investigated by NOAA's Office of Law Enforcement's Alaska Division and prosecuted by NOAA's Office of General Counsel's Enforcement Section. OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation (GCEL). The Alaska Wildlife Troopers (AWT) enforce state regulations.*
- 12.** *The Magnuson-Stevens Act (50CFR600.740 Enforcement policy) provides four basic enforcement remedies for violations: **1)** Issuance of a citation (a type of warning), usually at the scene of the offense, **2)** Assessment by the Administrator of a civil money penalty, **3)** for certain violations, judicial forfeiture action against the vessel and its catch, **4)** Criminal prosecution of the owner or operator for some offenses. In some cases, the Magnuson-Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. The 2011 Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions issued by NOAA Office of the General Counsel – Enforcement and Litigation, provides guidance for the assessment of civil administrative penalties and permit sanctions under the statutes and regulations enforced by NOAA. The Alaska Wildlife troopers enforce state water regulations with a number of statutes that enable the government to fine, imprison, and confiscate equipment for violations and restrict an individual's right to fish if convicted of a violation.*
- 13.** *NPFMC and NOAA/NMFS conduct assessments and research on environmental factors as affected by the commercial sablefish fishery and associated species and their habitats. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the effects of commercial fishing on the habitat of sablefish is minimal or temporary in the current fishery management regime. There is knowledge of the essential fish habitats for sablefish in Alaska's waters. Grenadiers and sharks make up the majority of bycatch in the sablefish fisheries. There are currently no directed commercial fisheries for grenadiers in federally and state managed waters of the BSAI and GOA and there are no limits on grenadiers catch and retention in the BSAI and GOA groundfish fisheries. However, there is no evidence to suggest that overfishing is occurring for grenadiers in the BSAI and in the GOA because neither ABC nor OFL have been exceeded over the last years. The sablefish fishery catches significant portions of spiny dogfish and other/unidentified shark total catch, respectively 23% and 70% of the total. There are currently no directed commercial fisheries for shark species in federally or state managed waters of the BSAI and the GOA, and most*

*incidental catch is not retained. Spiny dogfish are allowed as retained incidental catch in some state managed fisheries, and salmon sharks are targeted by some sport fishermen in Alaska state waters. There is no evidence to suggest that overfishing is occurring for any shark species in the BSAI and the GOA because the OFL or ABC has not been exceeded. Sperm whale diets overlap with commercial fisheries harvests more than any other species of toothed whales, but the degree of overlap is at least partly because of direct interactions with longline gear.*

## **6. Conformity Statement**

**The Assessment Team recommends that continued certification under the FAO Based Responsible Fisheries Program is granted to the Alaska sablefish (*Anoplopoma fimbria*) commercial fishery employing demersal longline, pot and trawl gear within Alaska jurisdiction (200 nautical miles EEZ) under federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG) & Board of Fisheries (BOF)] management.**

## 7. FAO-Based Conformance Criteria Fundamental Clauses for Surveillance Reporting

### A. The Fisheries Management System

<p><b>1. There shall be a structured and legally mandated management system based upon and respecting International, National and local fishery laws, for the responsible utilization of the stock under consideration and conservation of the marine environment.</b></p> <p style="text-align: right;"><i>FAO CCRF 7.1.3/7.1.4/7.1.9/7.3.1/7.3.2/7.3.4/7.6.8/7.7.1/10.3.1</i></p> <p style="text-align: right;"><b>FAO Eco 28</b></p>
<p><b>Evidence adequacy rating:</b></p> <p><input checked="" type="checkbox"/> <b>High</b>                      <input type="checkbox"/> <b>Medium</b>                      <input type="checkbox"/> <b>Low</b></p>
<p><b>Rating determination</b></p> <p><i>The U.S. Alaska sablefish commercial fishery is managed by the North Pacific Fishery Management Council (NPFMC) and the NOAA’s National Marine Fisheries Service (NMFS) in the federal waters (3-200 nm); and by the Alaska Department for Fish and Game (ADFG) and the Board of Fisheries (BOF) in the state waters (0-3 nm). In federal waters, the Alaskan sablefish fishery is managed through the NPFMC’s GOA and BSAI Groundfish Fishery Management Plans (FMPs) written and amended subject to the Magnuson Stevens Act (MSA). The FMPs established an Individual Fishing Quota (IFQ) management program for this fishery. State sablefish fisheries are managed outside the IFQ program using a Guideline Harvest Level (GHL).The US Coast Guard and the Alaska Wildlife Troopers enforce fisheries regulations in federal and state waters respectively.</i></p> <p>The NPFMC recommends regulations to govern the directed sablefish fisheries in federal waters off Alaska; and makes allocation decisions among sablefish users and user groups fishing off Alaska. NPFMC sablefish management measures include a Total Allowable Catch (TAC) which is divided among gear types (trawl and fixed gear) and an Individual Fishing Quota (IFQ) program is used for the majority of the TAC taken by the fixed gear fleet. Fixed gear (longlines and pots) harvests around 85% of the sablefish quota and trawl gear about 15%. The NMFS conducts stock surveys, stock assessment reports and a multitude of biological and environmental studies, and in connection with the United States Coast Guard (USCG) enforces regulations. NOAA’s Alaska Fisheries Science Center (AFSC) annually assesses the abundance of sablefish through longline surveys and scientists also conduct trawl surveys to assess their abundance every two or three years. Fishery independent data is also collected by on-board fishery observers and through required and voluntary logbook programs. The NMFS has been tagging and releasing sablefish in Alaska waters since 1972 to study its movements. In 1995, NPFMC and the NMFS implemented an IFQ system for the Alaska sablefish and halibut fisheries. These agencies, and all of their activities and decisions, are subject to the Magnuson Stevens Act (MSA) which is the primary domestic legislation governing management of</p>

the United States marine fisheries and requires the creation of FMPs.

In state waters (0-3 nm), five sablefish state fisheries are managed by the ADFG and the BOF outside the IFQ program. Two minor state fisheries are the ones in Cook Inlet and the Aleutian Islands managed using a Guideline Harvest Level (GHL), which is determined based on harvest history, fishery performance, and the federal survey for the area. Three major state fisheries exist which are limited entry and are located in Prince William Sound, Chatham and Clarence Strait. The Prince William Sound sablefish fishery is managed using a GHL and derived from the estimated area of sablefish habitat and a yield-per-unit-area model. For the Clarence and Chatham Strait fisheries an annual harvest objective is set with regard to survey and fishery catch per unit effort and biological characteristics of the population. In addition, in Chatham Strait an annual stock assessment is performed which includes a mark-recapture estimate of the population abundance. The Alaska Wildlife Troopers (AWT) enforce fisheries regulations in state waters.

The GOA and BSAI sablefish stocks are both considered to be parts of the same stock, but separate from sablefish further south along the west coast of North America. Because sablefish stocks are not generally considered to be trans-boundary, there is little need for cooperation between NMFS/NPFMC and other institutions outside of Alaska. The GOA and BSAI sablefish fishery management system considers all sources of mortality: fishing (directed and incidental), and natural.

The NPFMC and NMFS produce annual Stock Assessment & Fishery Evaluation (SAFE) reports for each fishery under federal jurisdiction, including Alaska sablefish. Both state and federal assessment biologists meet at the NPFMC Plan Team meetings and share assessment information and harvest strategies to assure conservation management over the entire stock distribution. The NPFMC provides a great deal of information on their website, including agenda of meetings, discussion papers, and records of decisions. The Council actively encourages stakeholder participation, and all Council deliberations are conducted in open, public session. Similarly, ADFG conducts stock assessments in State waters to determine safe harvest levels. The BOF process is transparent, and open to all stakeholders. Anyone may submit regulatory proposals, and all such proposals are given due consideration by the BOF (See clause 7 (A) (2)).

The latest Groundfish Plan Team occurred on September 11-14 and November 13-16 2012. The stock analysis information developed at these meetings will be brought to the October and December NPFMC meetings so that the annual harvest levels can be set. The next Alaska BOF Meeting will occur in October 2012.

<http://www.fakr.noaa.gov/npfmc/>

<http://www.adfg.alaska.gov/>

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

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

*FAO CCRF 10.1.1/10.1.2/10.1.4/10.2.1/10.2.2/10.2.4*

**Evidence adequacy rating:**

**High**

**Medium**

**Low**

**Rating Determination**

*The NMFS and the NPFMC participate in coastal area management-related institutional frameworks through the federal National Environmental Policy Act (NEPA) processes. These include decision-making processes and activities relevant to fishery resources and users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users. The NEPA processes provide public information and opportunity for public involvement that are robust and inclusive at both the state and federal levels. With regards to conflict avoidance and resolution between different fisheries, the North Pacific Fishery Management Council (NPFMC) and the Board of Fisheries (BOF) tend to avoid conflict by actively involving stakeholders in the process leading up to decision making. Both entities provide a great deal of information on their websites, including agenda of meetings, discussion papers, and records of decisions. The Council and the BOF actively encourages stakeholder participation, and all their deliberations are conducted in open, public sessions. Effectively, these meetings provide forums for avoidance of potential fisheries conflicts.*

**NEPA and ACMP**

The NMFS and the NPFMC participate in coastal area management-related institutional frameworks through the federal National Environmental Policy Act (NEPA) processes. These include decision-making processes and activities relevant to fishery resources and users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users.

The NEPA processes provide public information and opportunity for public involvement that are robust and inclusive at both the state and federal levels. Fisheries are relevant to the NEPA process in two ways. First, each NPFMC fisheries package must go through the NEPA review process. Second, any project that could impact fisheries (i.e., oil and gas, mining, coastal construction projects, etc.) that is either on federal lands, in federal waters, receives federal funds or requires a federal permit, must go through the NEPA process. In this manner, both fisheries and non-fisheries projects that have a potential to impact fisheries have a built in process by which concerns of the NPFMC, NMFS, state agencies, industry, othe stakeholders or the public must be accounted for.

Up until July 2011, Alaska also participated in the Alaska Coastal Management Plan (ACMP), a program which included a state coastal plan, coastal district (local government) plans, standards for evaluating and managing uses and activities in the coastal zone, and a process to coordinate state resource agency permitting and approval of uses and activities in the coastal zone.

**The ACMP up for ballot election in August 2012**

On March 9<sup>th</sup>, 2012, Anchorage, AK – Lieutenant Governor Mead Treadwell certified the citizen initiative to re-establish the Alaska Coastal Management Program. The Division of Elections completed its review of signatures and determined they meet constitutional and statutory requirements for initiative petitions. Treadwell notified petition sponsors, the Senate President, and

the Speaker of the House. The Division notified the lieutenant governor that the petition contains signatures of 29,991 qualified voters, exceeding the minimum requirement of 25,875 signatures. Alaska's prior coastal management program expired on July 1, 2011, after the legislature adjourned the second of two special sessions without passing legislation required to extend the program. The program coordinated state and federal permitting for development projects in coastal districts. Under AS 15.45.190, upon a determination of proper filing, the initiative may appear on the next statewide general, special, or primary election that is held 120 days after a legislative session has convened and adjourned and a period of 120 days has expired since the adjournment of the legislative session. Sponsors filed the petition with the Division of Elections on January 17, 2012. Determination of proper filing was made in March 2012 and the governor announced that the initiative is to become law subject to election ballot on August 28, 2012, barring unforeseen special election. If a majority of the votes cast on the initiative proposition favor its adoption, the proposed law will be enacted and become effective after 90 days.

<http://ltgov.alaska.gov/treadwell/press-room/full-press-release.html?pr=112>

<http://www.elections.alaska.gov/petitions/11ACMP/Notice-of-Proper-Filing.pdf>

The results of the August, 28, 2012 election is the defeat of the Ballot Measure n°2 related to the re-establishment of the ACMP. The next Alaska Legislature may bring the issue back onto the table.

[http://www.alaskacoastalmanagement.org/ACMP\\_Election\\_Results\\_8-29-12.pdf](http://www.alaskacoastalmanagement.org/ACMP_Election_Results_8-29-12.pdf)

#### **DEC, ADFG, DNR and the USFWS**

The Department of Environmental Conservation (DEC) implements statutes and regulations affecting air, land and water quality. DEC is the lead state agency for implementing the federal Clean Water Act and its authorities provide considerable opportunity to maintain high quality fish and wildlife habitat through pollution prevention (<http://dec.alaska.gov/>).

ADFG, on the hand, protects estuarine and marine habitats primarily through cooperative efforts involving other state and federal agencies and local governments. ADFG has jurisdiction over the mouths of designated anadromous fish streams and legislatively designated state special areas (critical habitat areas, sanctuaries and refuges). Some marine species also receive special consideration through the state Endangered Species program.

The Department of Natural Resources (DNR) manages all state-owned land, water and natural resources except for fish and game. This includes most of the state's tidelands out to the three mile limit and approximately 34,000 miles of coastline. DNR authorizes the use of log-transfer sites, access across state land and water, set-net sites for commercial gill net fishing, mariculture sites for shellfish farming, lodge sites and access for the tourism industry, and water rights and water use authorizations. DNR also uses the state Endangered Species Act to preserve natural habitat of species or subspecies of fish and wildlife that are threatened with extinction (<http://dnr.alaska.gov/>).

The U.S. Fish and Wildlife Service (USFWS) is a bureau within the Department of the Interior. Its objectives include 1) Assisting in the development and application of an environmental stewardship ethic, based on ecological principles, scientific knowledge of fish and wildlife, and a sense of moral responsibility; 2) Guide the conservation, development, and management of the US's fish and wildlife resources. 3) Administer a national program to provide the public opportunities to understand, appreciate, and wisely use fish and wildlife resources. The USFWS functions include enforcement of federal wildlife laws, protection of endangered species, management of migratory birds, restoration of nationally significant fisheries, conservation and restoration of wildlife habitat such as wetlands, help of foreign governments with their international conservation efforts, and distribution of hundreds of millions of dollars, through the Wildlife Sport Fish and Restoration

program, in excise taxes on fishing and hunting equipment to State fish and wildlife agencies ([http://www.fws.gov/help/about\\_us.html](http://www.fws.gov/help/about_us.html)).

#### **ANILCA**

The Alaska National Interest Lands Conservation Act (ANILCA) directs federal agencies to consult and coordinate with the state of Alaska. State agencies responsible for natural resources management, tourism, and transportation work as a team to provide input throughout federal planning processes (<http://dnr.alaska.gov/commis/opmp/anilca/anilca.htm>).

#### **OPMP**

The Department of Natural Resources (DNR) Office of Project Management and Permitting (OPMP) coordinates the review of larger scale projects in the state. Because of the complexity and potential impact of these projects on multiple divisions or agencies, these projects typically benefit from a single primary point of contact. A project coordinator is assigned to each project in order to facilitate interagency coordination and a cooperative working relationship with the project proponent. The office deals with a diverse mix of projects including transportation, oil and gas, mining, federal grants, ANILCA coordination, and land use planning. Every project is different and involves a different mix of agencies, permitting requirements, statutory responsibilities, and resource management responsibilities (<http://dnr.alaska.gov/commis/opmp/>).

#### **NEPA**

Virtually every development affecting the natural environment, by regulation, has to go through the environmental impact assessment process required by the US National Environmental Policy Act which identifies its potential environmental, social and economic impacts and/or benefits. The NEPA processes provide public information and opportunity for public and agencies involvement that are robust and inclusive at both the state and federal levels.

The assessment team considers that the collectivity of: the NEPA process, existing agencies and processes (e.g. ADFG, ADEC, DNM, USFWS, ANILCA and OPMP), and the existing intimate and routine cooperation between federal and state agencies managing Alaska's coastal resources is capable of planning and managing coastal developments in a transparent, organized and sustainable way.

With regards to conflict avoidance and resolution between different fisheries, the NPFMC and the BOF tend to avoid conflict by actively involving stakeholders in the process leading up to decision making. The NPFMC and the BOF also have a standing joint committee that meets to resolve management and allocation issues. The Council and BOF also hold an annual coordinating meeting where members consider issues and hear testimony from stakeholders concerning joint Board/Council issues. Both entities provide a great deal of information on their websites, including agenda of meetings, discussion papers, and records of decisions. The Council and the BOF actively encourages stakeholder participation, and all their deliberations are conducted in open, public sessions. Effectively, these meetings provide forums for avoidance and resolution of potential fisheries conflicts. In addition, stakeholders may review and submit written comments to the NMFS on proposed rules published in the Federal Register. The Council as part of their process assesses economic, social and cultural value of the fishery resources in order to assist decision-making, allocation and use. In 2005, the AFSC compiled baseline socioeconomic information about 136 Alaska communities most involved in commercial fisheries.

The coastal zone is monitored as part of the coastal management process using physical, chemical, biological, economic and social parameters. Involvement include federal and state agencies and programs including the U.S. Forest Service, U.S. Fish and Wildlife Service, NMFS Pacific Marine

Environmental Lab (PMEL), the Alaska Department of Environmental Conservation (ADEC) Division of Water, ADFG Habitat Division, the AFSC's *"Ecosystem Monitoring and Assessment Program"*, The NMFS' Habitat Conservation Division (HCD) and their Essential Fish Habitats (EFH) monitoring and protection program, the U.S. Coast Guard, the NMFS Alaska Regional Office's Restricted Access Management Program (RAM), the Alaska National Interest Lands Conservation Act (ANILCA) federal agencies cooperation directive, and the Department of Natural Resources (DNR) Office of Project Management and Permitting (OPMP) coordinating the review of large scale projects in the state of Alaska.

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

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

<http://dec.alaska.gov/water/MoreAboutWater.htm>

<http://www.fakr.noaa.gov/ram/>

<http://dnr.alaska.gov/commis/opmp/nilca/nilca.htm>

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

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

**FAO CCRF 7.3.3/7.2.2**

**Evidence adequacy rating:**

**High**

**Medium**

**Low**

**Rating Determination**

*The Magnuson Stevens Fishery Conservation and Management Act (Magnuson Stevens Act, MSA) is the primary domestic legislation governing management of the nation's marine fisheries. Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that requires conservation and management. These include Groundfish FMPs for the Gulf of Alaska and the Bering Sea & Aleutian Islands which incorporate the sablefish fisheries in those regions. Both FMPs present long-term management objectives for the Alaska sablefish fishery. In state waters (0-3 nm), five Alaska sablefish fisheries are managed by ADFG and the BOF outside the IFQ program using a Guideline Harvest Level (GHL). The Aleutian Islands District and Western District of the South Alaska Peninsula Area Sablefish Management Plan (5 AAC 28.640) governs the harvest of sablefish in the Area as described in 5 AAC 28.555(b). 5 AAC 28.360 defines the Cook Inlet Sablefish Management Plan. Sablefish harvest, possession, and landing requirements for Prince William Sound Area are governed under 5 AAC 28.272. Southeast Alaska State managed sablefish (Chatham and Clarence strait) regulations are specified under 5 AAC 28. Groundfish Commercial Fisheries Regulations. These regulations document long term management objectives for these fisheries.*

**GOA and BSAI FMPs objectives**

Both FMPs present long-term management objectives for the Alaska sablefish fishery. These include sections that describe a Summary of Management Measures and Management and Policy Objectives. The MSA, as amended, sets out ten national standards for fishery conservation and management (16 U.S.C. § 1851), with which all fishery management plans must be consistent. Under the direction of the NPFMC, the GOA and BSAI FMPs define nine management and policy objectives that are reviewed annually. They are:

- 1) Prevent Overfishing;
- 2) Promote Sustainable Fisheries and Communities;
- 3) Preserve Food Webs;
- 4) Manage Incidental Catch and Reduce Bycatch and Waste;
- 5) Avoid Impacts to Seabirds and Marine Mammals;
- 6) Reduce and Avoid Impacts to Habitat;
- 7) Promote Equitable and Efficient Use of Fishery Resources;
- 8) Increase Alaska Native Consultation and;
- 9) Improve Data Quality, Monitoring and Enforcement.

The national standards and management objectives defined in GOA and BSAI FMPs provide adequate evidence to demonstrate the existence of long-term objectives clearly stated in

management plans.

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOApdf>

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/BSAI/BSAIpdf>

The BSAI and GOA FMPs define specific management measures to avoid excess fishing capacity and maintain stocks that are economically viable for the fishing communities and industry to harvest and process. Management objectives to promote economic conditions for responsible fisheries, take into account the interests of subsistence, small-scale, and artisanal fisheries, define three management objectives to conserve biodiversity of aquatic habitats and protect endangered species; and describe management measures to assess environmental impacts from human activities.

