FAO-BASED RESPONSIBLE FISHERY MANAGEMENT CERTIFICATION

SURVEILLANCE REPORT (NO. 1)

For The

Alaska Pacific Halibut Commercial Fishery

Applicant Group

Alaska Seafood Marketing Institute (ASMI)

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Main Headings of the Surveillance Report

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I. Summary and Recommendations

The Alaska Seafood Marketing Institute, requested assessment of the Alaska Pacific halibut 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 April 2011.

This report is the **1st Surveillance Report (ref AK/Hal/001.1/2012)** for the Alaska Pacific halibut commercial fisheries following Certification award against the FAO-Based RFM Program, awarded on April 28th 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 Pacific halibut commercial fishery, employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management.

The surveillance assessment was conducted according to the Global Trust 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 summarised in Section 5 "Assessment Outcome Summary".

II. Assessment Team Details

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1. Introduction

Unit of Certification

The Pacific halibut commercial fishery, employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), and under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management underwent its 1st surveillance assessment against the requirements of the FAO-Based RFM Conformance Criteria Version 1.2 Fundamental clauses.

This 1st Surveillance Report documents the assessment result for the continued certification of commercially exploited Alaska Pacific halibut fishery to the FAO-Based RFM Certification Program. This is a voluntary program for the Alaska Pacific halibut fishery 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 1st Surveillance Assessment (2012) of the Alaska Pacific halibut commercial fisheries, originally certified the 28th April 2011, and the recommendation of the Assessment Team for continued FAO-Based RFM Certification.

1.1. Recommendation of the Assessment Team

Following this 1st 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 Pacific halibut commercial fishery employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management.

2. Fishery Applicant Details

Applicant Contact Information			
Organization/ Company Name:	**Alaska Seafood Marketing Institute**	Date:	**April 2010**
Correspondence Address:	**International Marketing Office and Administration Suite 200**		
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Nominated Deputy:	***As Above***		
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3. Unit of Certification

Unit of Certification			
U.S. ALASKA PACIFIC HALIBUT COMMERCIAL FISHERY			
Fish Species (Common & Scientific Name)	**Geographical Location of Fishery**	**Gear Type**	**Principal Management Authorities**
Pacific halibut (*Hippoglossus stenolepis*)	Gulf of Alaska, Bering Sea & Aleutian Islands	Benthic longline	International Pacific Halibut Commission (IPHC); National Marine Fisheries Service (NMFS); North Pacific Fisheries Management Council (NPFMC); Alaska Department of Fish and Game (ADFG).

4. Surveillance Meetings

Organization	Time, day and representative	Items discussed
International Pacific Halibut Commission, Seattle, Washington, USA	9.00 am 19th March, Steven Hare (IPHC Head Stock Assessment Scientist), Gregg Williams (Research Program Manager) Vito Romito (GT Assessor)	• Establish methods to estimate bycatch in the halibut fishery by multiagency group: methods developed, estimates derived and delivered to groundfish stock assessment authors for inclusion in relevant fisheries. • Observer program developments (restructuring): the groundfish observer program covering the halibut fleet should start in January 2013. NMFS will also manage observer deployment. • Stock assessment of the halibut stock: survey biomass index decreased by 5%, compared to 2011, there has been a 20% decrease in allowable catch for 2012. • E-logbooks requirements. • Juvenile halibut mortality and decrease in size at age. • New research project to improve stratification for shallower and deeper water. New research project in bait from chum to pollock. Experimental bait is pollock and pink salmon along with standard chum salmon. • Slow up Full down harvest policy. • Catch limits for sport charter fleet. • Proportion of catch allowance between sport and commercial fishery: 86% commercial, 14% sport. • Sport fishery logbook is considered reliable by the IPHC. • Sport fishery is subjected to undercover operations. • Whales still picking halibut from IPHC longline surveys, but they eat more sablefish. • Oceanographic and bird data are still collected.
Alaska Seafood Marketing Institute. Seattle, Washington, USA	1.30 pm, 19th March, Randy Rice (Client representative); Vito Romito (GT Assessor)	• Halibut surveillance site visits schedule and key items and issues for discussion.
Alaska Wildlife Troopers. Juneau, Alaska, USA	9.00 am, 20th March, Lt. Steven Hall. Vito Romito, Herman Savikko (GT Assessors).	• Halibut enforcement. • AWT duties, violations types and extent.