### **State waters**

In state waters (0-3 nm), five Alaska sablefish fisheries are managed by ADFG and the BOF outside the IFQ program using a Guideline Harvest Level (GHL). The Aleutian Islands District and Western District of the South Alaska Peninsula Area Sablefish Management Plan (5 AAC 28.640) governs the harvest of sablefish in the Area as described in 5 AAC 28.555(b). 5 AAC 28.360 defines the Cook Inlet Sablefish Management Plan. Sablefish harvest, possession, and landing requirements for Prince William Sound Area are governed under 5 AAC 28.272. Southeast Alaska State managed sablefish (Chatham and Clarence strait) regulations are specified under 5 AAC 28. Groundfish Commercial Fisheries Regulations. The Alaska Wildlife Troopers enforce fisheries regulations in state waters.

[http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=\[JUMP:%27Title5Chap28%27\]/doc/{@1}?firsthit](http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=[JUMP:%27Title5Chap28%27]/doc/{@1}?firsthit)

<http://dps.alaska.gov/AWT/mission.aspx>

### **Possible changes in sablefish fishery state waters management rules**

Some proposal will be considered in next Alaska BOF Meetings:

- During the Alaska BOF Meeting from 26<sup>th</sup> February to 3<sup>rd</sup> March 2013, the proposal n°163 “Modify state waters sablefish season to coincide with federal sablefish season in AI and Western District of South Alaska Peninsula Area”.
- During the Alaska BOF Meeting from 19<sup>th</sup> to 24<sup>th</sup> March 2013, the proposal n°220 “Allow Groundfish registration by facsimile, telephone or e-mail” and the proposal n°221 “Remove federal regulatory reference”.

<http://www.adfg.alaska.gov/index.cfm?adfg-fisheriesboard.main>

### **5 AAC 28.089 Guiding Principles for groundfish fishery regulations**

With state groundfish management expanding to cover the groundfish resources in the waters of Alaska, the Board of Fisheries (board) will be receiving regulatory proposals for these fisheries. The board will, to the extent practicable, consider the following guiding principles when taking actions associated with the adoption, amendment, or repeal of regulations regarding groundfish fisheries:

- (1) conservation of the groundfish resource to ensure sustained yield, which requires that the allowable catch in any fishery be based upon the biological abundance of the stock;
- (2) minimization of bycatch of other associated fish and shellfish and prevention of the localized

- depletion of stocks;
- (3) protection of the habitat and other associated fish and shellfish species from non sustainable fishing practices;
- (4) maintenance of slower harvest rates by methods and means and time and area restrictions to ensure the adequate reporting and analysis necessary for management of the fishery;
- (5) extension of the length of fishing seasons by methods and means and time and area restrictions to provide for the maximum benefit to the state and to regions and local areas of the state;
- (6) harvest of the resource in a manner that emphasizes the quality and value of the fishery product;
- (7) use of the best available information presented to the board; and
- (8) cooperation with the North Pacific Fisheries Management Council (NPFMC) and other federal agencies associated with groundfish fisheries management.

<http://www.touchngo.com/iglcntr/akstats/aac/title05/chapter028/section089.htm>

**Developments of the new observer program**

In order to achieve the management objectives, in the October 2010 NPFMC Public Review Draft *Restructuring the Program for Observer Procurement and Deployment in the North Pacific* , the Council approved the restructuring the Observer Program:

Surveillance Actions Proposed during full assessment in 2012	Updates and developments during the first surveillance assessment in 2012.
<p>Current methods for estimating bycatch of non-target species in the halibut/sablefish fisheries are currently under review. To address these non-halibut bycatch issues in the halibut/sablefish fisheries, a working group composed of scientists from the AFSC, AKRO, ADFG, IPHC, and NPFMC was formed in January of 2010, to provide Plan Team and SSC members with an overview of the analytical methods and associated estimates for several example species: Pacific cod, spiny dogfish, Pacific sleeper shark and salmon shark within the GOA. The Group plans for August 2011 to have estimation of catches for non-target species prepared and provided to stock assessment authors. The output from this meeting will be monitored and appropriately assessed during the surveillance of the Pacific halibut/sablefish fisheries.</p>	<p>A paper titled <i>Methods for the estimation of non target species catch in the unobserved halibut/sablefish IFQ fleet</i> was produced in August 2011 <a href="ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf">ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut Fishery Bycatch 8 2011 final.pdf</a> The timeline was met and non-halibut bycatch estimates from the IFQ fleet were provided to groundfish assessment authors during 2011 fall. The report is currently in draft form and is being prepared for publication, which will be a NOAA Technical Memo and expected to be available by October 2012.</p> <p>In the meantime, the estimates were furnished to the assessment scientists and published within the various SAFE reports: <a href="http://www.afsc.noaa.gov/refm/stocks/assessments.htm">http://www.afsc.noaa.gov/refm/stocks/assessments.htm</a></p>
<p>Developments on the Observer Restructuring Program with its related implications in improving bycatch and discards estimation in the groundfish fisheries off Alaska will be monitored and appropriately assessed during the surveillance assessment of the Pacific halibut</p>	<p>The NMFS announced to NPFMC on June 7<sup>th</sup> 2012 the approval of amendment 86 to the FMP for Groundfish of the BSAI Management Area and Amendment 76 to the FMP for Groundfish of the GOA (RIN 0648-BB42). These amendments restructure the funding</p>

<p>fishery. A complete re-evaluation of the Observer Program will then take place between years 4 and 5 should certification be granted.</p>	<p>and deployment system for observers in the North Pacific groundfish fisheries and include vessels less than 60 ft. In length and halibut vessels in the North Pacific Groundfish Observer Program, in compliance with the MSA. A final rule to the amendments is expected at later date.  <a href="http://www.fakr.noaa.gov/sustainablefisheries/amds/amds86_76/approval060712.pdf">http://www.fakr.noaa.gov/sustainablefisheries/amds/amds86_76/approval060712.pdf</a></p> <p>NOAA Fisheries is providing the \$3.8 million start-up funding for the first year of this partial coverage category program. The fees collected from industry will fund the program in subsequent years.</p> <p>NOAA hopes to deploy observers under the restructured program by January 1, 2013.  <a href="http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm">http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm</a></p> <p><a href="http://www.fakr.noaa.gov/notice/77fr29961.pdf">http://www.fakr.noaa.gov/notice/77fr29961.pdf</a></p>
<p>The discarded catch of non-target species in the sablefish IFQ fishery is largely unobserved, undocumented and has not previously been incorporated into most of the BSAI and GOA stock assessments. New development such as the restructuring of the observer program and the new AFSC, AKRO, ADF&amp;G, IPHC and NPFMC working group, to improve bycatch estimation in the sablefish fishery have great implications to assess the impacts of the directed Alaska sablefish fishery on the ecosystem. Both of these developments will be monitored and appropriately assessed during the surveillance assessment of the Alaska sablefish fishery.</p>	<p>As illustrated above.</p>

## B. Science and Stock Assessment Activities

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

**FAO CCRF 7.1.9/7.4.4/7.4.5/7.4.6/8.4.3/12.4**  
**ECO 29.1-29.3**

**Evidence adequacy rating:**

**High**                       **Medium**                       **Low**

**Rating Determination**

*The NMFS and ADFG collect fishery data and conduct fishery independent (longline and trawl) surveys to assess the sablefish fishery and ecosystems in GOA and BSAI areas. GOA and BSAI SAFE documents provide complete descriptions of data types and years collected. Fishery data is collected from fixed gear (longline and pot) vessels which target sablefish in the IFQ fishery plus trawl fisheries that catch sablefish as retained bycatch in other fisheries such as rockfish and sole. Records of catch and effort for these vessels are firstly recorded through the e-landing (electronic fish tickets) catch recording system and secondly collected by observers and by vessel captains in voluntary and required logbooks. The NMFS announced to NPFMC on June 7<sup>th</sup> 2012 the approval of amendment 86 to the FMP for Groundfish of the BSAI Management Area and Amendment 76 to the FMP for Groundfish of the GOA (RIN 0648-BB42). These amendments restructure the funding and deployment system for observers in the North Pacific groundfish fisheries and include vessels less than 60 ft. The new observer programme shall be implemented starting January 2013. This program will also cover the halibut fishery.*

**GOA and BSAI sablefish fishery data collection**

The NMFS’s AFSC conducts longline sablefish surveys to collect catch, effort, age, length, weight, and maturity data. These domestic longline surveys provide an accurate index of sablefish abundance. AFSC describes survey protocol on their website. Earlier, Japan and the United States conducted a cooperative longline survey for sablefish in the GOA annually from 1979 to 1994, adding the Aleutians Islands region in 1980 and the eastern Bering Sea in 1982. Since 1987, the AFSC has conducted annual domestic surveys of the upper continental slope, designed to continue the time series of the Japan-U.S. cooperative GOA survey. The domestic longline survey began annual sampling of the GOA in 1987, biennial sampling of the Aleutian Islands in 1996, and biennial sampling of the eastern Bering Sea in 1997. Trawl surveys of the upper continental slope that adult sablefish inhabit have been conducted biennially or triennially since 1980 in the Aleutian Islands, and 1984 in the GOA. Trawl surveys of the Eastern Bering Sea slope were conducted biennially from 1979-1991 and standardized for 2002, 2004, and 2008. Trawl surveys of the Eastern Bering Sea shelf are conducted annually. The following table summarizes data used by the agencies to manage sablefish stock.

Source	Data	Years
Fisheries	Catch	1960-2011
Trawl fisheries	Catch	1960-2011
Japenese longline fishery	Catch-per-unit-effort (CPUE)	1964-1981

U.S. longline fishery	CPUE, length	1990-2010
	Age	1999-2010
U.S. trawl fishery	Length	1990, 1991, 1999, 2005-2010
Japan-U.S. cooperative longline survey	CPUE, length	1979-1994
	Age	1981, 1983, 1985, 1987, 1989, 1991, 1993
Domestic longline survey	CPUE, length	1990-2011
	Age	1996-2010
NMFS GOA trawl survey	Abundance index	1984, 1987, 1990, 1993, 1996, 1999, 2001, 2003, 2005, 2007, 2009, 2011
	Length	1984, 1987, 1990, 1993, 1996, 1999, 2003, 2005, 2007, 2009, 2011

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIsablefish.pdf>

#### State waters sablefish fishery data collection

ADFG performs annual longline surveys (CPUE, relative abundance, and biological data) in Chatham and Clarence Strait. ADFG also conducts annual tagging surveys in Chatham Strait as part of mark-recapture study to estimate population abundance. In addition, ADFG is conducting pilot studies to determine the feasibility of an acoustic tagging of sablefish in Chatham Strait.

<http://www.adfg.alaska.gov/>

The catches used in the Alaskan sablefish stock assessment includes catches from minor state-managed fisheries in the northern GOA and in the AI region because fish caught in these state waters are reported on the eLandings reporting system using the area code of the adjacent federal waters. The eLandings information feeds directly into the Alaska Regional Office catch reporting system the source of the catch data used in this assessment.

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIsablefish.pdf>

#### Catch recording system

Fishery data is collected from fixed gear (longline and pot) vessels which target sablefish in the IFQ fishery plus trawl fisheries that catch sablefish as retained bycatch in other fisheries such as rockfish and sole. Records of catch and effort for these vessels are firstly recorded through the e-landing (electronic fish tickets) catch recording system and secondly collected by observers and by vessel captains in voluntary and required logbooks. This "eLanding" system is an electronic fish ticket system, for all catch data required to be reported in regulation. eLandings is the internet-based Interagency Electronic Reporting System for reporting commercial fishery landings in Alaska. eLandings is used to report landings and/or production data for groundfish, IFQ/CDQ halibut and sablefish, and IFQ/CDQ crab and Community of Adak golden king crab.

The Restricted Access Management Division of NMFS tracks in season catches and IFQ balances. Registered Buyers must report IFQ landings electronically using the Internet (with permission, a backup paper submission system is available). Real-time accounting of individual harvests contributes significantly to accurate and timely management of each IFQ holder's IFQ accounts and supports in season transfers. Of two Internet systems available, the more comprehensive one, the Interagency Electronic Reporting System (IERS) and its data-entry component, eLandings, is the standard reporting method.

**Observer program: new developments**

Fishery data from the Observer Program are available since 1990. Observers report age, length, and CPUE data for selected vessels. Vessels between 60 and 125 feet carry an observer 30% of the time and vessels >125 feet carry an observer 100% of the time. Since 1999, logbooks have been required for vessels >60 feet. Vessels <60 feet are not required to carry observers or submit logbooks but many do participate in a voluntary logbook program formed in 1997. The NMFS implemented the observer program and is at present at the conclusion of its restructuring phase.

The NMFS announced to NPFMC on June 7<sup>th</sup> 2012 the approval of amendment 86 to the FMP for Groundfish of the BSAI Management Area and Amendment 76 to the FMP for Groundfish of the GOA (RIN 0648-BB42). These amendments restructure the funding and deployment system for observers in the North Pacific groundfish fisheries and include vessels less than 60 ft. The new observer program shall be implemented starting January 2013. This program will also cover the halibut fishery (<http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm>).

**Bycatch data.** Bycatch produced in the sablefish fishery is well accounted for by the observer coverage. Here below (3.5) is the latest data. The trend in seabird catch is variable but appears to be decreasing, presumably due to widespread use of measures to reduce seabird catch.

Table 3.5. Bycatch of nontarget species and HAPC biota in the targeted sablefish fishery. Source: NMFS AKRO Blend/Catch Accounting System via AKFIN, October 10, 2011.

Group Name	Estimated Catch (t)					
	2005	2006	2007	2008	2009	2010
Benthic urochordata	0.00	0.07	0.00	-	0.01	0.12
Birds	0.61	0.89	1.57	0.55	0.40	0.35
Bivalves	-	0.00	Conf.	-	0.02	0.00
Brittle star unidentified	0.23	0.05	0.10	0.06	0.33	0.11
Corals Bryozoans	0.64	1.56	0.16	1.55	1.63	2.45
Dark Rockfish	-	-	-	Conf.	0.15	Conf.
Eelpouts	1.52	1.30	2.26	7.86	1.77	1.34
Eulachon	-	-	0.29	Conf.	0.10	Conf.
Giant Grenadier	3,167	3,905	9,181	8,848	5,366	4,385
Greenlings	0.01	-	75.83	0.02	0.02	-
Grenadier	3,663	4,782	109	127	961	745
Hermit crab unidentified	0.02	0.05	0.05	0.07	0.09	0.19
Invertebrate unidentified	0.00	0.07	0.02	0.01	0.32	0.76
Lanternfishes (myctophidae)	0.00	-	-	-	-	-
Misc crabs	0.32	0.47	1.12	0.94	3.21	1.90
Misc crustaceans	-	-	-	-	1.53	0.00
Misc deep fish	-	0.00	0.00	-	0	-
Misc fish	20.63	18.06	16.93	21.06	4.64	4.00
Misc inverts (worms etc)	-	0.00	Conf.	0.00	0.01	0.00
Other osmerids	-	-	-	Conf.	-	-
Pandalid shrimp	-	0.00	0.00	0.00	0.01	0.00
Polychaete unidentified	-	-	-	0.00	0.00	0.00
Scypho jellies	0.16	0.10	0.00	Conf.	0	0
Sea anemone unidentified	0.12	0.29	3.34	0.67	1.99	1.32
Sea pens whips	0.03	0.19	0.07	0.32	0.49	0.03
Sea star	1.24	5.13	35.24	1.54	2.45	2.55
Snails	4.29	9.41	8.09	6.43	11.22	11.56
Sponge unidentified	0.63	0.70	0.16	14.64	1.92	0.76
Urchins, dollars, cucumbers	0.21	0.15	0.14	0.47	1.05	0.55

Prohibited species catches (PSC) in the targeted sablefish fisheries are dominated by halibut (1,700 mt/year) and golden king crab (157,000/year). However, catches of both species declined greatly in 2010 reaching 1000 mt and 27,000 individuals respectively (Table 3.6.).

Table 3.6. Prohibited Species Catch (PSC) estimates reported in tons for halibut and herring, thousands of animals for crab and salmon, by year, and fisheries management plan area for the sablefish fishery. Other = Pot and trawl combined because of confidentiality. Source: NMFS AKRO Blend/Catch Accounting System PSCNQ via AKFIN, October 10, 2011.

	2007			2008			2009			2010			Average
	BSAI	GOA	Total	BSAI	GOA	Total	BSAI	GOA	Total	BSAI	GOA	Total	
<b>Hook and Line</b>													
Bairdi Crab	0.00	0.17	0.17	0.00	0.01	0.01	0.03	0.24	0.28	0.00	0.07	0.07	0.13
Blue King Crab	0.04	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Chinook Salmon	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Golden K. Crab	1.30	0.04	1.34	0.17	0.08	0.25	0.32	0.03	0.35	0.97	0.00	0.97	0.73
Halibut	107	3,402	3,509	149	932	1,081	149	1,023	1,172	176	761	937	1,675
Other Salmon	0.00	0.13	0.13	0.01	0.22	0.23	0.01	0.21	0.22	0.00	0.16	0.16	0.19
Opilio Crab	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.02
Red King Crab	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.01
<b>Other</b>													
Bairdi Crab	0.23	0.17	0.40	0.24	0.18	0.42	1.65	0.09	1.74	0.00	0.06	0.06	0.65
Golden K. Crab	281	0	281	181	0	181	139	0	139	26	0	26	157
Halibut	22.2	6.6	28.8	23.1	6.9	30.0	14.9	3.5	18.4	24.5	4.5	29.0	26.5
Herring	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Other Salmon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00
Opilio Crab	0.10	0.00	0.10	0.28	0.00	0.28	0.01	0.10	0.11	2.15	0.03	2.18	0.67
Red King Crab	0.01	0.00	0.01	0.42	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.11

**Sablefish discards**

Between 2009 and 2010, GOA and BSAI combined sablefish discards decreased from 754 mt to 402 mt for the sablefish hook-and-line fishery and from 89 t to 55 t for other fisheries. By observing in details, GOA discard decreased from 736 mt to 368 mt for the sablefish hook-and-line fishery and from 81 t to 47 t for other fisheries, while BSAI discards increased from 18 t to 34 t for hook-and-line fishery and were pretty much equal for other fisheries (Table 3.3 below).

Table 3.3. Discarded catches of sablefish (amount [t], percent of total catch, total catch [t]) by gear (H&L=hook & line, Other = Pot, trawl, and jig, combined for confidentiality) by FMP area for 2005-2010. Source: NMFS Alaska Regional Office via AKFIN, October 10, 2011.

YEAR	Gear	BSAI			GOA			Combined		
		Discard	% Discard	Catch	Discard	% Discard	Catch	Discard	% Discard	Catch
2005	H&L	28	3.18%	880	255	1.98%	12,860	283	2.06%	13,741
	Other	65	3.90%	1,665	181	15.46%	1,169	246	8.67%	2,834
	Total	93	3.65%	2,545	436	3.11%	14,029	529	3.19%	16,574
2006	H&L	46	4.68%	982	286	2.37%	12,073	332	2.55%	13,055
	Other	16	1.38%	1,186	269	24.54%	1,098	286	12.51%	2,284
	Total	62	2.87%	2,168	556	4.22%	13,171	618	4.03%	15,339
2007	H&L	16	2.32%	679	242	2.09%	11,586	258	2.10%	12,265
	Other	54	3.29%	1,643	177	16.00%	1,106	231	8.40%	2,748
	Total	70	3.01%	2,322	419	3.30%	12,692	489	3.26%	15,014
2008	H&L	92	10.86%	845	737	6.28%	11,727	829	6.59%	12,572
	Other	7	0.55%	1,190	72	8.36%	864	79	3.83%	2,053
	Total	98	4.83%	2,035	809	6.43%	12,590	907	6.20%	14,626
2009	H&L	18	1.49%	1,183	736	7.20%	10,216	754	6.61%	11,399
	Other	8	0.98%	803	81	9.10%	889	89	5.25%	1,692
	Total	26	1.28%	1,986	817	7.36%	11,105	842	6.43%	13,091
2010	H&L	34	2.81%	1,215	368	4.01%	9,186	402	3.87%	10,400
	Other	7	1.19%	615	47	5.26%	900	55	3.61%	1,515
	Total	41	2.26%	1,830	416	4.12%	10,085	457	3.84%	11,915
2005-2010 Average	H&L	39	4.03%	964	437	3.88%	11,275	476	3.89%	12,239
	Other	26	2.21%	1,184	138	13.74%	1,004	164	7.50%	2,188
	Total	65	3.03%	2,148	575	4.69%	12,279	640	4.44%	14,427

**Grenadiers**

Grenadiers are by far the most abundant bycatch in the sablefish fishery. Grenadiers catches make up the bulk of bycatch peaking at 9,390 t in 2007 but decreasing since with a 2010 catch of 5,130 t. Other non-target catches that have totals over a ton per year are corals, snails, sponges and miscellaneous fishes and crabs (Table 3.5.).

**Sharks**

The sablefish fishery catches significant portions of spiny dogfish and other/unidentified shark compared to other fisheries who also bycatch these species: the total catch is 23% and 70% respectively of the total (Table 20.6 and Table 20.9).