5. Assessment Outcome Summary

Fundamental clauses summaries

1. *The IPHC is a bilateral, international treaty based organization, composed of representatives from the USA and Canada. Its mandate is research (on stock assessment and halibut biology research) and management (allocation between regulatory areas in US and Canada, developing various harvest regulations and setting annual harvest levels) of the stocks of Pacific halibut (Hippoglossus stenolepis) within the convention waters of both nations. The Northern Pacific Halibut Act of 1982 (Halibut Act) at 16 U.S.C 773-773k provides the Secretary of State of the US, with the concurrence of the Secretary of Commerce, the authority and general responsibility to carry out the requirements of the Convention and the Halibut Act. Following IPHC apportionments, the halibut fisheries in the American EEZ off Alaska are managed by the North Pacific Fishery Management Council (NPFMC), the National Marine Fisheries Service (NMFS), and the Alaska Department for Fish and Game (ADFG). The NMFS Alaska Region and the NPFMC gather data on all sources of halibut removals and mortality off Alaska: fishing (directed and incidental) and natural. All IFQ share holders must report their catches via an electronic filing ("e-file") method.*
2. *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. In addition, the recent developments from the public and upcoming ballot to reinstitute the Alaska Coastal Management Plan offer some insight in the possible return of the ACMP in August 2012.*
3. *The objectives of the initial US and Canada Agreement for the management, conservation and sustainable utilization of Pacific halibut in the North Pacific, signed in 1923 pointed to the first basic regulations for closure of the fishery in determinate periods, halibut bycatch in other fisheries and the need for reporting such removals, enabling prosecutions for violation of the provisions and investigation into the life history of the Pacific halibut. Amendment 15 and 20 to the Fishery Management Plan (FMP) for the Groundfish Fishery of the BSAI and GOA established an individual fishing quota (IFQ) limited access system in commercial fixed gear fisheries for Pacific halibut and sablefish in and off Alaska and implemented a Western Alaska Community Development Quota (CDQ) program for halibut and sablefish fixed gear fisheries. These actions were intended by the NMFS to promote the conservation and management of halibut and sablefish resources, and to further the objectives of the Northern Pacific Halibut Act of 1982 (Halibut Act) and the Magnuson Fishery Conservation and Management Act (Magnuson Stevens Act or MSA) that provided authority for regulating these fisheries.*
4. *The IPHC collects yearly data from a variety of sources to characterize the fishery, status and population trends in all regulatory areas, and assist in fitting a population assessment model. The key datasets collected include IFQ e-landings catch, sport catch, bycatch, personal use and wastage data. Every year, the IPHC places a sampler aboard the NMFS EBS groundfish/crab trawl survey. The sampler collects biological data on the halibut catches,*

taking lengths of almost all halibut caught and selecting a subsample for aging. Additionally, this year, the NMFS also operated their biennial GOA survey, used in a comparison of NMFS trawl and IPHC assessment biomass estimates. The triennial Aleutian Islands (AI) survey was not carried out this year. The swept-area estimates of abundance derived from the three NMFS trawl surveys (BS, GOA, AI) are a valuable independent indicator of long-term trends in halibut biomass. Eleven commercial longline vessels, seven Canadian and four U.S., were chartered by the IPHC for survey operations in 2011. Of the 1,315 stations planned for the 2011 survey, 1,314 (99.9%) were completed, and 1,299 (98.7%) survey stations were effective for stock assessment analysis. Seabird occurrence data have also been collected during IPHC stock assessment surveys since 2002. Bycatch data collected during the IPHC surveys are used as proxy to estimate total bycatch in the halibut fishery. New methods for estimation of non-halibut bycatch have been developed this year and estimates have been provided to groundfish stock assessment authors. NMFS announced to NPFMC on June 7th 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 to restructure the funding and deployment system for observers in the North Pacific groundfish and halibut 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.

5. *Coastwide exploitable biomass at the beginning of 2012 is estimated to be 260 M lbs, down from the end of 2010 estimate of 317 M lbs. The model variant chosen for the assessment in 2011 differs from the production version of the past few years. Termed "WobbleSQ" (as opposed to the earlier "Trendless"), its treatment of survey catchability is the only difference between the two models. The downward revision reflects weaker recruitment of the 1989-1997 cohorts, revised weight per unit effort (WPUE) indices based on late-season data in 2010, and the ongoing retrospective behaviour shown in the model. Female spawning biomass is estimated at 319 million pounds at the start of 2012, a decline of nearly 9% over the beginning of 2011 estimate of 350 million pounds. The female spawning biomass shows somewhat lesser retrospective behaviour, possibly lending credence to IPHC's belief that the ongoing declines in size at age, which strongly affect selectivity-at-age, is one of the root causes of the retrospective behaviour. Trawl estimates of abundance are similar to assessment estimates in most areas, and also provide evidence that while exploitable biomass and numbers continue to decline, the total biomass and number of halibut remains level, or slightly increasing. The IPHC completed a bilateral work session during May 2012 to address issues of research planning, peer review of the 2012 halibut stock assessment, ongoing external peer review of the stock assessment, and the development of a framework for public engagement in a Management Strategy Evaluation. These topics were identified as priority areas for action by the Commission at its Annual Meeting in January 2012.*
6. *IPHC's harvest policy is to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (B30 threshold level) of a level defined as the unfished level. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% (B20 limit level) of this estimated unfished level. The unfished female spawning biomass (Bunfished) is computed by multiplying spawning biomass per recruit (SBR, from an unproductive regime) and average coastwide age-six recruitment (from an unproductive regime). This gives a Bunfished of 768 million pounds, a B20 of 154 million, a B30 of 230 million pounds, and the 2012 female spawning biomass*

value of 319 million pounds establishes Bcurrent as 42% of Bunfished, down slightly from the 2011 beginning of year estimate of Bcurrent of 43%.

7. *Beginning with the 2011 Catch Limit Recommendations, the IPHC staff modified the (slow up fast down) SUFastD quota adjustment to a (slow up full down) SUFullD adjustment policy allowing for one third of potential increases to be taken and 100% of decreases to be taken, from one year to the following, depending on biomass projections, ultimately aiming at increasing Pacific halibut biomass. The coastwide survey WPUE value declined by approximately 5% from 2010 to 2011. The Commission has expressed concern over continued declining catch rates in several areas and has taken aggressive action to reduce harvests and recommended the governments of Canada and the United States catch limits for 2012 totaling 33,540,000 pounds, an 18.3% decrease from the 2011 catch limit of 41,070,000 pounds. In addition, the staff has noted a continuing problem of reductions in previous estimates of biomass as additional data are obtained, which has the effect of increasing the realized historical harvest rates on the stock. Commission scientists will be conducting additional research on this matter in 2012. Additionally, the issues of scarce data for non-halibut bycatch in the halibut fleet is an important issue and has been dealt with according to pre-scheduled plans.*
8. *The IPHC has developed, refined, and utilized a constant harvest rate policy since the 1980's. The policy was initially designed to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% of the unfished level. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% of the unfished level. This combination of harvest rate and precautionary levels of biomass protection have, in simulation studies, provided a large fraction of maximum available yield while minimizing risk to the spawning biomass. Following the 2008 Committee of Independent Experts (CIE) review of the assessment and harvest policy, the simulations on which the harvest policy was based were modified to incorporate "assessment error". Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels and gear) has been reduced, seasons were extended and wastage was reduced. Fishing gear is regulated to longline gear only. Regulations are in placed to address discards. General spawning areas have been mapped in Alaska. The halibut fishery is closed during peak spawning times, by regulation. The NPFMC has established Marine Protected Areas and additional trawl closures that benefit juvenile fish and adult spawners. Bycatch of seabirds were addressed by specific regulations now including the use of streamer (tory) lines, night setting, lineshooters and lining tubes. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery. In terms of marine mammals interactions with the commercial halibut fleet, the NMFS 2011 Marine Mammal SAFE report indicates that there is no incidental serious injury or mortality of marine mammal in Alaska. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet).*
9. *The IPHC and NPFMC objectives for management are based on maintenance of maximum sustainable yield (MSY). The policy for achieving this is based on setting biological reference points that determine the annual CEY for the Pacific halibut stock. Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels*