Table 20.6. Estimated catch (tons) of spiny dogfish in the Gulf of Alaska by fishery. 1990-1996 catch estimated by pseudo-blend estimation procedure (Gaichas et al. 1999). 1997-2001 catch estimated with NMFS new pseudo-blend estimation procedure (Gaichas 2002). Years 2003-2010 from NMFS AKRO using the improved pseudo-blend estimation procedure (queried through AKFIN on Oct 11, 2011). Catch by target fishery and species are not available for 2002. Spiny dogfish do not occur in the Atka Mackerel fishery. Bycatch in the halibut fisheries has been estimated by NMFS AKRO since 2003, but it is based only on landed sharks and does not include discarded catch. See Appendix 20A for halibut fishery incidental catch estimates.

Fishery	Pollock	Pacific Cod	Flatfish	Rockfish	Halibut	Sablefish	Grand Total	Year % of Total 97-11
1990	57.6	36.0	13.5	1.8		59.0	170.9	
1991	29.3	52.6	16.2	16.4		26.2	141.2	
1992	84.4	50.5	116.0	22.4		40.7	320.6	
1993	137	10.1	138.5	2.4		95.3	383.4	
1994	22	16.9	83.4	2.5		35.4	160.2	
1995	2.8	28.1	24.1	18.4		50.7	140.6	
1996	2.9	15.3	182.6	19.8		79.5	336.9	
1997	2.8	57.6	137.2	326.2		133.7	657.5	8%
1998	4.9	727.2	69.0	3.1		59.6	864.9	10%
1999	8.6	160.2	56.6	4.8		83.4	313.6	4%
2000	18.7	29.4	66.3	146.6		136.6	397.6	5%
2001	11.6	172.8	162.5	25.1		122.1	494.0	6%
2002	-	-	-	-	-	-	-	
2003	6.1	43.6	166.0	35.5	6.6	17.3	275.0	3%
2004	9.2	19.6	15.5	2.3	13.4	123.2	183.2	2%
2005	15.2	27.9	50.1	2.8	17.3	329.3	442.7	6%
2006	50.0	113.2	122.9	2.0	713.2	147.4	1,148.6	14%
2007	47.6	250.2	151.4	6.2	210.5	165.6	831.4	10%
2008	59.6	289.6	87.3	4.8	0.5	91.1	533.0	7%
2009	17.6	113.7	204.8	7.0	603.2	80.7	1,027.1	13%
2010	19.8	118.1	164.0	3.5	21.4	70.8	397.7	5%
2011	1.5	20.0	46.8	0.7	69.1	248.9	387.1	5%
<b>Fishery % of Total</b>	3%	27%	19%	7%	21%	23%		

Table 20.9. Estimated catch (tons) of other/unidentified sharks in the Gulf of Alaska by fishery. 1990-1996 catch estimated by pseudo-blend estimation procedure (Gaichas et al. 1999). 1997-2001 catch estimated with NMFS new pseudo-blend estimation procedure (Gaichas 2002). Years 2003-2010 from NMFS AKRO using the improved pseudo-blend estimation procedure (queried through AKFIN on Oct 11, 2011). Catch by target fishery and species is not available for 2002. Other/unidentified sharks do not occur in the Atka Mackerel fishery. Bycatch in the halibut fisheries has been estimated by NMFS AKRO since 2003, but it is based only on landed sharks and does not include discarded catch. See Appendix 20A for halibut fishery incidental catch estimates.

Fishery	Pollock	Pacific Cod	Flatfish	Rockfish	Halibut	Sablefish	Grand Total	Year % of Total 97-10
1990	4.1	21.3	0.8	1.4		2.9	30.5	
1991	17.8	36.7	35.5	4.4		13.7	108.1	
1992	3.3	8.4	3.5	0.1		1.5	17.2	
1993	138.3	38.1	3.7	0.0		159.3	339.6	
1994	41.6	2.3	3.0	0.0		8.9	55.8	
1995	4.0	3.4	10.6	9.7		14.3	49.3	
1996	14.2	3.1	17.8	1.9		16.0	53.4	
1997	8.9	13.4	9.0	47.5		43.9	123.4	6%
1998	24.2	10.2	17.9	2.3		1,325.2	1,379.8	66%
1999	6.1	12.3	8.1	0.1		6.4	33.0	2%
2000	12.3	3.5	34.0	4.8		18.7	73.6	4%
2001	35.0	1.4	1.5	1.4		37.7	77.0	4%
2002	-	-	-	-		-	-	
2003	7.6	6.4	18.2	0.2	17.5	3.1	53.0	3%
2004	11.1	2.7	18.8	0.2	2.6	3.3	38.7	2%
2005	34.7	1.2	21.5	0.2	0.2	11.0	68.8	3%
2006	40.9	11.9	24.4	1.6	0.0	4.3	83.1	4%
2007	13.9	38.3	49.6	0.4	0.0	4.9	107.0	5%
2008	4.3	2.4	2.4	0.0	0.0	2.8	12.1	1%
2009	10.4	2.7	10.6	0.0	0.0	0.0	23.7	1%
2010	3.7	0.2	4.0	1.2	0.2	0.0	9.3	0%
2011	0.2	0.2	1.5	0.0	0.0	0.1	2.1	0%
<b>Fishery % of Total</b>	10%	5%	11%	3%	1%	70%		

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIsablefish.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIs shark.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/GOA shark.pdf>

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/MISC/GrenadierDiscPaper521.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIs grenadier.pdf>

**Ecosystem data collection**

Ecosystem characteristics of BS and AI are assessed annually in the *Ecosystem Considerations* appendix to the *BSAI and GOA SAFE Evaluation* report. Since 1995, this document has been prepared in order to provide information about effects of fishing from an ecosystem perspective, and the effects of environmental change on fish stocks. Since 1999, the section has included information on indicators of ecosystem status and trends, and more ecosystem-based management performance measures.

Since 2003, an annual Ecosystem Assessment has also been included in the appendix to the SAFE. The primary intent of the assessment is to summarize historical climate and fishing effects of the shelf and slope regions of the eastern BSAI, and GOA, from an ecosystem perspective and to

provide an assessment of the possible future effects of climate and fishing on ecosystem structure and function. The *Ecosystem Considerations* sections from 2000 to present are available online at [www.afsc.noaa.gov/refm/reem/Assess/Default.htm](http://www.afsc.noaa.gov/refm/reem/Assess/Default.htm)

**Socio-economic data collection**

The Economic and Social Sciences Research Program within NMFS's Resource Ecology and Fisheries Management (REFM) Division provides economic and socio-cultural information that assists NMFS in meeting its stewardship programs. Much of the existing economic data about Alaskan fisheries is collected and organized around different units of analysis, such as counties (boroughs), fishing firms, vessels, sectors, and gear groups. It is often difficult to aggregate or disaggregate these data for analysis at the individual community or regional level. As a result, the NPFMC, the AFSC, and community stakeholder organizations have identified ongoing collection of community-level socio-economic information that is specifically related to commercial fisheries as a priority. To address this need, the AFSC's Economic and Social Sciences Research (ESSR) Program has been preparing the implementation of the Alaska Community Survey, an annual voluntary data collection program initially focused on Alaska communities for feasibility reasons, in order to improve the socio-economic data available for consideration in North Pacific fisheries management.

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

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

*FAO CCRF 7.2.1/12.2/12.3/12.5/12.6/12.7/12.17*

*FAO Eco 29-29.3*

**Evidence adequacy rating:**

**High**

**Medium**

**Low**

**Rating Determination**

*The AFSC conducts annual sablefish longline surveys on the continental slope of the eastern Bering Sea, Aleutian Islands, and the GOA. The mission of the AFSC is to plan, develop, and manage scientific research programs which generate the best scientific data available for understanding, managing, and conserving the region's living marine resources and the environmental quality essential for their existence. Projected sablefish female spawning biomass (combined areas) for 2012 in federal waters is 101,325 (93% of  $B_{40\%}$ ) placing sablefish in sub-tier "b" of Tier 3. ADFG began in 1988 annual longline research surveys in both Northern southeast inside (NSEI) and Southern southeast inside (SSEI) subdistricts to assess the relative abundance of sablefish over time and differing environmental conditions. Mark-recapture studies for sablefish are also carried out in Southeast Alaska. The Cook Inlet fishery is managed using a Guideline Harvest Level (GHL) based on harvest history, fishery performance, and the federal survey for the area. The Aleutian Island fishery is set as 5% of the BSAI federal TAC. The Prince William Sound sablefish fishery is managed using a GHL and derived from the estimated area of sablefish habitat and a yield-per-unit-area model. Ecosystem considerations for this fishery are reported in the sablefish SAFE report.*

With passage of the MSA in 1976, management jurisdiction occurs out to 200 miles. MSA sets out ten national standards for fishery conservation and management (16 U.S.C. § 1851), with which all fishery management plans must be consistent. Guided by these standards, and other legal requirements, the NMFS has a well-established institutional framework for research developed within the Alaska Fisheries Science Center (AFSC). The mission of the AFSC is to plan, develop, and manage scientific research programs which generate the best scientific data available for understanding, managing, and conserving the region's living marine resources and the environmental quality essential for their existence. The AFSC operates several laboratories (e.g. Auke Bay Biological Lab and the National Marine Mammal Lab), and extensive fisheries monitoring and analysis section (Observers), the Resource Assessment & Conservation Engineering (RACE) and the Resource Ecology Fisheries & Management (REFM) Divisions.

**Stock assessment surveys**

The AFSC conducts annual sablefish longline surveys on the continental slope of the eastern Bering Sea, Aleutian Islands, and the GOA. The survey is primarily designed to assess sablefish and indices of abundance have been computed since 1979. But catch data from other species are also available, providing estimates on the relative abundance of major groundfish species. From 1979-1994, the AFSC conducted cooperative annual sablefish longline surveys with Japan, and then independently from 1987-present (See table below extracted from the 2011 sablefish SAFE report). The fixed station positions are divided among six NPFMC management areas: Bering Sea, Aleutian Islands,

Western GOA, Central GOA, West Yakutat, and East Yakutat/Southeast. Stations are placed 30-50 km apart, and gear is set from 150-1000 m at each slope station. Catches are pooled by management area and an abundance index is computed for use in stock assessment and fishery evaluation reports.

The following table summarizes the data used for this assessment:

Source	Data	Years
Fisheries	Catch	1960-2011
Trawl fisheries	Catch	1960-2011
Japanese longline fishery	Catch-per-unit-effort (CPUE)	1964-1981
U.S. longline fishery	CPUE, length	1990-2010
	Age	1999-2010
U.S. trawl fisheries	Length	1990,1991,1999,2005-2010
Japan-U.S. cooperative longline survey	CPUE, length	1979-1994
	Age	1981, 1983, 1985, 1987, 1989, 1991, 1993
Domestic longline survey	CPUE, length	1990-2011
	Age	1996-2010
NMFS GOA trawl survey	Abundance index	1984, 1987, 1990, 1993, 1996, 1999, 2001, 2003, 2005, 2007, 2009, 2011
	Lengths	1984, 1987, 1990, 1993, 1996, 1999, 2003, 2005, 2007, 2009, 2011

While all possible indices are not included in the sablefish model, it is important to precise that other fishery independent surveys catch sablefish. The International Pacific Halibut Commission (IPHC) conducts a long line survey each year to assess Pacific halibut. This survey differs from the AFSC long line survey in gear configuration and sampling design, but catches substantial numbers of sablefish. Because the majority of effort occurs on the shelf in shallow depths, the IPHC survey may catch smaller and younger sablefish than the AFSC survey; however, length of sablefish are not taken on the IPHC survey. For state-managed fisheries, ADFG also has a well-developed research capacity.

The state’s Policy and Planning Committee establish research priorities. For example, in 1988, the department began annual longline research surveys in both Northern southeast inside (NSEI) and Southern southeast inside (SSEI) subdistricts to assess the relative abundance of sablefish over time and differing environmental conditions. Fixed sampling stations were randomly assigned within statistical areas in both Chatham and Clarence Strait, where the majority of state fleet fishing effort is focused. Once established, the same stations are fished in a similar manner each year to estimate change in relative abundance over time. A general linear multivariate model has been used to detect significant CPUE trends over time. Biological data collected during the surveys include length, weight, sex, stage of maturity and otoliths. This data is used to describe the age and size structure of the populations and detect recruitment events. ADFG standardized its survey methods with NMFS survey. In 2000 the department constructed and purchased survey gear to ensure standardization between survey vessels. Mark-recapture studies for sablefish are also carried out in Southeast Alaska.

The two minor State sablefish fisheries, Cook Inlet and the Aleutian Islands, are open-access fisheries. The Cook Inlet fishery is managed using a Guideline Harvest Level (GHL) based on harvest history, fishery performance, and the federal survey for the area. The Aleutian Island fishery is set as

5% of the BSAI federal TAC. The Prince William Sound sablefish fishery is managed using a GHL and derived from the estimated area of sablefish habitat and a yield-per-unit-area model.

### **Stock assessment model**

The analysis presented in the 2010 SAFE sablefish report for BSAI and GOA extends earlier age structured models developed by Kimura (1990) and Sigler (1999), which all stem from the work by Fournier and Archibald (1982). The sablefish population is represented with an age-structured model. The assessment uses a statistical, forward-projecting age structured model which estimates population numbers and mortality rates separately for male and female sablefish. The model is fitted using data on catches, length/age compositions and CPUE from the fisheries, and several series of abundance indices and associated age or length compositions from longline and trawl surveys.

The 2008 model represents an incremental improvement over the one developed in the 2007 assessment, by making better use of survey age data and reducing the number of parameters describing fishery selectivity. The new model does not alter the perception of recent biomass trends given by the 2007 assessment. The current model configuration follows a more complex version of the GOA Pacific ocean perch model (Hanselman et al. 2005a) with split sexes to attempt to more realistically represent the underlying population dynamics of sablefish. The current configuration was accepted by the Groundfish Plan Team and NPFMC in 2008. The analysis was completed using AD Model Builder software, a C++ based software for development and fitting of general nonlinear statistical models.

#### *Major changes relative to last assessment:*

Relative abundance and length data from 2011 longline survey, relative abundance and length data from 2010 longline survey and trawl fisheries, relative abundance and length data from 2011 GOA trawl survey, age data from the 2010 longline survey and 2010 longline fishery, updated 2010 catch and estimated 2011 catch were added to the assessment model.

### **Stock assessment results**

Results are shown in the table below.

The updated point estimates of  $B_{40\%}$ ,  $F_{40\%}$  and  $F_{35\%}$  from this assessment are 108,574 t (combined areas), 0.096 and 0.114, respectively. Projected female spawning biomass (combined areas) for 2012 is 101,325 (93% of  $B_{40\%}$ ) placing sablefish in sub-tier "b" of Tier 3.

The maximum permissible value of  $F_{ABC}$  under Tier 3 is 0.089, which translate into a 2012 ABC (combined areas) of 17,240 t. The OFL fishing mortality rate is 0.106 which translates into a 2012 OFL (combined areas) of 20,400 t. Model projections indicate that this stock is neither overfished nor approaching overfished condition.

Quantity/Status	As estimated or specified <i>last</i> year for:		As estimated or recommended <i>this</i> year for:	
	2011	2012	2012	2013*
<i>M</i> (natural mortality)	0.10	0.10	0.10	0.10
Specified/recommended Tier	3b	3b	3b	3b
Projected biomass (ages 2+, t)	251,141	256,761	262,522	268,992
Female spawning biomass (t)				
Projected	102,139	97,307	101,325	98,983
<i>B</i> <sub>100%</sub>	275,270	275,270	271,436	271,436
<i>B</i> <sub>40%</sub>	110,108	110,108	108,574	108,574
<i>B</i> <sub>35%</sub>	96,345	96,345	95,003	95,003
<i>F</i> <sub>OFL</sub>	0.106	0.106	0.106	0.106
<i>maxF</i> <sub>ABC</sub>	0.089	0.089	0.089	0.089
<i>F</i> <sub>ABC</sub>	0.089	0.089	0.089	0.089
OFL (t)	18,950	17,377	20,400	20,132
max ABC (t)	16,040	14,697	17,240	17,019
ABC (t)	16,040	14,697	17,240	17,019
Status	As determined <i>last</i> year for:		As determined <i>this</i> year for:	
	2009	2010	2010	2011
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

\* Projections are based on estimated catches of 13,539 t and 12,896 t used in place of maximum permissible ABC for 2012 and 2013. This was done in response to management requests for a more accurate two-year projection.

The combined ABC has been apportioned to regions using weighted moving average methods since 1993, this method reduce the magnitude of inter-annual changes in the apportionment. The 1993 TAC was apportioned using a 5-year running average with emphasis doubled for the current year survey abundance index in weight (relative population weight or RPW). Since 1995, the ABC was apportioned using an exponential weighting of regional RPWs. In December 1999, the Council apportioned the 2000 ABC and OFL based on a 5-year exponential weighting of the survey and fishery abundance indices. The same algorithm was used to apportion the 2012 ABC and OFL. This year's apportionment reflects a substantial increase in the longline survey index in the Central and Western Gulf areas, while the survey index declined severely in the Bering Sea, and modestly in the Eastern Gulf areas. The Bering Sea and Aleutian Islands fishery RPWs remained low, while all other areas declined (Figure 3.27a). The Gulf of Alaska, mainly due to the increase in the Central Gulf, is now capturing a larger share of apportionment. However, the current apportionment is characteristic of most prior years (Figure 3.27c).

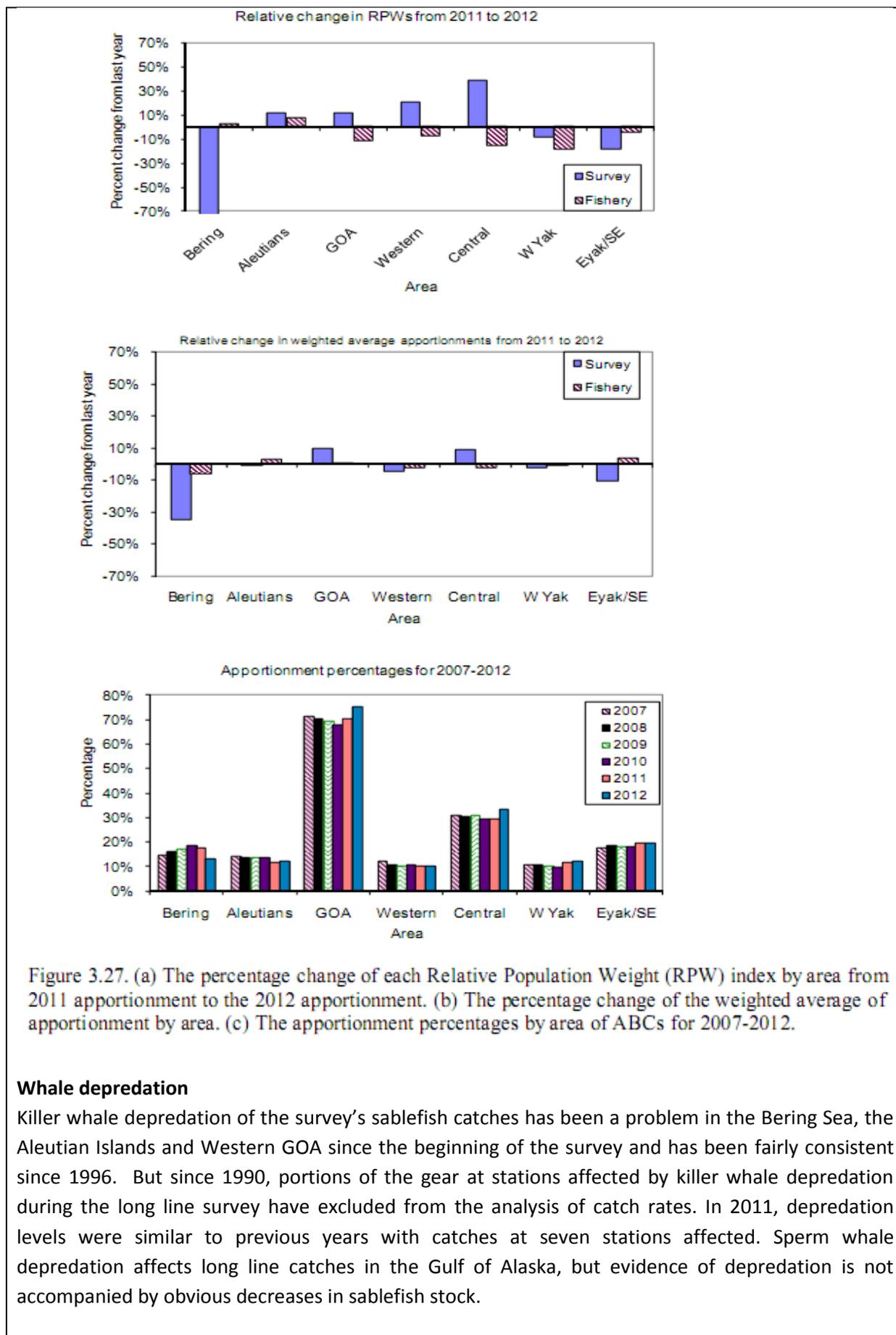


Figure 3.27. (a) The percentage change of each Relative Population Weight (RPW) index by area from 2011 apportionment to the 2012 apportionment. (b) The percentage change of the weighted average of apportionment by area. (c) The apportionment percentages by area of ABCs for 2007-2012.

**Whale depredation**

Killer whale depredation of the survey’s sablefish catches has been a problem in the Bering Sea, the Aleutian Islands and Western GOA since the beginning of the survey and has been fairly consistent since 1996. But since 1990, portions of the gear at stations affected by killer whale depredation during the long line survey have excluded from the analysis of catch rates. In 2011, depredation levels were similar to previous years with catches at seven stations affected. Sperm whale depredation affects long line catches in the Gulf of Alaska, but evidence of depredation is not accompanied by obvious decreases in sablefish stock.

**Ecosystem considerations** for the sablefish fisheries are summarized in the table below as for reported in the latest SAFE.

Table 3.12. Analysis of ecosystem considerations for sablefish fishery.

<i>Indicator</i>	<i>Observation</i>	<i>Interpretation</i>	<i>Evaluation</i>
<b><i>ECOSYSTEM EFFECTS ON STOCK</i></b>			
<i>Prey availability or abundance trends</i>			
Zooplankton	None	None	Unknown
<i>Predator population trends</i>			
Salmon	Decreasing	Increases the stock	No concern
<i>Changes in habitat quality</i>			
Temperature regime	Warm increases recruitment	Variable recruitment	No concern (can't affect)
Prevailing currents	Northerly increases recruitment	Variable recruitment	No concern (can't affect)
<b><i>FISHERY EFFECTS ON ECOSYSTEM</i></b>			
<i>Fishery contribution to bycatch</i>			
Prohibited species	Small catches	Minor contribution to mortality	No concern
Forage species	Small catches	Minor contribution to mortality	No concern
HAPC biota (seapens/whips, corals, sponges, anemones)	Small catches, except long-term reductions predicted	Long-term reductions predicted in hard corals and living structure	Possible concern
Marine mammals and birds	Bird catch about 10% total	Appears to be decreasing	Possible concern
Sensitive non-target species	Grenadier, spiny dogfish, and unidentified shark catch notable	Grenadier catch high but stable, recent shark catch is small	Possible concern for grenadiers
<i>Fishery concentration in space and time</i>	IFQ less concentrated	IFQ improves	No concern
<i>Fishery effects on amount of large size target fish</i>	IFQ reduces catch of immature	IFQ improves	No concern
<i>Fishery contribution to discards and offal production</i>	sablefish <5% in longline fishery, but 30% in trawl fishery	IFQ improves, but notable discards in trawl fishery	Trawl fishery discards definite concern
<i>Fishery effects on age-at-maturity and fecundity</i>	trawl fishery catches smaller fish, but only small part of total catch	slightly decreases	No concern

**Research priorities.** There is little information on early life history of sablefish and recruitment processes. A better understanding of juvenile distribution, habitat utilization, and species interactions would improve understanding of the processes that determine the productivity of the sablefish stock. Future research is going to focus on several direction:

- 1) Refine survey index model for inclusion in the 2012 assessment model that accounts for whale depredation and potentially includes gully abundance data and other covariates.
- 2) Improve knowledge of sperm whale and killer whale depredation in the fishery and begin to quantify depredation effects on the fishery catch rates.
- 3) Explore the use of environmental data to aid in determining recruitment.
- 4) Work closely with the Gulf of Alaska Ecosystem project to help understand recruitment dynamics.
- 5) Develop a spatially explicit research assessment model that includes movement.

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.PDF>

### C. The Precautionary Approach

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

*FAO CCRF 7.5.2/7.5.3  
Eco 29.2/29.2bis/30-30.2*

Evidence adequacy rating:

High                       Medium                       Low

**Rating Determination**

*The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The tier system specifies the maximum permissible Allowable Biological Catch (ABC) and of the Overfishing Level (OFL) for each stock in the complex (usually individual species but sometimes species groups). The sablefish stock in Alaska is managed under tier 3. For these stocks, the spawner-recruit relationship is uncertain, so that MSY cannot be estimated with confidence. Hence, a surrogate based on  $F_{40\%}$  is used, following findings in the scientific literature in the 1990s. For Tier 3 stocks, the MSY proxy level is defined as  $B_{35\%}$ . Projected 2012 spawning biomass is 37% of the unfished spawning biomass. The limit reference point is  $\frac{1}{2}$  MSY or  $B_{17.5\%}$ . NPFMC estimated a posterior probability of 0 that projected abundance will fall below thresholds of 17.5% [minimum stock size threshold (MSST) or limit reference point] of the unfished spawning biomass over the next 14 years. In NPFMC settings, thresholds are defined in the Council harvest rules. These are when the spawning biomass falls below MSY or  $B_{35\%}$  and when the spawning biomass falls below  $\frac{1}{2}$  MSY or  $B_{17.5\%}$  which calls for a rebuilding plan under the MSA.*

The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The tier system specifies the maximum permissible Allowable Biological Catch (ABC) and of the Overfishing Level (OFL) for each stock in the complex (usually individual species but sometimes species groups). NPFMC inaugurated the Tier system in fisheries management. In this, the harvest control rule depends on the amount of information available. In Tier 1, information is abundant enough and compelling enough to determine the statistical distribution of maximum sustainable yield. In this Tier is only one stock: BSAI walleye pollock. Most of the larger and commercially important stocks are in Tier 3, which has sufficient information to determine  $F_{40\%}$  and its corresponding biomass  $B_{40\%}$ .

**Sablefish reference points and current state of the stock**

The sablefish stock in Alaska is managed under tier 3. For these stocks, the spawner-recruit relationship is uncertain, so that MSY cannot be estimated with confidence. Hence, a surrogate based on  $F_{40\%}$  is used, following findings in the scientific literature in the 1990s. In Tiers 1–3, sufficient information is available to determine a target biomass level, which would be obtained at equilibrium when fishing according to the control rule with recruitment at the average historical level. The control rule is a biomass-based rule, for which fishing mortality is constant when biomass is above the target and declines linearly down to a threshold value when biomass drops below the

target. The updated sablefish point estimates of  $B_{40\%}$ ,  $F_{40\%}$ , and  $F_{35\%}$  from the latest assessment are 108,574 t (combined across the EBS, AI, and GOA), 0.096, and 0.114, respectively. Projected female spawning biomass (combined areas) 2012 is 101,325 (93% of  $B_{40\%}$ ) placing sablefish in sub-tier "b" of Tier 3 for 2011 is 102,139 t (93% of  $B_{40\%}$ ), placing sablefish in sub-tier "b" of Tier 3). The maximum permissible value of  $F_{ABC}$  under Tier 3b is 0.089, which translates into a 2012 ABC (combined areas) of 17,204 t (2011 ABC (combined areas) of 16,040 t). The OFL fishing mortality rate is 0.106 which translates into a 2012 OFL (combined areas) of 20,400 t (2011 OFL (combined areas) of 18,950 t). Model projections indicate that this stock is neither overfished nor approaching an overfished condition. **For Tier 3 stocks, the MSY proxy level is defined as  $B_{35\%}$ . Projected 2012 spawning biomass is 37% of the unfished spawning biomass. The limit reference point is  $\frac{1}{2}$  MSY or  $B_{17.5\%}$ .** NPFMC estimated a posterior probability of 0 that projected abundance will fall below thresholds of 17.5% [minimum stock size threshold (MSST) or limit reference point] of the unfished spawning biomass based on the posterior probability estimates over the next 14 years. In NPFMC settings, thresholds are defined in the Council harvest rules. These are when the spawning biomass falls below MSY or  $B_{35\%}$  and when the spawning biomass falls below  $\frac{1}{2}$  MSY or  $B_{17.5\%}$  which calls for a rebuilding plan under the MSA.

#### State waters

The Cook Inlet and Prince William Sound sablefish GHL for the 2012 fishing season is 31.3 mt and 110.2 mt, respectively. The NSEI Annual Harvest Objective (AHO) for the 2012 fishing season is 442.3 mt. See also Clause 5 and Clause 7.

<http://www.afsc.noaa.gov/REFM/docs/2011/GOAsablefish.pdf>

<http://icesjms.oxfordjournals.org/content/67/9/1861.full>

<http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/213134838.pdf>

<http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/119185000.pdf>

<http://www.seafa.org/?p=1580>

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

FAO CCRF 7.5.1/7.5.4/7.5.5  
FAO ECO 29.6/32

Evidence adequacy rating:

High

Medium

Low

**Rating Determination**

*The first element of the precautionary approach is the Optimum Yield (OY) for the groundfish complexes in the Bering Sea / Aleutian Islands (BSAI) and the GOA as a range of numbers. The sum of the TACs of all groundfish species (except Pacific halibut) is required to fall within the range. The second element of precautionary approach is the Tier system, based on knowledge and uncertainties of the stock in question. NPFMC inaugurated the Tier system in fisheries management: the harvest control rule depends on the amount of information available. The less the information about a given stock, the more conservative is the catch allowed. The third element of the precautionary approach is the ACL, OFL, ABC and TAC system. Allowable Biological Catch (ABC) is a scientifically acceptable level of harvest based on the biological characteristics of the stock and its current biomass level. Overfishing Level (OFL) is a limiting catch level, corresponding to fishing at MSY level, higher than ABC, which demarcates the boundary beyond which the fishery is no longer viewed as sustainable. In application, the NPFMC sets  $TAC \leq ABC < OFL$ . Bycatch from a given stock is limited by a Maximum Retainable Bycatch amount (MRB), which is determined as a percentage of retained catch (not including arrowtooth flounder). Alternatively, Prohibited Species Catch (PSC) limits close fisheries when reached.*

**Optimum Yield**

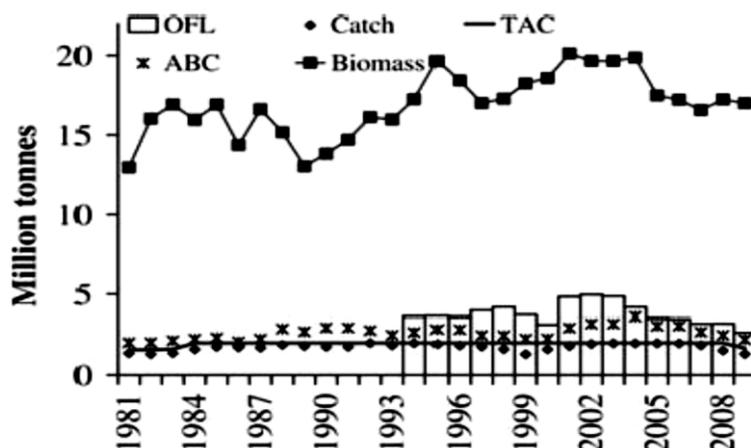
The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The first element of the precautionary approach is the Optimum Yield (OY) for the groundfish complexes in the Bering Sea / Aleutian Islands (BSAI) and the GOA as a range of numbers. The sum of the TACs of all groundfish species (except Pacific halibut) is required to fall within the range. The range for BSAI is 1.4 to 2.0 million mt while the range for GOA is 116 to 800 thousand mt. In practice, only the upper OY limit in the BSAI has been a factor in altering harvests. That is, that the sum of the TACs exceeded the upper range so harvest was constrained to not exceed the OY cap. The Council originally adopted the 2.0 million mt cap to meet the needs of the ecosystem. Trawl assessment surveys indicated that in many years the sum of the ABCs would have exceeded the OY cap if the NPFMC had not set aside the ABC in excess of the cap for ecosystem consideration. Thus, total groundfish harvest limits the total groundfish harvest that can be taken from the BSAI and GOA marine ecosystems, effectively adopting a conservative ecosystem approach to fisheries.

**Tier System**

The second element of precautionary approach is the *Tier* system, based on knowledge and uncertainties of the stock in question. NPFMC inaugurated the Tier system in fisheries management: the harvest control rule depends on the amount of information available. The less the information about a given stock, the more conservative is the catch allowed. Currently, sablefish in Alaska is managed under tier 3, where sufficient information is available to determine a target biomass level, which would be obtained at equilibrium when fishing according to the control rule with recruitment at the average historical level.

**OFL, ABC, ACL and TAC**

The third element of the precautionary approach is the ACL, OFL, ABC and TAC system. Allowable Biological Catch (ABC) is a scientifically acceptable level of harvest based on the biological characteristics of the stock and its current biomass level. Overfishing Level (OFL) is a limiting catch level, corresponding to fishing at MSY level, higher than ABC, which demarcates the boundary beyond which the fishery is no longer viewed as sustainable. In application, the NPFMC sets  $TAC \leq ABC < OFL$ . Since 1981, actual groundfish harvests have averaged approximately 90% of the cumulative TAC and 65% of the cumulative ABC because of the complex array of accountability measures governing these fisheries. See figure below for a figure showing the main catch management measures currently in use by federal management in Alaska.



**Figure 2. Cumulative estimates of biomass, overfishing level (OFL), acceptable biological catch (ABC), total allowable catch (TAC), and actual catch (all in million tonnes) across all groundfish species in the Northeast Pacific, 1981–2009.**

**Bycatch Limits**

Bycatch from a given stock is limited by a Maximum Retainable Bycatch amount (MRB), which is determined as a percentage of retained catch (not including arrowtooth flounder). In practice, NMFS attempts to manage a fishery so that total catch (including all discards) is less than, but very close to the TAC. Ideally, the directed fisheries are closed well before TAC is reached, so that when bycatch needs for that stock in other fisheries are factored in, the annual total catch is less than but very close to TAC. When a directed fishery is closed, bycatch of that stock is limited by a Maximum Retainable. If it appears that the TAC may be exceeded due to unanticipated circumstances, and ABC

is being approached, NMFS managers will prohibit retention of that species by all fisheries, in order to eliminate any 'top off' activity for bycatch of valuable species. If ABC is exceeded, and OFL is being approached, NMFS can prohibit or close any fisheries that might possibly take that species as bycatch.

The Council determines the TAC based on social and economic considerations. In application, the NPFMC sets  $TAC \leq ABC < OFL$ . Actual groundfish harvests have averaged approximately 90% of the cumulative TAC and 65% of the cumulative ABC (Figure above). The four main reasons that TAC may be set lower than ABC are: (1) to remain under the 2 million mt OY limit; (2) to increase a rebuilding rate or address other conservation issues; (3) to limit incidental bycatch, for example of halibut; or (4) to account for state water removals. Fisheries are managed in-season to achieve the TACs without exceeding the ABC or OFL.

### **State waters**

In state waters, five sablefish state fisheries are managed by the ADFG and the BOF outside the IFQ program. Two minor state fisheries are the ones in Cook Inlet and the Aleutian Islands managed using a Guideline Harvest Level (GHL), which is determined based on harvest history, fishery performance, and the federal survey for the area. Three major state fisheries exist which are limited entry and are located in Prince William Sound, Chatham and Clarence Strait. The Prince William Sound sablefish fishery is managed using a GHL and derived from the estimated area of sablefish habitat and a yield-per-unit-area model. For the Clarence and Chatham Strait fisheries an annual harvest objective is set with regard to survey and fishery catch per unit effort and biological characteristics of the population. In addition, in Chatham Strait an annual stock assessment is performed which includes a mark-recapture estimate of the population abundance.

<http://www.fakr.noaa.gov/npfmc/>

<http://icesjms.oxfordjournals.org/content/67/9/1861.full>

<http://www.afsc.noaa.gov/REFM/docs/2011/GOAsablefish.pdf>

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

<http://www.alaskafisheries.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf>

## D. Management Measures

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

**FAO CCRF 7.1.1/7.1.2/7.1.6/7.4.1/7.6.1/7.6.9/12.3**

**FAO Eco 29.2/29.4/30**

**Evidence adequacy rating:**

**High**

**Medium**

**Low**

### **Rating Determination**

*The federal sablefish fishery is managed under an Individual Quota System (IFQ). Under the major State managed sablefish fisheries, the use of an equal quota share system is very much like individual fishery quotas, and produces the same efficiencies. The 2006 reauthorization of the MSA included the requirement that the Council's SSC specify Annual Catch Limits (ACLs) with accompanying accountability measures when setting annual harvest quotas. The guidelines stipulated that ACL may not exceed ABC and that if  $ACL=ABC=OFL$ , then the proposal will prevent overfishing with accountability measures. Because Council's groundfish FMPs are multiyear plans, their plans provide that if ACL is exceeded in one year, then accountability measures are triggered for the next year to assure compliance (50 CFR 600.310 (f)(5)) and to subsequently account for whatever catches, bycatch or discards previously unaccounted. The Federal FMP for the BSAI and GOA list the fishery closures that are in place throughout Alaska. These closures apply to different vessels and gear types. The NMFS and the ADFG have well-established regulations on fishing seasons and legal gear use. Longline, trawl and pot gear are all regulated to increase selectivity of the target species and to avoid bycatch and discards. In addition to this, management measures and operational methods (i.e. MRB, PSC) are in place to account for bycatch and discards of encountered bycatch species.*

### **Derivation and management of catch limits**

The AFSC's REFM Division conducts research and data collection to support an ecosystem approach to management of Northeast Pacific and eastern Bering Sea fish and crab resources. More than twenty-five groundfish and crab stock assessments are developed annually and used by the NPFMC to set catch quotas. In addition, economic and ecosystem assessments are provided to the Council on an annual basis. Division scientists evaluate how fish stocks, ecosystem relationships and user groups might be affected by fishery management actions and climate variations.

One tool to accomplish this is through a rights-based fishery approach, or the use of individual fishing quotas. IFQ management has increased fishery catch rates and decreased the harvest of immature fish. Catching efficiency (the average catch rate per hook for sablefish) increased 1.8 times with the change from an open-access to an IFQ fishery. The improved catching efficiency of the IFQ fishery reduced the variable costs incurred in attaining the quota. Under the major State managed sablefish fisheries, the use of an equal quota share system is very much like individual fishery quotas,

and produces the same efficiencies. Decreased harvest of immature fish improved the chance that individual fish will reproduce at least once. Spawning potential of sablefish, expressed as spawning biomass per recruit, increased nine percent for the IFQ fishery.

The 2006 reauthorization of the MSA included the requirement that the Council's SSC specify Annual Catch Limits (ACLs) with accompanying accountability measures when setting annual harvest quotas. The guidelines stipulated that ACL may not exceed ABC and that if  $ACL=ABC=OFL$ , then the proposal will prevent overfishing with accountability measures. Because Council's groundfish FMPs are multiyear plans, their plans provide that if ACL is exceeded in one year, then accountability measures are triggered for the next year to assure compliance (50 CFR 600.310 (f)(5)) and to subsequently account for whatever catches, bycatch or discards previously unaccounted. Please also refer to the tier and harvest control system as explained in Clause 7.

Because the main sablefish harvest is conducted under an IFQ management system, once the target harvest (TAC) is determined by the Council process, NMFS/RAM sets the individual fishing quotas to not exceed the available harvest. This process is additionally conservative for two reasons. First, IFQ is often harvested over a number of fishing trips. If the quota available on the final trip is small, it may not be economically profitable to return to the fishing grounds to harvest it and it is left on the table. Second, the sum of the IFQs by area may not be achieved due to the regulatory repercussions of IFQ overages being sufficient to cause most IFQ holders to slightly fish under their annual IFQ.

The MSA's National Standard 9 governs federal regulators. It states that conservation and management measures shall, to the extent practicable, A) minimize bycatch and B) to the extent bycatch cannot be avoided; minimize the mortality of such bycatch. Regulations in place address waste, discard, bycatch, and endangered species interactions in the sablefish fisheries. The NMFS promulgates these regulations through the NPFMC. The Council's objective is to develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems. They also encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available. Prohibited Species Catch (PSC) limits are another measure to control bycatch of economically important and gear susceptible (from other fisheries) species. These include halibut, salmon, king and snow crab and the attainment of the allowed caps in a given fishery, effectively closes the fishery down for the year.