and gear) has been reduced. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery, lowering the mortality of undersized halibut caught and released during commercial fishing. Discards of Pacific halibut, considered a Prohibited Species Catch (PSC) by the groundfish fisheries in Alaska is regulated.

10. *Any aspirant halibut fisherman must have 150 days of halibut fishing experience before being able to purchase halibut IFQs. Obtaining halibut IFQ share most often will require the purchaser (aspirant halibut fisherman) 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 Northern Pacific Halibut Act, governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The 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. The maximum civil penalty under the Northern Pacific Halibut Act is $200,000 for each violation. 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).*
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.*
13. *Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet). Benthic longline gear is not considered to have serious or irreversible impacts on marine habitats. Bycatch of seabirds has been addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), and other seabird species in 1998, then revised in 2008. None have been taken in 2011. These avoidance measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, which have been shown to reduce seabird interactions when setting or retrieving gear. Seabird occurrence data have been collected during the 2011 IPHC annual setline survey. Bycatch data were also collected this year, indicating that the majority*

of the bycatch is made up by pacific cod and spiny dogfish. These species are managed by the NPFMC under tier 3 and 5 respectively, using OFL and ABC recommendations and catch limits. It is expected that with the implementation of the restructured observer coverage in a part of the halibut fleet, bycatch data collection will improve allowing management to make better informed decisions, especially for species like sharks and skates that generally tend to have low reproductive rates.

6. Conformity statement

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 Pacific halibut commercial fishery, employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management.

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

A. The Fisheries Management System

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.

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
FAO Eco 28

Evidence adequacy rating:

☑ High **☐ Medium** **☐ Low**

Rating determination

The IPHC is a bilateral, international treaty based organization, composed of representatives from the USA and Canada. Its mandate is research (on stock assessment and halibut biology research) and management (allocation between regulatory areas in US and Canada, developing various harvest regulations and setting annual harvest levels) of the stocks of Pacific halibut (Hippoglossus stenolepis) within the convention waters of both nations. The Northern Pacific Halibut Act of 1982 (Halibut Act) at 16 U.S.C 773-773k provides the Secretary of State of the US, with the concurrence of the Secretary of Commerce, the authority and general responsibility to carry out the requirements of the Convention and the Halibut Act. Following IPHC apportionments, the halibut fisheries in the American EEZ off Alaska are managed by the North Pacific Fishery Management Council (NPFMC), the National Marine Fisheries Service (NMFS), and the Alaska Department for Fish and Game (ADFG). The NMFS Alaska Region and the NPFMC gather data on all sources of halibut removals and mortality off Alaska: fishing (directed and incidental) and natural. All IFQ share holders must report their catches via an electronic filing ("e-file") method.

The IPHC is a bilateral, international treaty based organization, composed of representatives from the USA and Canada. Its mandate is research (on stock assessment and halibut biology research) and management (allocation between regulatory areas in US and Canada, developing various harvest regulations and setting annual harvest levels) of the stocks of Pacific halibut (*Hippoglossus stenolepis*) within the convention waters of both nations. Specifically the IPHC main objective is to conserve the biological viability of the stock, while allowing for maximum sustainable yield harvests from commercial, sport and subsistence users. The Northern Pacific Halibut Act of 1982 (Halibut Act) at 16 U.S.C 773-773k provides the Secretary of State of the US, with the concurrence of the Secretary of Commerce, the authority and general responsibility to carry out the requirements of the Convention and the Halibut Act.