### **Closures**

The Federal FMP for the BSAI and GOA list the fishery closures that are in place throughout Alaska. These closures apply to different vessels and gear types. For example, there are closures to all vessels (i.e. fishing or anchoring within the Sitka Pinnacles Marine Reserve is prohibited at all times); use of trawl gear prohibited at all times in the Southeast Outside district, year-round in the Crab and Halibut Protection Zone and the Pribilof Island Habitat Conservation Area, the Nearshore Bristol Bay Trawl Closure area is also closed year-round except for a subarea that remains open between April 1 and June 15 each year. The Chum Salmon Savings Area is closed to trawling from August 1 through August 31. Closures also apply to non-pelagic trawl (i.e. the use of non-pelagic trawl is prohibited in Cook Inlet) Also, three types of closure areas are designated around Kodiak Island. Type I areas prohibit non-pelagic trawling year-round; Type II prohibit non-pelagic trawl from February 15 to June

15; adjacent areas designated as Type III may be reclassified by the Regional Administrator as Type I or Type II following a recruitment event. The Gulf of Alaska Slope Habitat Conservation Area is closed to non-pelagic trawling year-round. The use of bottom contact gear is prohibited in the Gulf of Alaska Coral and Alaska Seamount Habitat Protection Areas year-round and in the Aleutian Islands Coral Habitat Protection Areas year-round. The use of mobile bottom contact gear is prohibited year-round in Bowers Ridge Habitat Conservation Zone. Juvenile sablefish, mainly found close to the shore, tends to segregate spatially from adult sablefish, which is found in deeper waters. Within the time allowed by IFQ management, fishermen are able to target and catch adult sablefish with a high degree of precision.

Apportionment of catch depending on survey abundance indexes is intended to avoid localized depletions of sablefish throughout Alaska. See the table below for the latest apportionments.

Apportionments are based on survey and fishery information	2011 ABC Percent	2011 Survey RPW	2010 Fishery RPW	2012 ABC Percent	2011 ABC	2012 ABC	Change
Total					16,040	17,240	7%
Bering Sea	18%	6%	13%	13%	2,850	2,230	-22%
Aleutians	12%	11%	14%	12%	1,900	2,050	8%
Gulf of Alaska	70%	83%	73%	75%	11,290	12,960	15%
Western	14%	14%	12%	14%	1,620	1,780	9%
Central	42%	51%	38%	44%	4,740	5,760	22%
W. Yakutat	16%	15%	18%	16%	1,830	2,080*	14%
E. Yakutat / Southeast	28%	20%	32%	26%	3,100	3,350	8%

\*After the adjustment for the 95:5 hook-and-line:trawl split in the Eastern Gulf of Alaska, the 2012 ABC for West Yakutat is 2,247 t and for East Yakutat/Southeast is 3,173 t. This adjustment projected to 2013 is 2,218 t for W. Yakutat and 3,132 t for E. Yakutat.

Adjusted for 95:5 hook-and-line: trawl split in EGOA	Year	W. Yakutat	E. Yakutat/Southeast
	2012	2,247 t	3,173 t
	2013	2,218 t	3,132 t

**Gear**

Longline gear and the manner of fishing have been developed over a long period of time to be selective of target species. As an example, specific regulations were put in place intended to reduce the incidental mortality of the short-tailed albatross and other seabird species with revision in 1996 and 2001. The short-tailed albatross is a listed species under the Endangered Species Act (ESA). The BOF enacted changes to state law, mirroring federal regulations within state waters for groundfish fisheries. These measures now include the use of streamer (tory) lines, night setting, line shooter and lining tubes, and have been shown to reduce seabird interactions when setting or retrieving gear. The 1996 regulation imposing paired streamer lines and integrated weighted groundlines were nearly 100% effective at eliminating the catch of albatrosses and other surface feeding birds, resulting in an eight-fold decrease in seabird mortality. The current catch of seabirds in the sablefish fishery averages 17% of the total bycatch. The trend in seabird catch is variable but appears to be decreasing further, presumably due to widespread use of these measures to reduce bycatch.

Pot gear use mandates the inclusion of escape devices, should the pot be lost. The Alaska Administrative Code 5 AAC 39.145, as well as federal regulations under 50 CFR 679.2 state that pot gear in Alaska crab and bottom fish fisheries is required to have an escape mechanism consisting of an opening closed by 100% cotton twine no larger than 30-thread. Under the Individual Quota Fishery system in Alaska’s federal fisheries and the equal quota share in the major state waters

fisheries, much less gear is used and consequently lost than in the historical race for fish scenario. Market forces ensure that gear is cost effective.

Another example is the use of elevating devices (bobbers) on their sweeps by bottom trawler vessels in the BSAI (with Council intention to implement these measures in the GOA too) to reduce the impact on both the seafloor and the associated non-target invertebrates.

The NMFS and the ADFG have well-established regulations on fishing seasons and legal gear use. Discards of sablefish in the longline fishery are small, typically less than 5% of total catch. The catch of sablefish in the longline fishery typically consists of a high proportion of sablefish, 90% or more. Management measures and operational methods (i.e. MRB, PSC) are in place to account for bycatch and discards of encountered bycatch species. The trawl fishery operates under strict maximum retainable allowances for sablefish.

<http://www.fakr.noaa.gov/ram/ifq.htm>

<http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&ijkey=Rr1hA2GwWtqE2TZ>

<http://www.afsc.noaa.gov/REFM/>

<http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf>

<http://www.alaskafisheries.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf>

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOApdf>

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/BSAI/BSAIpdf>

**9. There shall be defined management measures designed to maintain stocks at levels capable of producing maximum sustainable levels.**  
**FAO CCRF 7.1.8/7.6.3/7.6.6/8.4.5/8.4.6/8.5.1/8.5.3/8.5.4/8.11.1/12.10**  
**FAO Eco 29.2bis**

**Evidence adequacy rating:**  
 **High**                       **Medium**                       **Low**

**Rating Determination**

*The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The rigorous process in place for over 30 years ensures that annual quotas are set at conservative, sustainable levels for all managed groundfish stocks. Model projections indicate that the sablefish stock in Alaska is neither overfished nor approaching an overfished condition. For Tier 3 stocks, the MSY proxy level is defined as B<sub>35%</sub>. Projected 2012 spawning biomass of sablefish is 37% of the unfished spawning biomass. The Maximum Sustainable Yield (MSY), defined in the BSAI and GOA groundfish FMPs, is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions, fishery technological characteristics (e.g., gear selectivity), and distribution of catch among fleets. The MSY allows defining the reference points used to manage the groundfish fisheries such that TAC ≤ ABC < OFL.*

The Magnuson-Stevens Fishery Conservation and Management Act (or in short Magnuson-Stevens Act, MSA) is the primary domestic legislation governing management of the nation’s marine fisheries. Under the MSA, the NPFMC is authorized to prepare and submit to the Secretary of Commerce for approval, disapproval or partial approval, a Fishery Management Plan (FMP) and any necessary amendments, for each fishery under its authority that requires conservation and management. These include Groundfish FMPs for the GOA and the BSAI which incorporate the sablefish fisheries in those regions.

Model projections indicate that the sablefish stock in Alaska is neither overfished nor approaching an overfished condition. For Tier 3 stocks, the MSY proxy level is defined as B<sub>35%</sub>. Projected 2012 spawning biomass of sablefish is 37% of the unfished spawning biomass. NPFMC estimated a posterior probability of 0 that projected abundance will fall below thresholds of 17.5% [minimum stock size threshold (MSST) or limit reference point] of the unfished spawning biomass based on the posterior probability estimates over the next 14 years. In NPFMC settings, thresholds are defined in the Council harvest rules. These are when the spawning biomass falls below MSY or B<sub>35%</sub> and when the spawning biomass falls below ½ MSY or B<sub>17.5%</sub> which calls for a rebuilding plan under the MSA.

The NPFMC harvest control system is complex and multi-faceted in order to address issues related to sustainability, legislative mandates, and quality of information. The rigorous process in place for over 30 years ensures that annual quotas are set at conservative, sustainable levels for all managed groundfish stocks. The management system for the NPFMC groundfish fisheries is a complex suite of measures comprised of harvest controls—e.g., OY, ACL, ABC, TAC, OFL—effort controls (IFQs, licenses, cooperatives), time and/or area closures (i.e. gear closures, habitat protection measures, marine reserves), bycatch controls (Maximum Retainable Bycatch (MRB) amounts, PSC limits,

retention and utilization requirements), monitoring and enforcement (observer program), social and economic protections, and rules responding to other constraints (e.g., regulations to protect Steller sea lions and to avoid seabirds bycatch).

The Maximum Sustainable Yield (MSY), defined in the BSAI and GOA groundfish FMPs, is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions, fishery technological characteristics (e.g., gear selectivity), and distribution of catch among fleets. The MSY allows defining the reference points used to manage the groundfish fisheries such that  $TAC \leq ABC < OFL$ . The table below shows the difference between OFL, ABC and TAC as determined for the sablefish fishery in 2011 and 2012.

Year	2011				2012		2013	
Region	OFL	ABC	TAC	Catch*	OFL	ABC	OFL	ABC
<b>BS</b>	3,360	2,850	2,850	617	2,640	2,230	2,605	2,201
<b>AI</b>	2,250	1,900	1,900	849	2,430	2,050	2,398	2,024
<b>GOA</b>	13,340	11,290	11,290	10,683	15,330	12,960	15,129	12,794
W	--	1,620	1,620	1,321	--	1,780	--	1,757
C	--	4,740	4,740	4,610	--	5,760	--	5,686
WYAK	--	1,990	1,990	1,844	--	2,247	--	2,218
SEO	--	2,940	2,940	2,908	--	3,173	--	3,132
<b>Total</b>	<b>18,950</b>	<b>16,040</b>	<b>16,040</b>	<b>12,149</b>	<b>20,400</b>	<b>17,240</b>	<b>20,132</b>	<b>17,019</b>

\*Current as of October 4, 2011 (<http://www.fakr.noaa.gov>).

When the sablefish open access fishery was in place, seasons became shorter as more entrants, with more fishing gear, fished harder to capture fish before it was closed. At that period, the fishery was overcapitalized. Under the IFQ share system in place for the Alaska sablefish, fishing capacity (vessels and gear) has been reduced. Additional goals of the IFQ Program were to keep the historic fleet structure of the fishery, limit and discourage corporate ownership to maintain the coastal community member participation, limit windfall profits to participants granted quota, discourage speculative entry, and reward participants who invested in the fishery (long-time participants and active participants).

Through a public process at the NPFMC, extensive staff analysis was presented, analyzed, and selected to ensure that the proposed level of fishing was commensurate with the sustainable use of the fishery resource. The number of vessels, and the class of those vessels, established a fishing fleet with less capacity, and with ownership in the resource. With carefully established TACs, and extended seasons, market conditions greatly improved, as more fresh fish was made available. This helped assure that fishermen operated under economic conditions that promoted responsible fisheries

<http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&ijkey=Rr1hA2GwWtqE2TZ>  
<http://www.afsc.noaa.gov/REFM/>

<p><b>10. Fishing operations shall be carried out by fishers with appropriate standards of competence in accordance with international standards and guidelines and regulations.</b></p> <p style="text-align: right;"><i>FAO CCRF 8.1.7/8.1.10/8.2.4/8.4.5</i></p>		
<p><b>Evidence adequacy rating:</b></p> <p> <input checked="" type="checkbox"/> <b>High</b> <span style="margin-left: 150px;"><input type="checkbox"/> <b>Medium</b></span> <span style="margin-left: 150px;"><input type="checkbox"/> <b>Low</b></span> </p>		
<p><b>Rating determination</b></p> <p><i>Any aspirant sablefish fisherman must have 150 days of sablefish fishing experience before being able to purchase sablefish IFQs. Obtaining sablefish IFQ share most often will require the purchaser to enter into loan capital arrangements with banks that will require comprehensive fishing business plans supported by competent, professional fishermen with demonstrable fishing experience. Several training opportunities are available to train crew members in Alaska.</i></p> <p>Any aspirant sablefish fisherman must have 150 days of sablefish fishing experience before being able to purchase sablefish IFQs. Obtaining sablefish IFQ share most often will require the purchaser to enter into loan capital arrangements with banks that will require comprehensive fishing business plans supported by competent, professional fishermen with demonstrable fishing experience. This competence and professionalism is a learned experience with the culmination of entrants into the fishery starting at deck hand level working their way up through proof of competence.</p> <p>The State of Alaska, Department of Labor &amp; Workforce Development (ADLWD) includes AVTEC (formerly called Alaska Vocational Training &amp; Education Center, now called Alaska’s Institute of Technology). One of AVTEC’s main divisions is the Alaska Maritime Training Center. The goal of the Alaska Maritime Training Center is to promote safe marine operations by effectively preparing captains and crew members for employment in the Alaskan maritime industry.</p> <p>The Alaska Maritime Training Center is a United States Coast Guard (USCG) approved training facility located in Seward, Alaska, and offers USCG/STCW-compliant maritime training (STCW is the international Standards of Training, Certification, &amp; Watchkeeping). In addition to the standard courses offered, customized training is available to meet the specific needs of maritime companies. Courses are delivered through the use of their world class ship simulator, state of the art computer based navigational laboratory, and modern classrooms equipped with the latest instructional delivery technologies.</p> <p>The Center’s mission is to provide Alaskans with the skills and technical knowledge to enable them to be productive in Alaska’s continually evolving maritime industry. Supplemental to their on-campus classroom training, the Alaska Maritime Training Center has a partnership with the Maritime Learning System to provide mariners with online training for entry-level USCG Licenses, endorsements, and renewals.</p> <p>The University of Alaska Sea Grant Marine Advisory Program (MAP) provides education and training in several sectors, including fisheries management, in the forms of seminars and workshops. In addition, MAP conducts sessions of their Alaska Young Fishermen’s Summit (AYFS). Each Summit is an intense, 3-day course in all aspects of Alaska fisheries, from fisheries management &amp; regulation, to seafood markets &amp; marketing. The target audience for these Summits is young Alaskans from coastal communities. The 2012 AYFS was held Feb. 13 and 14 in Juneau, AK. The two-day conference aimed at providing crucial training and networking opportunities for fishermen entering the business</p>		

or wishing to take a leadership role in their industry. The event took advantage of the Juneau location by introducing participants to the legislative process, and introducing the fish caucus of the legislature to the issues and concerns of Alaska's emerging fishermen.

<http://www.avtec.edu/AMTC.htm>

<http://www.stcw.org/>

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

<http://seagrant.uaf.edu/map/fishbiz/index.php>

<http://www.sfos.uaf.edu/fitc/academicprograms/>

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIsablefish.pdf>

## E. Implementation, Monitoring and Control

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

*FAO CCRF 7.1.7/7.7.3/7.6.2/8.1.1/8.1.4/8.2.1*  
*FAO Eco 29.5*

**Evidence adequacy rating:**

**High**
                         
  **Medium**
                         
  **Low**

**Rating Determination**

*The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The federal violations in this fishery are reported to and investigated by NOAA’s Office of Law Enforcement’s Alaska Division and prosecuted by NOAA’s Office of General Counsel’s Enforcement Section. OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA’s Office of General Counsel for Enforcement and Litigation (GCEL). The Alaska Wildlife Troopers (AWT) enforce state regulations.*

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

This is the latest available information from the US Coast Guard on boardings and violations in the IFQ Sablefish fishery. The IFQ sablefish season opened on 12 March in 2011. There have been 106 Halibut/Sablefish USCG Boardings during the reporting period April-May 2011, with 7 fishing violations detected on 5 vessels. Violations included 3 for fishing without their IFQ permits on board the vessel, 2 for fishing without a vessel monitoring system (VMS) while endorsed for Pacific Cod, 1 Failure to enter offloads in their logbook, and 1 for no federal fishing permit (FFP) on board. For those vessels without permits on board, the masters of those vessels did have valid permits with available quota for the amount of fish on board.

The USCG also reported that there were 10 Halibut/Sablefish boardings during the reporting period October-November 2011, with 4 fishing violations detected on 2 vessels. The F/V PATRICIA SUE was issued violations for failure to have their IFQ permit and Federal Fisheries permit on board, although it was later verified that the vessel did have valid permits. The F/V ADRONICA was issued violations for failure to meet observer coverage requirements and logbook errors.

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/resources/USCG/USCGrpt1211full.pdf>

**NMFS OLE**

NOAA Office of Law Enforcement Special Agents and Enforcement Officers perform a variety of tasks associated with the protection and conservation of Alaska’s living marine resources. In order to enforce these laws, OLE special agents and enforcement officers conduct investigations and use OLE patrol vessels to board vessels fishing at sea, and conduct additional patrols on land, in the air and at sea in conjunction with other local, state and Federal agencies.

In any given year, OLE Agents and Officers spend an average 10,000-11,000 hours conducting patrols and investigations, and an additional 10,000-11,000 hours on outreach activities. The OLE maintains 19 patrol boats around the country to conduct a variety of patrols including Protected Resources Enforcement Team (PRET) boardings, protection of National Marine Sanctuaries and various undercover operations.

OLE Special Agents and Enforcement Officers conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, review sales of wildlife products on the internet and conduct patrols on land, in the air and at sea. NOAA Agents and Officers can assess civil penalties directly to the violator in the form of Summary Settlements (SS) or can refer the case to NOAA's Office of General Counsel for Enforcement and Litigation (GCEL). GCEL can then assess a civil penalty in the form of a Notice of Permit Sanctions (NOPs) or Notice of Violation and Assessment (NOVAs), or they can refer the case to the U.S. Attorney's Office for criminal proceedings. For perpetual violators or those whose actions have severe impacts upon the resource criminal charges may range from severe monetary fines, boat seizures and/or imprisonment may be levied by the United States Attorney's Office.

All landings of sablefish must be reported to NMFS via its mandatory "e-landings" reporting system. Commercial harvests of pollock, halibut and sablefish are the primary enforcement responsibilities of OLE. The IFQ, Observer and Record Keeping/Reporting programs are the foundations of the Alaska Division program responsibilities. Endangered Species Act and Marine Mammal Protection Act priorities include the Steller sea lion and Cook Inlet beluga populations in addition to many other protected resources.

#### **Alaska Division: NMFS OLE 2012 Enforcement Priorities**

##### **Magnuson-Stevens Act**

##### **HIGH PRIORITY**

- Observer assault, harassment, or interference violations.
- Felony and major civil cases involving significant damage to the resource or the integrity of management schemes.
- Commercialization of sport-caught or subsistence halibut.
- Maritime Boundary Line incursions by foreign fishing or transport vessels.

##### **MEDIUM PRIORITY**

- Misdemeanor and civil cases involving observer coverage violations.
- Closed Area/VMS Violations, ongoing.
- Commercial vessel incursions into closure areas or other Marine Protected Areas.
- Recordkeeping and reporting violations that impact data consistency or integrity.
- Violations involving lesser damage to the resource or the integrity of management schemes.

##### **LOW PRIORITY**

- Catch Reporting and Trip Limits.
- Noncompliance with trip and cumulative limits, and record keeping requirements for landings of

federally managed marine species, and specifically catch share programs.

- Gear Violations.
- Deployment of unlawful gear utilized in commercial fisheries under NOAA's jurisdiction.
- Lesser permit violations.

#### **Endangered Species Act and Marine Mammal Protection Act**

##### **HIGH PRIORITY**

- Violations wherein responsible subject and species are identifiable.
- Lethal Takes, Level "A" Harassment with the potential to injure marine mammal stock.
- Species of interest are Cook Inlet Beluga, other whale species, Northern fur seal, and Steller sea lion.
- Any violation involving injury or potential injury to people, such as a vessel-whale collision.

##### **MEDIUM PRIORITY**

- Non-lethal takes, Level "B" Harassment with the potential to disturb a marine mammal stock in the wild by causing a disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.
- Species is threatened rather than endangered.

##### **LOW PRIORITY**

- Violations wherein responsible subject is not identifiable.
- Injured or dead animal cannot be located.
- Objective evidence is not obtainable.

Takes of individual marine mammal species that appear consistent with legal harvest by Alaska Natives

#### **International/Lacey Act**

##### **HIGH PRIORITY**

- Felony and major civil violations. For example, interstate or foreign trafficking of commercial quantities of illegally harvested fish or marine resources.
- Harvest or transshipment of marine resources by foreign fishing vessels.
- Domestic or international violations involving seafood safety; substantive mislabelling of product in domestic or international commerce.
- IUU listed vessels.

##### **MEDIUM PRIORITY**

- Misdemeanor and civil violations. For example, interstate or foreign trafficking of small quantities of illegally harvested fish or marine resources.
- Mislabeling violations.
- IUU identified product.

##### **LOW PRIORITY**

- Minor mislabeling violations.
- Violations wherein responsible subject/vessel not identifiable.

[http://www.nmfs.noaa.gov/ole/docs/2012/ole\\_priorities\\_2012.pdf](http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf)

The Alaska Wildlife Troopers (AWT) and ADFG enforce fisheries regulations in state waters.

50CFR679: [www.fakr.noaa.gov/regs/default.htm](http://www.fakr.noaa.gov/regs/default.htm)  
NMFS OLE, Alaska region: [www.nmfs.noaa.gov/ole/ak\\_alaska.html](http://www.nmfs.noaa.gov/ole/ak_alaska.html)  
USCG, Alaska region: [www.uscg.mil/d17/](http://www.uscg.mil/d17/)  
IFQ: [www.fakr.noaa.gov/ram/ifq.htm](http://www.fakr.noaa.gov/ram/ifq.htm)  
reporting: [www.fakr.noaa.gov/ram/webapps.htm](http://www.fakr.noaa.gov/ram/webapps.htm)  
e-landings: <http://elandings.alaska.gov/>  
<http://www.fakr.noaa.gov/frules/76fr14300.pdf>  
<http://www.gc.noaa.gov/enforce-office3.html>  
[http://www.nmfs.noaa.gov/ole/docs/2012/ole\\_priorities\\_2012.pdf](http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf)  
<http://www.nmfs.noaa.gov/ole/investigations.html>  
[http://deckboss-thebrig.blogspot.com/2010\\_04\\_01\\_archive.html](http://deckboss-thebrig.blogspot.com/2010_04_01_archive.html)

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

*FAO CCRF 7.7.2/8.2.7*

**Evidence adequacy rating:**

**High**

**Medium**

**Low**

**Rating determination**

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

The Magnuson-Stevens Act provides four basic enforcement remedies for violations (50CFR600.740 Enforcement policy).

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

In some cases, the Magnuson-Stevens Act requires permit sanctions following the assessment of a civil penalty or the imposition of a criminal fine. In sum, the Magnuson-Stevens Act treats sanctions against the fishing vessel permit to be the carrying out of a purpose separate from that accomplished by civil and criminal penalties against the vessel or its owner or operator.

Magnuson Stevens Act Penalty Matrix.



## Magnuson-Stevens Penalty Matrix

Harm to the Resource or Regulatory Program, Offense Level	Level of Intent			
	A Unintentional	B Negligent	C Reckless	D Willful
<b>I</b>	Written warning-\$1,000	Written warning-\$1,500	Written warning-\$2,000	Written warning-\$2,500
<b>II</b>	Written warning-\$2,000	\$2,000-\$5,000	\$5,000-\$10,000	\$10,000-\$15,000

<b>III</b>	\$2,000-\$5,000	\$5,000-\$10,000	\$10,000-\$15,000	\$15,000-\$25,000
<b>IV</b>	\$5,000-\$15,000	\$15,000-\$25,000	\$25,000-\$50,000 and permit sanction of 10-20 days*	\$50,000-\$80,000 and permit sanction of 20-60 days*
<b>V</b>	\$15,000-\$25,000	\$25,000-\$50,000 and permit sanction of 10-20 days*	\$50,000- \$80,000 and permit sanction of 20-60 days*	\$60,000- \$100,000 and permit sanction of 60-180 days*
<b>VI</b>	\$25,000-\$50,000	\$50,000-\$80,000 and permit sanction of 20-60 days*	\$60,000-\$100,000 and permit sanction of 60-180 days*	\$100,000-statutory maximum and permit sanction of 1 year-permit revocation*

[http://www.nmfs.noaa.gov/sfa/reg\\_svcs/Councils/ccc\\_2011/Tab%20L%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf](http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20L%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf)

The “Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions” issued by NOAA Office of the General Counsel – Enforcement and Litigation - March 16, 2011, provides guidance for the assessment of civil administrative penalties and permit sanctions under the statutes and regulations enforced by NOAA. The purpose of this Policy is to ensure that: (1) civil administrative penalties and permit sanctions are assessed in accordance with the laws that NOAA enforces in a fair and consistent manner; (2) penalties and permit sanctions are appropriate for the gravity of the violation; (3) penalties and permit sanctions are sufficient to deter both individual violators and the regulated community as a whole from committing violations; (4) economic incentives for noncompliance are eliminated; and (5) compliance is expeditiously achieved and maintained to protect natural resources. Under this Policy, NOAA expects to improve consistency at a national level, provide greater predictability for the regulated community and the public, improve transparency in enforcement, and more effectively protect natural resources.

For significant violations, the NOAA attorney may recommend charges under NOAA’s civil administrative process (see 15 C.F.R. Part 904), through issuance of a Notice of Violation and Assessment of a penalty (NOVA), Notice of Permit Sanction (NOPS), Notice of Intent to Deny Permit (NIDP), or some combination thereof. Alternatively, the NOAA attorney may recommend that there is a violation of a criminal provision that is sufficiently significant to warrant referral to a U.S. Attorney’s office for criminal prosecution.

<http://www.noaanews.noaa.gov/stories2011/pdfs/Penalty%20Policy%20--%20FINAL.pdf>

The Alaska Wildlife troopers enforce state water regulations. Here below are presented some of the statutes that enable the government to fine, imprison, and confiscate equipment for violations and restrict an individual’s right to fish if convicted of a violation.

- AS 16.05.165. Form and issuance of citations
- AS 16.05.170 Power to execute warrant
- AS 16.05.180 Power to search without warrant
- AS 16.05.190 Seizure and disposition of equipment
- AS 16.05.195 Forfeiture of equipment
- AS 16.05.332 Wildlife Violator Compact
- AS.16.05.410 Revocation of license
- AS 16.05.710 Suspension of Commercial License and Entry Permit

AS 16.05.722 Strict liability commercial fishing penalties  
AS 16.05.723 Misdemeanor commercial fishing penalties  
AS 16.05.896 Penalty for causing material damage  
AS 16.05.901 Penalty for violations of AS 16.05.871 – AS 16.05.896.  
AS 16.05.030 Penalty for violation of 16.10.010-16.10.050  
AS 16.10.090 Penalty for violation of AS 16.10.090  
AS 16.10.220 Penalty for violation of AS 16.10-200-16.1-.210  
AS 16.10.790 Fines  
AS 16.40.290 Penalty  
AS 16.43.960 Commission revocation or suspension of permits  
AS 16.43.970 Penalties

***sources of evidence –***

Alaska Statutes Title 16 (laws)

Alaska Administrative Code Title 5 (regulations)

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

At each of the five annual Council meetings, representatives of the USCG, OLE, NMFS, ADF&G and AWT meet in an Enforcement Meeting where enforcement concerns with plan amendments are discussed and materials relating to those concerns are prepared for the Council. During staff reports to the Council the USCG and the OLE present information about vessel boardings and enforcement violations by the fishing industry that occurred since the last Council meeting.

50CFR600.740 Enforcement policy

<http://www.nmfs.noaa.gov/ole/investigations.html>

<http://www.noaaneews.noaa.gov/stories2011/pdfs/Penalty%20Policy%20--%20FINAL.pdf>

<http://codes.lp.findlaw.com/akstatutes/16/16.43./08>.

## F. Serious Impacts of the Fishery on the Ecosystem

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

**FAO CCRF 7.2.3/8.4.7/8.4.8/12.11**  
**Eco 29.3/31**

**Evidence adequacy rating:**

**High**
                         
  **Medium**
                         
  **Low**

**Determination Rating**

*NPFMC and NOAA/NMFS conduct assessments and research on environmental factors as affected by the commercial sablefish fishery and associated species and their habitats. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the effects of commercial fishing on the habitat of sablefish is minimal or temporary in the current fishery management regime. There is knowledge of the essential fish habitats for sablefish in Alaska’s waters. Grenadiers and sharks make up the majority of bycatch in the sablefish fisheries. There are currently no directed commercial fisheries for grenadiers in federally and state managed waters of the BSAI and GOA and there are no limits on grenadiers catch and retention in the BSAI and GOA groundfish fisheries. However, there is no evidence to suggest that overfishing is occurring for grenadiers in the BSAI and in the GOA because neither ABC nor OFL have been exceeded over the last years. The sablefish fishery catches significant portions of spiny dogfish and other/unidentified shark total catch, respectively 23% and 70% of the total. There are currently no directed commercial fisheries for shark species in federally or state managed waters of the BSAI and the GOA, and most incidental catch is not retained. Spiny dogfish are allowed as retained incidental catch in some state managed fisheries, and salmon sharks are targeted by some sport fishermen in Alaska state waters. There is no evidence to suggest that overfishing is occurring for any shark species in the BSAI and the GOA because the OFL or ABC has not been exceeded. Sperm whale diets overlap with commercial fisheries harvests more than any other species of toothed whales, but the degree of overlap is at least partly because of direct interactions with longline gear.*

NPFMC and NOAA/NMFS conduct assessments and research on environmental factors as affected by the commercial sablefish fishery and associated species and their habitats. Findings and conclusions are published in the Ecosystem section of the SAFE document, annual Ecosystem Considerations documents, and the various other research reports. The SAFE reports include sections for 1) Ecosystem effects on the stock; and 2) Effects of the sablefish fishery on the ecosystem. SAFE reports also describe results of first-order trophic interactions for sablefish from the ECOPATH model, an ecosystem modeling software package. The Resource Ecology and Ecosystem Management group at the Alaska Fishery Science Center (AFSC) provides up-to-date ecosystem information and assessments in annual Ecosystem Considerations documents, found under the groundfish stock

assessment reports page (<http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf>).

### **Impacts on Essential Fish Habitat**

The MSA defines essential fish habitat (EFH) as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” In order to protect EFH, certain EFH habitat conservation areas have been designated. To incorporate the regulatory guidelines for review and revision of EFH FMP components, the NPFMC conducts a complete review of all the EFH components of each FMP once every five years and amends those EFH components as appropriate to include new information. Additionally, the Council may use the FMP amendment cycle every three years to solicit proposals for habitat areas of particular concern (HAPC) and/or conservation and enhancement measures to minimize the potential adverse effects from fishing. The proposals that the Council endorses would be implemented through FMP amendments. An annual review of existing and new EFH information will be conducted and this information will be provided to the BSAI or GOA Groundfish Plan Team for their review during the annual SAFE report process. This information is included in the “Ecosystems Considerations” chapter of the SAFE report.

The GOA and BSAI FMPs define Essential Fish Habitat (EFH) for five stages of the sablefish life cycle; including:

**Eggs:** EFH for sablefish eggs is the general distribution area for this life stage, located in deeper waters along the slope (200 to 3,000 m) throughout the GOA. There is no EFH description determined in the BSAI;

**Larvae:** EFH for larval sablefish is the general distribution area for this life stage, located in epipelagic waters along the middle shelf (50 to 100 m), outer shelf (100 to 200 m), and slope (200 to 3,000 m) throughout the GOA. In the BSAI, the EFH is located in pelagic waters along the entire shelf (0 to 200 m) and slope (200 to 3,000 m).

**Early Juveniles:** Early juveniles rear for the 1<sup>st</sup> year or so in nearshore waters.

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.pdf>

**Late Juveniles:** EFH for late juvenile sablefish is the general distribution area for this life stage, located in the lower portion of the water column, varied habitats, generally softer substrates, and deep shelf gulleys along the slope (200 to 1,000 m) throughout the GOA and the BSAI.

**Adults:** EFH for adult sablefish is the general distribution area for this life stage, located in the lower portion of the water column, varied habitats, generally softer substrates, and deep shelf gulleys along the slope (200 to 1,000 m) throughout the GOA and the BSAI.

The Essential Fish Habitat Environmental Impact Statement (EFH EIS) (NMFS, 2005) concluded that the effects of commercial fishing on the habitat of sablefish is minimal or temporary in the current fishery management regime.

While it is possible that longlines could move small boulders it is unlikely that fishing would persist where this would often occur. Relative to the effect on living structures and relative to the effect by bottom tending mobile gear, a significant effect of longlines on bedrock, cobbles, or sand is not easily envisioned.

Non-pelagic trawl and bottom contact gear closure areas are used to protect habitats and to help rebuild resources such as the Kodiak king crab. The vast majority of bottom trawl vessels in the BSAI have now modified sweeps that carry large bobbing, decreasing significantly seafloor damage. The Council intends to implement these measures for all trawl fisheries in the Gulf of Alaska too. Pot gear as utilized for this fishery is not considered to cause any permanent or significant habitat related impact.

**Ecosystem considerations**

Ecosystem considerations for the sablefish fisheries are summarized in the table below as for reported in the latest SAFE.

Table 3.12. Analysis of ecosystem considerations for sablefish fishery.

<i>Indicator</i>	<i>Observation</i>	<i>Interpretation</i>	<i>Evaluation</i>
<b><i>ECOSYSTEM EFFECTS ON STOCK</i></b>			
<i>Prey availability or abundance trends</i>			
Zooplankton	None	None	Unknown
<i>Predator population trends</i>			
Salmon	Decreasing	Increases the stock	No concern
<i>Changes in habitat quality</i>			
Temperature regime	Warm increases recruitment	Variable recruitment	No concern (can't affect)
Prevailing currents	Northerly increases recruitment	Variable recruitment	No concern (can't affect)
<b><i>FISHERY EFFECTS ON ECOSYSTEM</i></b>			
<i>Fishery contribution to bycatch</i>			
Prohibited species	Small catches	Minor contribution to mortality	No concern
Forage species	Small catches	Minor contribution to mortality	No concern
HAPC biota (seapens/whips, corals, sponges, anemones)	Small catches, except long-term reductions predicted	Long-term reductions predicted in hard corals and living structure	Possible concern
Marine mammals and birds	Bird catch about 10% total	Appears to be decreasing	Possible concern
Sensitive non-target species	Grenadier, spiny dogfish, and unidentified shark catch notable	Grenadier catch high but stable, recent shark catch is small	Possible concern for grenadiers
<i>Fishery concentration in space and time</i>	IFQ less concentrated	IFQ improves	No concern
<i>Fishery effects on amount of large size target fish</i>	IFQ reduces catch of immature	IFQ improves	No concern
<i>Fishery contribution to discards and offal production</i>	sablefish <5% in longline fishery, but 30% in trawl fishery	IFQ improves, but notable discards in trawl fishery	Trawl fishery discards definite concern
<i>Fishery effects on age-at-maturity and fecundity</i>	trawl fishery catches smaller fish, but only small part of total catch	slightly decreases	No concern

**Research priorities**

There is little information on early life history of sablefish and recruitment processes. A better understanding of juvenile distribution, habitat utilization, and species interactions would improve understanding of the processes that determine the productivity of the sablefish stock.

Future research is going to focus on several direction:

- 1) Refine survey index model for inclusion in the 2012 assessment model that accounts for whale depredation and potentially includes gully abundance data and other covariates.
- 2) Improve knowledge of sperm whale and killer whale depredation in the fishery and begin to quantify depredation effects on the fishery catch rates.
- 3) Explore the use of environmental data to aid in determining recruitment.
- 4) Work closely with the Gulf of Alaska Ecosystem project to help understand recruitment dynamics.
- 5) Develop a spatially explicit research assessment model that includes movement.

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.PDF>

**By catch of non-target species and HAPC biota (Table 3.5)**

*Grenadiers*

Grenadier and giant grenadier are by far the most abundant bycatch of the sablefish fishery, their catch averages 66% of the total bycatch.

There are currently no directed commercial fisheries for grenadiers in federally and state managed waters of the BSAI and GOA and actually, there are no limits on grenadiers catch and retention in the BSAI and GOA groundfish fisheries. However, there is no evidence to suggest that overfishing is occurring for grenadiers in the BSAI and in the GOA because neither ABC nor OFL have been exceeded the last years. Total grenadiers catch in 2011 were 6,360 mt and 8,191 mt in the combined BSAI and the GOA, respectively. Recommendations in the 2011 BSAI/GOA grenadiers SAFE report recommend that the grenadier complex be managed as a Tier 5 species. **The recommended ABC and OFL for GOA are 34,976 t and 46,635 t respectively, and for BSAI are 101,427 t and 135,236 t respectively.**

Table 3.5. Bycatch of nontarget species and HAPC biota in the targeted sablefish fishery. Source: NMFS AKRO Blend/Catch Accounting System via AKFIN, October 10, 2011.

<u>Group Name</u>	<u>Estimated Catch (t)</u>					
	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Benthic urochordata	0.00	0.07	0.00	-	0.01	0.12
Birds	0.61	0.89	1.57	0.55	0.40	0.35
Bivalves	-	0.00	Conf.	-	0.02	0.00
Brittle star unidentified	0.23	0.05	0.10	0.06	0.33	0.11
Corals Bryozoans	0.64	1.56	0.16	1.55	1.63	2.45
Dark Rockfish	-	-	-	Conf.	0.15	Conf.
Eelpouts	1.52	1.30	2.26	7.86	1.77	1.34
Eulachon	-	-	0.29	Conf.	0.10	Conf.
Giant Grenadier	3,167	3,905	9,181	8,848	5,366	4,385
Greenlings	0.01	-	75.83	0.02	0.02	-
Grenadier	3,663	4,782	109	127	961	745
Hermit crab unidentified	0.02	0.05	0.05	0.07	0.09	0.19
Invertebrate unidentified	0.00	0.07	0.02	0.01	0.32	0.76
Lanternfishes (myctophidae)	0.00	-	-	-	-	-
Misc crabs	0.32	0.47	1.12	0.94	3.21	1.90
Misc crustaceans	-	-	-	-	1.53	0.00
Misc deep fish	-	0.00	0.00	-	0	-
Misc fish	20.63	18.06	16.93	21.06	4.64	4.00
Misc inverts (worms etc)	-	0.00	Conf.	0.00	0.01	0.00

Other osmerids	-	-	-	Conf.	-	-
Pandalid shrimp	-	0.00	0.00	0.00	0.01	0.00
Polychaete unidentified	-	-	-	0.00	0.00	0.00
Scypho jellies	0.16	0.10	0.00	Conf.	0	0
Sea anemone unidentified	0.12	0.29	3.34	0.67	1.99	1.32
Sea pens whips	0.03	0.19	0.07	0.32	0.49	0.03
Sea star	1.24	5.13	35.24	1.54	2.45	2.55
Snails	4.29	9.41	8.09	6.43	11.22	11.56
Sponge unidentified	0.63	0.70	0.16	14.64	1.92	0.76
Urchins, dollars, cucumbers	0.21	0.15	0.14	0.47	1.05	0.55

#### *Impact of fishing gear on seabirds (Table3.5)*

The short-tailed albatross (*Phoebastria albatrus*) is a listed species under the Endangered Species Act (ESA). As such, incidental takes in the longline fishery are regulated and limits are set. The limit set by NMFS under the current ESA biological opinion is a maximum of four birds (actually observed) in a two- year cycle. If that level is exceeded, it automatically initiates an ESA Section 7 Consultation, which involves a consultation between the US Fish and Wildlife Service and the National Marine Fisheries Service. In that instance, new regulations and further avoidance measures could be placed on the fishery by NMFS.

These measures now include the use of streamer (Tory) lines, night setting, line shooter and lining tubes. These measures have been shown to reduce seabird interactions when setting or retrieving gear. The trend in seabird catch decreased significantly with the 1996 regulations and appears to be decreasing further, presumably due to widespread use of these measures to reduce bycatch.

#### *Impact on sharks*

The sablefish fishery catches significant portions of spiny dogfish and other/unidentified shark total catch, respectively 23% and 70 % (Table 20.6 and Table 20.9). Spiny dogfish (*Squalus suckleyi*): IUCN Red list "Vulnerable". Fisheries and population trend data indicate that the southern part of the Northeast Pacific stock has also declined through overfishing, but stocks appear stable off Alaska. <http://www.iucnredlist.org/apps/redlist/details/61413/0>

Table 20.6. Estimated catch (tons) of spiny dogfish in the Gulf of Alaska by fishery. 1990-1996 catch estimated by pseudo-blend estimation procedure (Gaichas et al. 1999). 1997-2001 catch estimated with NMFS new pseudo-blend estimation procedure (Gaichas 2002). Years 2003-2010 from NMFS AKRO using the improved pseudo-blend estimation procedure (queried through AKFIN on Oct 11, 2011). Catch by target fishery and species are not available for 2002. Spiny dogfish do not occur in the Atka Mackerel fishery. Bycatch in the halibut fisheries has been estimated by NMFS AKRO since 2003, but it is based only on landed sharks and does not include discarded catch. See Appendix 20A for halibut fishery incidental catch estimates.