Following IPHC apportionments, the halibut fisheries in the American EEZ off Alaska are managed by the North Pacific Fishery Management Council (NPFMC), the National Marine Fisheries Service

(NMFS), and the Alaska Department for Fish and Game (ADFG).
The NPFMC recommends regulations to govern the directed halibut fisheries in waters off Alaska and makes allocation decisions among halibut users and user groups fishing off Alaska. The NMFS works closely with the NPFMC and the IPHC, performing scientific research and being responsible for developing, implementing, and enforcing regulations pertaining to management of halibut fisheries in US waters. NMFS also manages the halibut subsistence program for Native, rural, ceremonial and educational purposes. Additionally, ADFG licenses halibut anglers, sport anglers, fishing businesses and guides, monitors and reports on sport and subsistence halibut harvests, and assists federal agencies with preparation of regulatory analyses. These agencies, and all of their activities and decisions regarding halibut, are subject to the North Pacific Halibut Act.

The primary purpose of IPHC is to conduct research on the halibut stock for the biological conservation of the halibut resource for fishery use in the area through which the species migrates during its life cycle, by taking into account the whole stock unit over its entire area of distribution (from California to the Bering Sea). The halibut within the IPHC convention area are considered to be one stock, which is studied, managed and enforced by IPHC, NPFMC, NMFS, ADFG and the US coast guard (USCG). The NMFS Alaska Region and the NPFMC gather data on all sources of halibut removals and mortality off Alaska: fishing (directed and incidental) and natural. All IFQ share holders must report their catches via an electronic filing ("e-file") method.

Sport charter vessels keep and submit a Charter Logbook to ADFG. The operators must submit their harvest information weekly, and ADFG summarizes the data in October and submits it to the NPFMC and NMFS. In addition, ADFG collects data from halibut sport fishermen (both guided/charter and un-guided), through an annual survey. Subsistence halibut data are gathered by NMFS under its Subsistence Halibut Registration Certificate (SHARC) program. Those data are reported to IPHC which also collects its own data through employment of port samplers and at-sea sampling agents for the commercial harvest.

Halibut management is an active public process. The IPHC receives a great deal of input and guidance from stakeholders and researchers. The NPFMC and the NMFS provide a great deal of information on their websites, including agenda of meetings, discussion papers, and records of decisions. The NPFMC actively encourages stakeholder participation, and all Council deliberations are conducted in open, public sessions.

IPHC 2012 Annual Meeting

The International Pacific Halibut Commission (IPHC) completed its Eighty-eighth (January 2012) Annual Meeting in Anchorage, AK. The Commission recommended to the governments of Canada and the United States catch limits for 2012 totaling 33,540,000 pounds, an 18.3% decrease from the 2011 catch limit of 41,070,000 pounds.

In addition to setting catch limits for 2012, the Commission dealt with a wide range of catch limit and regulatory issues, and also took important actions regarding bycatch management, scientific assessment review, and the IPHC performance review.

Regulatory Changes and Issues

Control of Charter Harvest in Area 2C

The Commission received a request from the NPFMC to change the Commission's existing one-fish bag limit with 37-in maximum length for charter fishing in Area 2C, to a one-fish bag limit with a U45/O68 reverse-slot limit length restriction (only halibut ≤ 45 in or ≥ 68 in, head on may be retained). This proposal is intended to keep the removals by the charter fishery within the Council's 0.931 Mlb Guideline Harvest Level for Area 2C. In addition, the entire carcass must be retained on board the vessel until all fillets are offloaded. After consideration of the request and discussion concerning the estimation of release mortality associated with this measure, the Commission adopted the U45/O68 reverse slot limit for charter halibut fishing in Area 2C for 2012.

Recreational Fishery Release Mortality

The Commission discussion of the reverse slot limit for Area 2C highlighted the issue of release mortality for halibut discarded by recreational fisheries coastwide. There are currently no estimates of release mortality during recreational fishing included in halibut management, although such releases by the recreational sector are known to be common, while similar mortality for undersize releases in the commercial fisheries is included. Accordingly, the Commission directed staff to write letters to all agencies involved in management of halibut recreational fisheries requesting implementation of data collection programs and estimation of such mortality for all recreational fisheries.