Fishery	Pollock	Pacific Cod	Flatfish	Rockfish	Halibut	Sablefish	Grand Total	Year % of Total 97-11
1990	57.6	36.0	13.5	1.8		59.0	170.9	
1991	29.3	52.6	16.2	16.4		26.2	141.2	
1992	84.4	50.5	116.0	22.4		40.7	320.6	
1993	137	10.1	138.5	2.4		95.3	383.4	
1994	22	16.9	83.4	2.5		35.4	160.2	
1995	2.8	28.1	24.1	18.4		50.7	140.6	
1996	2.9	15.3	182.6	19.8		79.5	336.9	
1997	2.8	57.6	137.2	326.2		133.7	657.5	8%
1998	4.9	727.2	69.0	3.1		59.6	864.9	10%
1999	8.6	160.2	56.6	4.8		83.4	313.6	4%
2000	18.7	29.4	66.3	146.6		136.6	397.6	5%
2001	11.6	172.8	162.5	25.1		122.1	494.0	6%
2002	-	-	-	-	-	-	-	
2003	6.1	43.6	166.0	35.5	6.6	17.3	275.0	3%
2004	9.2	19.6	15.5	2.3	13.4	123.2	183.2	2%
2005	15.2	27.9	50.1	2.8	17.3	329.3	442.7	6%
2006	50.0	113.2	122.9	2.0	713.2	147.4	1,148.6	14%
2007	47.6	250.2	151.4	6.2	210.5	165.6	831.4	10%
2008	59.6	289.6	87.3	4.8	0.5	91.1	533.0	7%
2009	17.6	113.7	204.8	7.0	603.2	80.7	1,027.1	13%
2010	19.8	118.1	164.0	3.5	21.4	70.8	397.7	5%
2011	1.5	20.0	46.8	0.7	69.1	248.9	387.1	5%
<b>Fishery % of Total</b>	<b>3%</b>	<b>27%</b>	<b>19%</b>	<b>7%</b>	<b>21%</b>	<b>23%</b>		

Table 20.9. Estimated catch (tons) of other/unidentified sharks in the Gulf of Alaska by fishery. 1990-1996 catch estimated by pseudo-blend estimation procedure (Gaichas et al. 1999). 1997-2001 catch estimated with NMFS new pseudo-blend estimation procedure (Gaichas 2002). Years 2003-2010 from NMFS AKRO using the improved pseudo-blend estimation procedure (queried through AKFIN on Oct 11, 2011). Catch by target fishery and species is not available for 2002. Other/unidentified sharks do not occur in the Atka Mackerel fishery. Bycatch in the halibut fisheries has been estimated by NMFS AKRO since 2003, but it is based only on landed sharks and does not include discarded catch. See Appendix 20A for halibut fishery incidental catch estimates.

Fishery	Pollock	Pacific Cod	Flatfish	Rockfish	Halibut	Sablefish	Grand Total	Year % of Total 97-10
1990	4.1	21.3	0.8	1.4		2.9	30.5	
1991	17.8	36.7	35.5	4.4		13.7	108.1	
1992	3.3	8.4	3.5	0.1		1.5	17.2	
1993	138.3	38.1	3.7	0.0		159.3	339.6	
1994	41.6	2.3	3.0	0.0		8.9	55.8	
1995	4.0	3.4	10.6	9.7		14.3	49.3	
1996	14.2	3.1	17.8	1.9		16.0	53.4	
1997	8.9	13.4	9.0	47.5		43.9	123.4	6%
1998	24.2	10.2	17.9	2.3		1,325.2	1,379.8	66%
1999	6.1	12.3	8.1	0.1		6.4	33.0	2%
2000	12.3	3.5	34.0	4.8		18.7	73.6	4%
2001	35.0	1.4	1.5	1.4		37.7	77.0	4%
2002	-	-	-	-		-	-	
2003	7.6	6.4	18.2	0.2	17.5	3.1	53.0	3%
2004	11.1	2.7	18.8	0.2	2.6	3.3	38.7	2%
2005	34.7	1.2	21.5	0.2	0.2	11.0	68.8	3%
2006	40.9	11.9	24.4	1.6	0.0	4.3	83.1	4%
2007	13.9	38.3	49.6	0.4	0.0	4.9	107.0	5%
2008	4.3	2.4	2.4	0.0	0.0	2.8	12.1	1%
2009	10.4	2.7	10.6	0.0	0.0	0.0	23.7	1%
2010	3.7	0.2	4.0	1.2	0.2	0.0	9.3	0%
2011	0.2	0.2	1.5	0.0	0.0	0.1	2.1	0%
<b>Fishery % of Total</b>	<b>10%</b>	<b>5%</b>	<b>11%</b>	<b>3%</b>	<b>1%</b>	<b>70%</b>		

There are currently no directed commercial fisheries for shark species in federally or state managed waters of the BSAI and the GOA, and most incidental catch is not retained. Spiny dogfish are allowed as retained incidental catch in some state managed fisheries, and salmon sharks are targeted by some sport fishermen in Alaska state waters. There is no evidence to suggest that over fishing is occurring for any shark species in the BSAI and the GOA because the OFL or ABC has not been exceeded. Total shark catch in 2011 was 417 t in the GOA and 128 t in the BSAI as of October 11, 2011.

Recommendations in the GOA sharks SAFE report recommend that the shark complex be managed with spiny dogfish as a Tier 5 species (OFL = FOFL (0.097)\*3 yr average biomass, ABC = 0.75\*OFL) and the remaining sharks (Pacific sleeper shark, salmon shark and other sharks) as Tier 6 species (OFL = average catch 1997-2007, ABC = 0.75\*OFL). **The recommended ABC is 5,766 t and OFL is 7,688 t for the spiny dogfish.** The shark complex (Pacific sleeper shark, spiny dogfish, salmon shark and other/unidentified sharks) in the Bering Sea and Aleutian Island (BSAI) are a Tier 6 complex, with OFL based on maximum historical catch between the years 1997 – 2007 (ABC is 75% of OFL). Changes in

the Catch Accounting System did not result in new estimates of maximum historical catch and thus did not change the proposed ABC/OFL. For 2011 the same ABC and OFL as in last year's assessment are recommended: **ABC = 1,020 t and OFL = 1,360 t.**

#### **Interactions with marine mammals**

Sperm whale diets overlap with commercial fisheries harvests more than any other species of toothed whales, but the degree of overlap is at least partly because of direct interactions with longline gear. In addition to consuming primarily medium - to large-sized squid, sperm whales also consume some fish and have been observed feeding off longline gear targeting sablefish and halibut in the GOA. The interactions with commercial longline gear do not appear to have an adverse impact on sperm whales. Much to the contrary, the whales appear to have become more attracted to these vessels in recent years. Killer whales frequently take fish directly from commercial fishing gear as it is retrieved. Interactions with commercial longline fisheries are well-documented throughout the GOA and BSAI. Depredation rates of bottom fish by killer whales on longline catches, based on four different methods of calculation, suggested that whales took 14 to 60 percent of the sablefish, 39 to 69 percent of the Greenland turbot, and 6 to 42 percent of the arrowtooth flounder caught in commercial gear (Yano and Dahlheim 1995). Depredation rates can be so high in some areas that fishermen have abandoned particular fisheries even when they are still open. Killer whales fall under the jurisdiction of the NOAA Fisheries PRD, and are protected under the Marine Mammal Protection Act of 1972.

#### **Ecosystem research**

There is little information on early life history of sablefish and recruitment processes. A better understanding of juvenile distribution, habitat utilization, and species interactions would improve understanding of the processes that determine the productivity of the sablefish stock.

Future research is going to focus on several direction:

- 1) Refine survey index model for inclusion in the 2012 assessment model that accounts for whale depredation and potentially includes gully abundance data and other covariates.
- 2) Improve knowledge of sperm whale and killer whale depredation in the fishery and begin to quantify depredation effects on the fishery catch rates.
- 3) Explore the use of environmental data to aid in determining recruitment.
- 4) Work closely with the Gulf of Alaska Ecosystem project to help understand recruitment dynamics.
- 5) Develop a spatially explicit research assessment model that includes movement.

#### **Evidence**

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/GOASablefish.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIShark.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/GOAShark.pdf>

<http://www.fakr.noaa.gov/npfmc/PDFdocuments/MISC/GrenadierDiscPaper521.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/BSAIGrenadier.pdf>

<http://www.afsc.noaa.gov/REFM/docs/2011/GOAGrenadier.pdf>

<http://www.nmfs.noaa.gov/pr/laws/mmpa/>

**Clause 14 “where fisheries enhancement is utilized, environmental assessment and monitoring shall consider genetic diversity and ecosystem integrity” is not relevant to this fishery.**

## **8. Performance specific to agreed corrective action plans**

Not Applicable. This is the 1st FAO RFM US Alaska sablefish surveillance assessment report. No non conformances were issued during full assessment. However, a number of issues were identified for review during surveillance to identify whether management actions were being taken to improve issues relating to bycatch in the sablefish fleet and the restructuring of the observer program. The developments have been positive and proceeded as planned.

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

Not applicable, no new non conformance has been issued.

## **10. Future Surveillance Actions**

The assessment team will review the following during the 2013 surveillance assessment:

- Review of potential re-instatement of the Alaska Coastal Management Plan
- Implementation and coverage of the restructured groundfish observer program
- Bycatch data collection in the sablefish fleet and relative management actions to decrease and manage bycatch as relevant and as needed.

## **11. Client signed acceptance of the action plan**

Not applicable.

## **12. Recommendation and Determination**

Following this 1<sup>st</sup> surveillance assessment, in 2012, the assessment team and the certification committee recommends that continued Certification under the FAO-Based Responsible Fisheries Management Certification Program is maintained for the management system of the applicant fishery, the US Alaska sablefish commercial fishery, under federal (National Marine Fisheries Service/North Pacific Fishery Management Council) and state (Alaska Department of Fish and Game/Board Of Fisheries) management, fished with benthic longline, pot and trawl gear (within Alaska’s 200 nm EEZ).

### 13. References

<b><u>Biography</u></b>	<b><u>URL</u></b>
North Pacific Fishery Management Council. 2012. In the News. <a href="http://www.fakr.noaa.gov/npfmc/">http://www.fakr.noaa.gov/npfmc/</a> . 605 West 4th, Suite 306, Anchorage, Alaska 99501-2252. Accessed September 2012.	<a href="http://www.fakr.noaa.gov/npfmc/">http://www.fakr.noaa.gov/npfmc/</a>
Alaska Department of Fish And Game. 2012. ADFG Home Page. P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012.	<a href="http://www.adfg.alaska.gov/">http://www.adfg.alaska.gov/</a>
Alaska Department of Fish And Game. 2012. Sablefish ( <i>Anoplopoma fimbria</i> ) Management. <a href="http://www.adfg.alaska.gov/index.cfm?adfg=sablefish.management">http://www.adfg.alaska.gov/index.cfm?adfg=sablefish.management</a> . P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012	<a href="http://www.adfg.alaska.gov/index.cfm?adfg=sablefish.management">http://www.adfg.alaska.gov/index.cfm?adfg=sablefish.management</a>
Office of Lieutenant Governor Mead Treadwell. 2012. Treadwell Certifies ACMP Initiative. <a href="http://ltgov.alaska.gov/treadwell/press-room/full-press-release.html?pr=112">http://ltgov.alaska.gov/treadwell/press-room/full-press-release.html?pr=112</a> . Accessed Sept. 2012	<a href="http://ltgov.alaska.gov/treadwell/press-room/full-press-release.html?pr=112">http://ltgov.alaska.gov/treadwell/press-room/full-press-release.html?pr=112</a> <sup>4</sup>
State of Alaska. 2012. Lt. Governor Mead Treadwell. An Act Establishing the Alaska Coastal Management Plan. <a href="http://www.elections.alaska.gov/petitions/11ACMP/Notice-of-Proper-Filing.pdf">http://www.elections.alaska.gov/petitions/11ACMP/Notice-of-Proper-Filing.pdf</a> . P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012	<a href="http://www.elections.alaska.gov/petitions/11ACMP/Notice-of-Proper-Filing.pdf">http://www.elections.alaska.gov/petitions/11ACMP/Notice-of-Proper-Filing.pdf</a>
Alaska Sea Party. 2012. Restoring Coastal Management. COASTAL BALLOT INITIATIVE FALLS SHORT, Sponsor group promises to seek restoration program. <a href="http://www.alaskacoastalmanagement.org/ACMP_Election_Results_8-29-12.pdf">http://www.alaskacoastalmanagement.org/ACMP_Election_Results_8-29-12.pdf</a> . Bruce Botelho, Chair - 217 Second St., Ste. 200, Juneau, Alaska 99801. Accessed September 2012	<a href="http://www.alaskacoastalmanagement.org/ACMP_Election_Results_8-29-12.pdf">http://www.alaskacoastalmanagement.org/ACMP_Election_Results_8-29-12.pdf</a>
NOAA Fisheries. 2012. Alaska Regional Devision Office. Habitat Conservation Division. <a href="http://www.fakr.noaa.gov/habitat/default.htm">http://www.fakr.noaa.gov/habitat/default.htm</a> . Alaska Regional Office laskafisheries.noaa.gov. PO Box 21668 uneau, Alaska 99802-1668. Accessed September 2012	<a href="http://www.fakr.noaa.gov/habitat/default.htm">http://www.fakr.noaa.gov/habitat/default.htm</a>
Alaska Department of Fish and Game. 2012. Habitat Research.	<a href="http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main">http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main</a>

<p><a href="http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main">http://www.adfg.alaska.gov/index.cfm?adfg=habitatresearch.main</a>. P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012</p>	
<p>Alaska Department of Environmental Conservation. 2012. Water Division. More about water. <a href="http://www.dec.alaska.gov/water/MoreAboutWater.htm">http://www.dec.alaska.gov/water/MoreAboutWater.htm</a>. Department of Environmental Conservation Division of Water 410 Willoughby Ave., Ste. 303, P.O. Box 111800, Juneau, AK 99811-1800. Accessed September 2012</p>	<p><a href="http://dec.alaska.gov/water/MoreAboutWater.htm">http://dec.alaska.gov/water/MoreAboutWater.htm</a></p>
<p>NOAA Fisheries. 2012. Alaska Regional Office. Restricted Access Management - Permits, Licenses, Reports. <a href="http://www.fakr.noaa.gov/ram/">http://www.fakr.noaa.gov/ram/</a>. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/ram/">http://www.fakr.noaa.gov/ram/</a></p>
<p>Alaska Department of Natural Resources. 2012. Office of Project Management and Permitting. Alaska National Interest Lands Conservation Act (ANILCA). 550 W. 7th Ave, Suite 1260, Anchorage, AK 99501-3557 Accessed September 2012.</p>	<p><a href="http://dnr.alaska.gov/commis/opmp/anilca/anilca.htm">http://dnr.alaska.gov/commis/opmp/anilca/anilca.htm</a></p>
<p>Alaska Department of Natural Resources. 2012. Office of Project Management and Permitting. Welcome to the Office of Project Management &amp; Permitting Homepage Large Project Coordination. <a href="http://dnr.alaska.gov/commis/opmp/">http://dnr.alaska.gov/commis/opmp/</a>. 550 W. 7th Ave, Suite 1260, Anchorage, AK 99501-3557. Accessed September 2012</p>	<p><a href="http://dnr.alaska.gov/commis/opmp/">http://dnr.alaska.gov/commis/opmp/</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. Alaska Regional Office. FISHERY MANAGEMENT PLAN for Groundfish of the Gulf of Alaska. North Pacific Fishery Management Council 605 W. 4th Avenue, Suite 306 Anchorage, Alaska 99501.</p>	<p><a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOApdf">http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOApdf</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. Alaska Regional Office. Conservation Issues. Development Plan for 2013. <a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/2013DeploymentPlanFinal.pdf">http://www.fakr.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/2013DeploymentPlanFinal.pdf</a>. 7600 Sand Point Way NE, Seattle, WA 98115. October 2012</p>	<p><a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/BSAI/BSAIpdf">http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/BSAI/BSAIpdf</a></p>
<p>NOAA Fisheries. 2012. Alaska Fisheries Science Centre. North Pacific Groundfish Stock Assessment and Fishery Evaluation Report 2012. Bearing Sea and Aleutian Islands + Gulf of Alaska.</p>	<p><a href="http://www.afsc.noaa.gov/refm/stocks/assessments.htm">http://www.afsc.noaa.gov/refm/stocks/assessments.htm</a></p>

<p><a href="http://www.afsc.noaa.gov/refm/stocks/assessments.htm">http://www.afsc.noaa.gov/refm/stocks/assessments.htm</a>. Alaska Fisheries Science Center, National Marine Fisheries Service National Oceanic and Atmospheric Administration, Department of Commerce 7600 Sand Point Way N.E., Building 4 Seattle, Washington 98115. Accessed September 2012</p>	
<p>NOAA Fisheries. 2011. Alaska Fisheries Science Centre. Methods for the estimations of non target species catch in the unobserved IFQ fleet. <a href="ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf">ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf</a>. Accessed September 2012</p>	<p><a href="ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf">ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf</a></p>
<p>NOAA Fisheries. 2012. Alaska Regional Office. News Release. NOAA seeks public input on a new observer program structure for Alaska fisheries. <a href="http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm">http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm</a>. PO Box 21668 Juneau, Alaska 99802-1668. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm">http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm</a></p>
<p>NOAA Fisheries. 2012. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration. Fisheries of the Exclusive Economic Zone off Alaska and Pacific Halibut Fisheries; Observer Program. ACTION: Notice of public hearing. <a href="http://www.fakr.noaa.gov/notice/77fr29961.pdf">http://www.fakr.noaa.gov/notice/77fr29961.pdf</a>. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/notice/77fr29961.pdf">http://www.fakr.noaa.gov/notice/77fr29961.pdf</a></p>
<p>Alaska State Legislature Textual Infobase - Chapter 20 - Groundfish Fishery. <a href="http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5bJUMP:%27Title5Chap28%27%5d/doc/%7b@1%7d?firsthit">http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5bJUMP:%27Title5Chap28%27%5d/doc/%7b@1%7d?firsthit</a>.</p>	<p><a href="http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5bJUMP:%27Title5Chap28%27%5d/doc/%7b@1%7d?firsthit">http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5bJUMP:%27Title5Chap28%27%5d/doc/%7b@1%7d?firsthit</a></p>
<p>Department of Public Safety. 2012. Alaska Wildlife Troopers. Mission To protect Alaska's Natural Resources through Wildlife Enforcement. <a href="http://dps.alaska.gov/AWT/mission.aspx">http://dps.alaska.gov/AWT/mission.aspx</a>. Accessed September 2012</p>	<p><a href="http://dps.alaska.gov/AWT/mission.aspx">http://dps.alaska.gov/AWT/mission.aspx</a></p>
<p>Alaska Department of Fish and Game. 2012. Home Page. <a href="http://www.adfg.alaska.gov/index.cfm?adfg-fisheriesboard.main">http://www.adfg.alaska.gov/index.cfm?adfg-fisheriesboard.main</a>. Alaska Department of Fish and Game P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012.</p>	<p><a href="http://www.adfg.alaska.gov/index.cfm?adfg-fisheriesboard.main">http://www.adfg.alaska.gov/index.cfm?adfg-fisheriesboard.main</a></p>
<p>Hanselman, D.H., Lunsford, C.R., Rodgveller, C.J., December 2011. Assessment of the Sablefish stock</p>	<p><a href="http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/BSAISablefish.pdf</a></p>

<p>in Alaska. Executive Summary. NPFMC Bering Sea, Aleutian Islands and Gulf of Alaska. SAFE.</p>	
<p>Alaska Department of Fish and Game. 2012. Home Page. <a href="http://www.adfg.alaska.gov/">http://www.adfg.alaska.gov/</a>. P.O. Box 115526 1255 W. 8th Street Juneau, AK 99811-5526. Accessed September 2012</p>	<p><a href="http://www.adfg.alaska.gov/">http://www.adfg.alaska.gov/</a></p>
<p>NOAA Fisheries. Alaska Fisheries Science Centre. December 2011. Chapter 20: Assessment of the Shark stock complex in the Gulf of Alaska. <a href="http://www.afsc.noaa.gov/REFM/docs/2011/GOAs_hark.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/GOAs_hark.pdf</a>. National Oceanic and Atmospheric Administration, Department of Commerce 7600 Sand Point Way N.E., Building 4 Seattle, Washington 98115</p>	<p><a href="http://www.afsc.noaa.gov/REFM/docs/2011/GOAshark.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/GOAshark.pdf</a></p>
<p>NOAA Fisheries. Alaska Fisheries Science Centre. December 2011. Resource Ecology and Ecosystem Modeling Ecosystems Assessments. National Oceanic and Atmospheric Administration. <a href="http://www.afsc.noaa.gov/refm/reem/Assess/Default.htm">http://www.afsc.noaa.gov/refm/reem/Assess/Default.htm</a> Department of Commerce 7600 Sand Point Way N.E., Building 4 Seattle, Washington 98115</p>	<p><a href="http://www.afsc.noaa.gov/refm/reem/Assess/Default.htm">www.afsc.noaa.gov/refm/reem/Assess/Default.htm</a></p>
<p>NOAA Fisheries, Alaska Fisheries Science Centre. 2012. Economic and Social Sciences Research. <a href="http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php">http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php</a>. National Oceanic and Atmospheric Administration, Department of Commerce 7600 Sand Point Way N.E., Building 4 Seattle, Washington 98115. Accessed September 2012</p>	<p><a href="http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php">http://www.afsc.noaa.gov/REFM/Socioeconomics/Default.php</a></p>
<p>Hanselman, D.H., Lunsford, C.R., Rodgveller, C.J., December 2011. Assessment of the Sablefish stock. Executive Summary. NPFMC Bering Sea, Aleutian Islands and Gulf of Alaska. SAFE.</p>	<p><a href="http://www.afsc.noaa.gov/REFM/docs/2011/GOAsablefish.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/GOAsablefish.pdf</a></p>
<p>Oxford University Press. ICES Journal of Marine Science. 2012. Use of annual catch limits to avoid stock depletion in the Bering Sea and Aleutian Islands management area (Northeast Pacific). <a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full">http://icesjms.oxfordjournals.org/content/67/9/1861.full</a>. Journals Customer Service Department Oxford University Press Great Clarendon Street Oxford OX2 6DP UK. Accessed September 2012</p>	<p><a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full">http://icesjms.oxfordjournals.org/content/67/9/1861.full</a></p>
<p>Alaska Department of Fish and Game. 2012. Division of Commercial Fisheries. News Release. COOK INLET SABLEFISH FISHERY ANNOUNCEMENT SEASON CLOSURE EMERGENCY ORDER 2-GF-H-11-</p>	<p><a href="http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/213134838.pdf">http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/213134838.pdf</a></p>