The Commission received a number of regulatory and catch limit proposals after the deadlines for submission and did not consider these proposals. Participants are reminded that future proposals should be received by Commission deadlines if they are to be considered by the Commission and its advisory bodies, to clearly distinguish the regulatory or catch limit objective of the proposals, and to submit the proposals under the appropriate category. The recommended regulations for the 2012 halibut fishery will become official as soon as they are approved by the Canadian and United States governments. The Commission will publish and distribute regulation pamphlets.

Other Actions

Halibut Bycatch Mortality

The Commission expressed its continued concern about the yield and spawning biomass losses to the halibut stock from mortality of halibut in non-directed fisheries. Significant progress in reducing this bycatch mortality has been achieved in Areas 2B (Canada), and recently in Area 2A (US EEZ outside of Alaska), using individual bycatch quotas for vessels in some fisheries. Reductions have also occurred in Alaska, and new measures aimed at improving bycatch estimation, scheduled to begin in 2013, will help to refine these estimates. The Commission noted the April workshop on bycatch being conducted jointly with the NPFMC and approved a request from its Conference Board to recommend a member from the directed halibut fishery to serve as a panelist on this workshop. In addition, the Commission directed staff to coordinate with state agencies and review estimates of

mortality in all state-managed fisheries in Alaska to ensure that they remain appropriate. The Commission reviewed progress by its **Halibut Bycatch Working Group** and developed objectives and timelines for work in 2012. In particular, the Working Group will review a staff report on halibut migration, review actions taken by both countries to reduce bycatch mortality, identify further actions that will be effective in reducing bycatch mortality, and identify options to mitigate the effects of such mortality.

Assessment Work Team

The Commission will develop a multi-year plan to review current and planned research activities as well as to plan and prioritise activities in the following areas: peer review of the current assessment model, analysis of the causes for the currently observed retrospective bias in estimates of exploitable biomass, analysis of the ongoing decline in halibut size at age, and development of a Management Strategy Evaluation for the halibut stock. A planning meeting for this initiative, involving the Commission, its staff, scientific advisors, managers, and industry participants will be held before the end of March 2012. The Commission also approved budget resources to support this work.

Performance Review

The independent consultants contracted to conduct a Performance Review of the Commission (http://www.iphc.int/component/content/article/253.html) attended all sessions of the Annual Meeting. The consultants' report was submitted to the Commission by April 30, 2012 and a public presentation of their findings occurred in spring 2012. The Commission will announce any actions arising from this review during its next cycle of meetings http://www.iphc.int/news-releases/256-nr20120130.html.

http://www.iphc.int/about-iphc.html
http://www.adfg.alaska.gov/index.cfm?adfg=halibut.main
http://www.fakr.noaa.gov/npfmc/halibut/sablefish-ifq-program.html
http://www.fakr.noaa.gov/ram/ifq.htm

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 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. In addition, the recent developments from the public and upcoming ballot to reinstitute the Alaska Coastal Management Plan offer some insight in the possible return of the ACMP in August 2012. This development will be closely followed as part of next surveillance assessment and a new determination will be made accordingly during the next surveillance assessment.

ACMP and NEPA

NMFS and NPFMC, cooperating with IPHC in Alaska to effectively manage halibut stocks within state and federal jurisdiction (200 mile EEZ), participate in coastal area management-related institutional frameworks through the federal National Environmental Policy Act (NEPA) processes. The state of Alaska is a cooperating agency in the NEPA process for federal actions, giving it a seat at the table for federal actions. The NEPA process includes decision-making processes and activities relevant to the fishery resource and its users in support of sustainable and integrated use of living marine resources and avoidance of conflict among users.

ACMP sets in July 2011

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 program was initially motivated by a desire to influence federal off-shore activities; however, over time it became an important planning and coordination tool for coastal zone related topics and interests. The ACMP was implemented through federal and state agencies and through local governments. State agencies involved included three divisions of ADFG, four divisions of the Department of Environmental Conservation, and nine divisions of the Department of Natural Resources. Federal agencies included the U.S. Forest Service, U.S. Fish and Wildlife Service, NMFS, U.S. Army Corps of Engineers, and the Environmental Protection Agency.

http://coastalmanagement.noaa.gov/programs/czm.html

http://alaskacoast.state.ak.us/Clawhome/handbook/pdf/OCRM_Approval.pdf

All construction activities in the coastal zone (e.g., work on docks, breakwaters, harbors and other infrastructure) were subject to the ACMP review process as well as in many cases the NEPA process. These processes deliberately take into account all resources and users of those resources. Conflict resolution mechanisms include both administrative (through governmental agencies) and legal

(through courts of law) procedures. Due to legislative conflicts, the ACMP was not renewed and its authority in Alaska expired. Under public pressure, the State is considering re-enacting the ACMP.

The ACMP up for ballot election in August 2012

On March 9th, 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 favour 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

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 other 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's 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 Program 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. Additionally, the USFWS distributes of hundreds of millions of dollars, collected through the Sport Fish and Restoration Program. These funds are derived from an excise taxes on fishing equipment, motorboat and small engine fuels and import duties. Funds are distributed to State fish and wildlife agencies for fishery projects, boating access and aquatic education http://www.fws.gov/help/about_us.html).

ANILCA

The Alaska National Interest Lands Conservation Act (ANILCA) conveyed large sections of federal land to settle Alaska native lands claims and provide the State of Alaska title to other large sections promised under Statehood. Additionally, it enclosed large swaths of land into federal parks and monuments for ecological protection for future generations. ANILCA directs federal agencies to consult and coordinate with the state of Alaska. State agencies responsible for natural resources, 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 NEPA environmental impact assessment process 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. In addition, the recent developments from the public and upcoming ballot to reinstitute the Alaska Coastal Management Plan offer some insight in the possible return of the ACMP in August 2012. This development will be closely followed as part of next surveillance assessment and a determination will be made accordingly.

IPHC and NPFMC meetings

The IPHC annual meeting, and regular meetings of the NPFMC provide forums for resolution of potential international and national fisheries conflicts. The IPHC accepts regulatory proposals in the fall of each year, and users can testify in person or in writing at IPHC and NPFMC meetings. In addition, stakeholders may review and submit written comments to the NMFS on proposed rules published in the Federal Register. The NPFMC works closely with ADFG and the BOF to coordinate fishery management programs in state and federal waters off Alaska to address fish habitat concerns, catch limits, allocation issues and other conservation management issues. (http://www.adfg.alaska.gov/index.cfm?adfg= halibut.getinvolved).

The NPFMC is responsible for allocation of the halibut resource among user groups in Alaska waters. In addition, the Board of Fisheries (BOF) public meetings process provides a regularly scheduled public forum for all interested individuals, fishermen, fishing organizations, environmental organizations, Alaskan Native organizations and other governmental and non-governmental entities to participate in the development of legal regulations for the commercial and sport fisheries off Alaska that bycatch halibut.

Advisory Committees (AC) are local "grass roots" citizen groups intended to provide a local voice for the collection and expression of public opinions and recommendations on matters relating to the management of fish and wildlife resources in Alaska. ADFG staff regularly attend the AC meetings in their respective geographic areas to provide information to the public and hear local opinions on fisheries related activities. Currently, there are 82 advisory committees in the state. Of these, approximately 80% to 85% are "active", meaning they regularly meet, write proposals, comment and attend BOF meetings. The enabling statute for the AC system is AS 16.05.260. Regulations governing the ACs are found in the Alaska Administrative Code (AAC) Title 5, Chapters 96 – 97 http://www.boards.adfg.state.ak.us/bbs/what/prps.php.

In 2011, the International Pacific Halibut Commission contracted an external review of its structure and function under the Halibut Convention between the United States and Canada. This Performance Review was conducted by CONCUR, Inc. and the Commission has received the final report of the Review: http://www.iphc.int/documents/review/FINAL_IPHC_Performance_Review-April30.pdf. The report identifies a number of recommendations to improve governance processes, increase transparency, and build on the strengths of the Commission to enable it to continue the sustainable management of the halibut resource.