<p>12.  <a href="http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/213134838.pdf">http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/213134838.pdf</a>. P.O. Box 115526  1255 W. 8th Street Juneau, AK 99811-5526.  Accessed August 2012</p>	
<p>Alaska Department of Fish and Game. 2012. Division of Commercial Fisheries. News Release. PRINCE WILLIAM SOUND COMMERCIAL SABLEFISH FISHERY UPDATE SEASON OPENING AND QUOTA ALLOCATIONS.  <a href="http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/119185000.pdf">http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/119185000.pdf</a>. P.O. Box 115526  1255 W. 8th Street Juneau, AK 99811-5526.  Accessed September 2012</p>	<p><a href="http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/119185000.pdf">http://www.adfg.alaska.gov/static/home/news/pdfs/newsreleases/cf/119185000.pdf</a></p>
<p>SEAFA. 2012. Chatham Sablefish Quota Announced Posted on June 27th, 2012.  <a href="http://www.seafa.org/?p=1580">http://www.seafa.org/?p=1580</a>. 9369 North Douglas Hwy Juneau, AK 99801. Accessed June 2012</p>	<p><a href="http://www.seafa.org/?p=1580">http://www.seafa.org/?p=1580</a></p>
<p>FAO. Swedish National Board of Fisheries. 2012. FAO Technical Guidelines for Responsible Fisheries - Precautionary Approach to Capture Fisheries and Species Introductions - 2.  <a href="http://www.fao.org/docrep/003/W3592E/W3592E00.HTM">http://www.fao.org/docrep/003/W3592E/W3592E00.HTM</a>. FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. Accessed September 2012</p>	<p><a href="http://www.fao.org/DOCREP/003/W3592E/W3592E00.HTM">http://www.fao.org/DOCREP/003/W3592E/W3592E00.HTM</a></p>
<p>North Pacific Fishery Management Council. 2012. In the News. In the News. Upcoming Committee and Other Related Meetings.  <a href="http://www.fakr.noaa.gov/npfmc/">http://www.fakr.noaa.gov/npfmc/</a>. 605 West 4th, Suite 306, Anchorage, Alaska 99501-2252. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/npfmc/">http://www.fakr.noaa.gov/npfmc/</a></p>
<p>DiCosmio.J., Methot, R.D., Ormseth, O.A., Use of annual catch limits to avoid stock depletion in the Bering. Sea and Aleutian Islands management area (Northeast Pacific)  <a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ">http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ</a>.  ICES Journal of Marine Science, 67: 1861–1865. Accessed September 2012</p>	<p><a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ">http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ</a></p>
<p>NOAA Fisheries. 2012. Alaska Fisheries Science Centre. Ecosystem Considerations for 2012.  <a href="http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf</a></p>	<p><a href="http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/ecosystem.pdf</a></p>

stem.pdf. National Marine Fisheries Service, NOAA 7600 Sand Point Way NE Seattle, WA 98115. Accessed September 2012	
NOAA Fisheries. 2010. North Pacific Fishery Management Council. Current Issues. March 2010. <a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf">http://www.fakr.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf</a> . NOAA 7600 Sand Point Way NE Seattle, WA 98115	<a href="http://www.alaskafisheries.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf">http://www.alaskafisheries.noaa.gov/npfmc/PDFdocuments/resources/CurrentIssues2010.pdf</a>
NOAA Fisheries. 2012. National Marine Fisheries Service. Alaska Regional Office. Individual Fishing Quota (IFQ) Program. <a href="http://www.fakr.noaa.gov/ram/ifq.htm">http://www.fakr.noaa.gov/ram/ifq.htm</a> . PO Box 21668 Juneau, Alaska 99802-1668. Accessed September 2012	<a href="http://www.fakr.noaa.gov/ram/ifq.htm">http://www.fakr.noaa.gov/ram/ifq.htm</a>
Oxford Journals - ICES Journal of Marine Science - Use of annual catch limits to avoid stock depletion in the Bering Sea and Aleutian Islands management area (Northeast Pacific) Jane DiCosimo, Richard D. Methot, and Olav A. Ormseth. <a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ">http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ</a> . Accessed September 2012	<a href="http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ">http://icesjms.oxfordjournals.org/content/67/9/1861.full.pdf?keytype=ref&amp;ijkey=Rr1hA2GwWtqE2TZ</a>
Alaska Fisheries Science Centre. 2012. National Marine Fisheries Service. Resource Ecology and Fisheries Management Division. <a href="http://www.afsc.noaa.gov/REFM/">http://www.afsc.noaa.gov/REFM/</a> . National Oceanic and Atmospheric Administration, Department of Commerce 7600 Sand Point Way N.E., Building 4 Seattle, Washington 98115	<a href="http://www.afsc.noaa.gov/REFM/">http://www.afsc.noaa.gov/REFM/</a>
Department of Labour and workforce Development. 2012. AVTEC Alaska Institute of Technology. Alaska Maritime Training Centre. <a href="http://www.avtec.edu/AMTC-Home.aspx">http://www.avtec.edu/AMTC-Home.aspx</a> . <a href="http://www.avtec.edu/AMTC-Home.aspx">http://www.avtec.edu/AMTC-Home.aspx</a> . Accessed September 2012	<a href="http://www.avtec.edu/AMTC-Home.aspx">http://www.avtec.edu/AMTC-Home.aspx</a>
Standards of Training Certification and Watchkeeping. 2000 - 2010. Home Page. <a href="http://www.stcw.org/">http://www.stcw.org/</a> . Accessed September 2012	<a href="http://www.stcw.org/">http://www.stcw.org/</a>
Alaska Sea Grant Advisory Program. 2012. What's New. <a href="http://seagrant.uaf.edu/map/">http://seagrant.uaf.edu/map/</a> . 1007 West 3rd Ave, Suite 100 Anchorage, AK 99501. Accessed September 2012	<a href="http://seagrant.uaf.edu/map/">http://seagrant.uaf.edu/map/</a>
Alaska Sea Grant Advisory Program. 2012. Fishbiz: Alaska Fisheries Business Assistance Project.	<a href="http://seagrant.uaf.edu/map/fishbiz/index.php">http://seagrant.uaf.edu/map/fishbiz/index.php</a>

<p><a href="http://seagrant.uaf.edu/map/">http://seagrant.uaf.edu/map/</a>. 1007 West 3rd Ave, Suite 100 Anchorage, AK 99501. Accessed September 2012</p>	
<p>University of Alaska Fairbanks. 2012. Kodiak Seafood and Marine Science Centre Teaching. <a href="http://www.sfos.uaf.edu/ksmsc/teaching/">http://www.sfos.uaf.edu/ksmsc/teaching/</a>. Kodiak Seafood and Marine Science Center 118 Trident Way Kodiak, AK 99615-7401</p>	<p><a href="http://www.sfos.uaf.edu/ksmsc/teaching/">http://www.sfos.uaf.edu/ksmsc/teaching/</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. NOAA's Office of Law Enforcement National and Division Enforcement Priorities for 2012. <a href="http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf">http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf</a>. National Marine Fisheries Service Office of Law Enforcement 8484 Georgia Avenue, Suite 415 Silver Spring, MD 20910</p>	<p><a href="http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf">http://www.nmfs.noaa.gov/ole/docs/2012/ole_priorities_2012.pdf</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. Alaska Fisheries Regulations and Notices Federal Fisheries Regulations 50 CFR Part 679: Fisheries of the Exclusive Economic Zone Off Alaska. <a href="http://www.fakr.noaa.gov/reg/default.htm">http://www.fakr.noaa.gov/reg/default.htm</a>. PO Box 21668 Juneau, Alaska 99802-1668.</p>	<p><a href="http://www.fakr.noaa.gov/reg/default.htm">http://www.fakr.noaa.gov/reg/default.htm</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. Office of Law Enforcement Sherrie Tinsley Myers, Special Agent in Charge. <a href="http://www.nmfs.noaa.gov/ole/ak_alaska.html">http://www.nmfs.noaa.gov/ole/ak_alaska.html</a>. National Marine Fisheries Service Office of Law Enforcement 8484 Georgia Avenue, Suite 415 Silver Spring, MD 20910. Accessed September 2012</p>	<p><a href="http://www.nmfs.noaa.gov/ole/ak_alaska.html">http://www.nmfs.noaa.gov/ole/ak_alaska.html</a></p>
<p>US Department of Homeland Security. United States Coastguard. 2012. Protecting the last frontier. Mission Statement. <a href="http://www.uscg.mil/d17/">http://www.uscg.mil/d17/</a>. Accessed September 2012</p>	<p><a href="http://www.uscg.mil/d17/">www.uscg.mil/d17/</a></p>
<p>NOAA Fisheries. 2012. National Marine Fisheries Service. Online Services. BSAI Crab. IFQ Halibut/Sablefish and CDQ Halibut. CDQ Groups, Amendment 80, AFA, and Rockfish Program Cooperatives. Subsistence Halibut. National Marine Fisheries Service PO Box 21668 Juneau, AK 99802-1668</p>	<p><a href="http://www.fakr.noaa.gov/ram/webapps.htm">http://www.fakr.noaa.gov/ram/webapps.htm</a></p>

<p>eLandings Interagency electronic reporting system for commercial fishery landings in Alaska. 2012. Registration Page to use elandings to report landing or production report data. <a href="https://elandings.alaska.gov/">https://elandings.alaska.gov/</a>. •Email: eLandings@alaska.gov •Phone: (888) 443-5726. Accessed September 2012</p>	<p><a href="http://elandings.alaska.gov/">http://elandings.alaska.gov/</a></p>
<p>NOAA Fisheries. 2012. 14300 Federal Register / Vol. 76, No. 51 / Wednesday, March 16, 2011 / Rules and Regulations. <a href="http://www.alaskafisheries.noaa.gov/frules/76fr14300.pdf">http://www.alaskafisheries.noaa.gov/frules/76fr14300.pdf</a>. PO Box 21668 Juneau, Alaska 99802-1668. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/frules/76fr14300.pdf">http://www.fakr.noaa.gov/frules/76fr14300.pdf</a></p>
<p>NOAA Fisheries. 2012. Office of Law Enforcement. Juneau restaurant fined for illegally purchasing subsistence caught Pacific Halibut. <a href="http://www.nmfs.noaa.gov/ole/news/2012/03/19_juneau_restaurant_fined.htm">http://www.nmfs.noaa.gov/ole/news/2012/03/19_juneau_restaurant_fined.htm</a>. NOAA Fisheries Service 1315 East West Highway Silver Spring, MD 20910. Accessed September 2012.</p>	<p><a href="http://www.nmfs.noaa.gov/ole/news/2012/03/19_juneau_restaurant_fined.htm">http://www.nmfs.noaa.gov/ole/news/2012/03/19_juneau_restaurant_fined.htm</a></p>
<p>NOAA Fisheries. 2012. Office of the General Counsel. Penalty Schedules. <a href="http://www.gc.noaa.gov/enforce-office3.html">http://www.gc.noaa.gov/enforce-office3.html</a>. PO Box 21668 Juneau, Alaska 99802-1668. Accessed September</p>	<p><a href="http://www.gc.noaa.gov/enforce-office3.html">http://www.gc.noaa.gov/enforce-office3.html</a></p>
<p>NOAA Fisheries. 2012. Office of Law Enforcement. Investigation and Patrols. <a href="http://www.nmfs.noaa.gov/ole/investigations.html">http://www.nmfs.noaa.gov/ole/investigations.html</a>. 8484 Georgia Avenue Suite 415 Silver Spring, MD 20910. Accessed September 2012</p>	<p><a href="http://www.nmfs.noaa.gov/ole/investigations.html">http://www.nmfs.noaa.gov/ole/investigations.html</a></p>
<p>The Brig. Alaska Fisheries Enforcement News. 2010. Articles for Month of April 2010. <a href="http://deckboss-thebrig.blogspot.ie/2010_04_01_archive.html">http://deckboss-thebrig.blogspot.ie/2010_04_01_archive.html</a>. Accessed September 2012</p>	<p><a href="http://deckboss-thebrig.blogspot.com/2010_04_01_archive.html">http://deckboss-thebrig.blogspot.com/2010_04_01_archive.html</a></p>
<p>NOAA Fisheries. 2012. Update of NOAA Fisheries Enforcement Programs and Operations. <a href="http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf">http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf</a>. PO Box 21668 Juneau, Alaska 99802-1668. Accessed September 2012</p>	<p><a href="http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf">http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2011/Tab%20-%20Enforcement%20Issues/Enforcement%20Issues.pdf</a></p>
<p>NOAA Fisheries. 2011. Policy for the Assessment of</p>	<p><a href="http://www.noanews.noaa.gov/stories2011/">http://www.noanews.noaa.gov/stories2011/</a></p>

<p>Civil Administrative Penalties and Permit Sanctions NOAA Office of the General Counsel – Enforcement and Litigation. <a href="http://www.noaanews.noaa.gov/stories2011/pdfs/Penalty%20Policy%20--%20FINAL.pdf">http://www.noaanews.noaa.gov/stories2011/pdfs/ Penalty%20Policy%20--%20FINAL.pdf</a>. PO Box 21668 Juneau, Alaska 99802-1668</p>	<p><a href="http://www.noaanews.noaa.gov/stories2011/pdfs/Penalty%20Policy%20--%20FINAL.pdf">pdfs/Penalty%20Policy%20--%20FINAL.pdf</a></p>
<p>The IUCN Red List of Threatened Species. 2012. Squalus acanthias (Northwest Pacific subpopulation) (Cape Shark, Piked Dogfish, Spurdog). <a href="http://www.iucnredlist.org/details/61413/0">http://www.iucnredlist.org/details/61413/0</a>. IUCN UK Office, 219c Huntingdon Road Cambridge CB3 ODL, United Kingdom. Accessed September 2012.</p>	<p><a href="http://www.iucnredlist.org/details/61413/0">http://www.iucnredlist.org/details/61413/0</a></p>
<p>Tribuzio, C.A, Echave, K., Rodgveller, C., Hulson, P., Goldman K.J., 2011. Chapter 20: Assessment of the Shark stock complex in the Bering Sea and Aleutian Islands (Executive Summary) SAFE. Accessed September 2012</p>	<p><a href="http://www.afsc.noaa.gov/REFM/docs/2011/BSAishark.pdf">http://www.afsc.noaa.gov/REFM/docs/2011/ BSAishark.pdf</a></p>
<p>Pearson,T., Clausen, D., DiCosimo, J. Discussion Paper. Inclusion of Grenadiers in the Fishery Management Plans for the Bering Sean and Aleutian Islands and/or the Gulf of Alaska. June 2012. <a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/MISC/GrenadierDiscPaper521.pdf">http://www.fakr.noaa.gov/npfmc/PDFdocuments/ MISC/GrenadierDiscPaper521.pdf</a>. Accessed September 2012</p>	<p><a href="http://www.fakr.noaa.gov/npfmc/PDFdocuments/MISC/GrenadierDiscPaper521.pdf">http://www.fakr.noaa.gov/npfmc/PDFdocum ents/MISC/GrenadierDiscPaper521.pdf</a></p>
<p>NOAA Fisheries. National Marine Fisheries Service. 2012. Marine Mammal Protection Act (MMPA) <a href="http://www.nmfs.noaa.gov/pr/laws/mmpa/">http://www.nmfs.noaa.gov/pr/laws/mmpa/</a>. NOAA Fisheries Service 1315 East West Highway Silver Spring, MD 20910. Accessed September 2012</p>	<p><a href="http://www.nmfs.noaa.gov/pr/laws/mmpa/">http://www.nmfs.noaa.gov/pr/laws/mmpa/</a></p>

## Appendix 1 (Assessment Team Details)

### Earl Krygier (Assessor)

Earl E. Krygier gained a BSc in Science, an MSc from the Department of Fisheries and Wildlife, and completed a Ph.D. Doctoral Thesis (on the role of nursery areas for juvenile English sole off Oregon) at the Oregon State University. From 1989 to 2008 he worked for ADFG's Commercial Fisheries Division as Extended Jurisdiction Program Manager with primary responsibility on state policy coordination of state, national and international marine fishery matters (research, conservation and management, and policy development), provided support for ADFG's Commissioner in carrying out his NPFMC's responsibilities and acting as the Commissioner's alternate (1989-1997). Earl represented ADFG at the IPHC for 19 years, and he was state representative at the Donut Hole and the U.S./Russian ICC meetings. He sat as alternate for the Commissioner on the North Pacific Research Board (NPRB); represented ADFG on Alaska's CDQ Allocation Team; advised department staff, the Alaska BoF members, the Alaska Legislature and other state officials on NPFMC activities; and proposed management plans, long-range policies and regulatory implications, or inter-jurisdictional issues arising from Council actions.

He coordinated ADFG's staff activities at the NPFMC and recommended policies and strategies to the director, commissioner and other state officials in regards to extended jurisdictional fisheries. Earl coordinated the State's conservation and management policy for halibut at the NPFMC, the PFMC and the IPHC, that resulted in proper halibut bycatch management; stock utilization; equitable Alaska subsistence, sport and commercial harvests; helping ensure that development of CDQs and IFQ was done in accordance with conservation & management objectives, fairly and equitably for user groups. From 2008 to present times he is the Owner/Manager of KEE Biological Consultants and served as the Marine Conservation Alliance Foundation's (MCAF) Cooperative Research Coordinator, implementing MCAF's marine research activities in Alaska in cooperation with state or federal agencies, academia, the seafood industry and other interested parties.

### Vito Ciccio Romito (Assessor)

Vito Ciccio Romito holds a BSc in Ecology and an MSc in Tropical Coastal Management (Newcastle University, United Kingdom). His BSc studies focused on bycatch, discards, benthic impact of commercial fishing gear and relative technical solutions, after which he spent a year in Tanzania as a Marine Research officer at Mafia Island Marine Park carrying out biodiversity assessments and monitoring studies of coral reef, mangrove and seagrass ecosystems. Subsequently, for his MSc, he worked on fisheries assessment techniques, ecological dynamics of overexploited tropical marine ecosystems, and evaluation of low trophic aquaculture as a support to artisanal reef fisheries. Since 2010, he has been fully involved through Global Trust with the FAO-based RFM Assessment and Certification program covering the Alaska commercial salmon, halibut, sablefish, pollock, crab and cod fisheries as well Icelandic cod, saithe, haddock and redfish fisheries.

**Geraldine Criquet (Assessor)**

Géraldine Criquet holds a PhD in Marine Ecology (École Pratique des Hautes Études, France) which focused on coral reef fisheries management, Marine Protected Areas and fish ecology. She has also been involved during 2 years in stock assessments of pelagic resources in the Biscay Gulf, collaborating with IFREMER. She worked 2 years for the Institut de Recherche pour le Développement (IRD) at Reunion Island for studying fish target species growth and connectivity between fish populations in the Indian Ocean using otolith analysis. She served as Consultant for FAO on a Mediterranean Fisheries Program (COPEMED) and developed and implemented during 2 years a monitoring program of catches and fishing effort in the Marine Natural Reserve of Cerbère-Banyuls (France). Geraldine has joined Global trust Certification in August 2012 as Fisheries Assessment Officer and is involved in FAO RFM and MSC fisheries assessments.

**Dave Garforth (Lead Assesor)**

Dave Garforth, BSC, HDip. (Applied Science), MSC has been involved in fisheries and aquatic resources for over 20 years. Currently, managing Global Trust FAO based Fishery Certification Program, with experience in the application of ISO/IEC Guide 65 based seafood certification systems and a professional background in numerous fishery assessments. Previous professional background includes; Development Officer in the Irish Sea Fisheries Board, supply chain and trade experience at Pan European Fish Auctions, the control and enforcement of fisheries regulations as a UK Fishery Officer. Dave is also a lead, third party IRCA approved auditor.