Planning and action on several aspects of these recommendations are already underway as a result of decisions made at the Commission's Annual Meeting in January 2012.

The Commission's consideration of the report's findings will benefit from stakeholder's views and a public comment period has been established for this purpose. Through the summer 2012, the Commission will carefully review the report taking into account the feedback received during the public comment period before developing a response to the Performance Review. This is expected to include identification of priority areas for implementation and opportunities for further stakeholder participation. Significant discussion on an Implementation Plan is expected to take place at the upcoming Interim and Annual Meetings in late 2012 and early 2013 respectively. This will be followed as part of the next surveillance assessment.

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 objectives of the initial US and Canada Agreement for the management, conservation and sustainable utilization of Pacific halibut in the North Pacific, signed in 1923 pointed to the first basic regulations for closure of the fishery in determinate periods, halibut bycatch in other fisheries and the need for reporting such removals, enabling prosecutions for violation of the provisions and investigation into the life history of the Pacific halibut. Amendment 15 and 20 to the Fishery Management Plan (FMP) for the Groundfish Fishery of the BSAI and GOA established an individual fishing quota (IFQ) limited access system in commercial fixed gear fisheries for Pacific halibut and sablefish in and off Alaska and implemented a Western Alaska Community Development Quota (CDQ) program for halibut and sablefish fixed gear fisheries. These actions were intended by the NMFS to promote the conservation and management of halibut and sablefish resources, and to further the objectives of the Northern Pacific Halibut Act of 1982 (Halibut Act) and the Magnuson Fishery Conservation and Management Act (Magnuson Stevens Act or MSA) that provided authority for regulating these fisheries.

The initial US and Canada Agreement for the management, conservation and sustainable utilization of Pacific halibut in the North Pacific, signed in 1923 stated that "*The Commission (IPHC) shall report the results of its investigation to the two Governments and shall make recommendations as to the regulation of the halibut fishery of the North Pacific Ocean, including the Bering Sea, which may seem desirable for its preservation and development.*" Objectives of this agreement pointed to the first basic regulations for closure of the fishery in determinate periods, halibut bycatch in other fisheries and the need for reporting such removals, enabling prosecutions for violation of the provisions and investigation into the life history of the Pacific halibut.

Control of removal rate, or the amount of fishing on each stock, was made possible by amendments in the Treaties of 1930 and 1937, which authorized the division of the coast into areas and the limitation of the catch in each area. In 1953, a further Agreement of the Commission expanded on previous objectives of the IPHC as follows: "*The Contracting Parties agree that for the purpose of developing the stocks of halibut of the Northern Pacific Ocean and Bering Sea to levels which will permit the maximum sustained yield from that fishery and for maintaining the stocks at those levels, the IPHC, with the approval of the President of the United States of America and of the Governor General in Council of Canada, may, after investigation has indicated such action to be necessary, in respect of the nationals and inhabitants and fishing vessels and boats of the United States of America and of Canada, and in respect of halibut:*

***(a)** divide the Convention waters into areas;*
***(b)** establish one or more open or closed seasons, as to each area;*
***(c)** limit the size of the fish and the quantity of the catch to be taken from each area within any*

season during which fishing is allowed;
(d) *during both open and closed seasons, permit, limit, regulate or prohibit, the incidental catch of halibut that may be taken, retained, possessed, or landed from each area or portion of an area, by vessels fishing for other species of fish;*
(e) *prohibit departure of vessels from any port or place, or from any receiving vessel or station, to any area for halibut fishing, after any date when in the judgment of the IPHC the vessels which have departed for that area prior to that date or which are known to be fishing in that area shall suffice to catch the limit which shall have been set for that area under section (c) of this paragraph;*
(f) *fix the size and character of halibut fishing appliances to be used in any area;*
(g) *make such regulations for the licensing and departure of vessels and for the collection of statistics of the catch of halibut as it shall find necessary to determine the condition and trend of the halibut fishery and to carry out the other provisions of this Convention;*
(h) *close to all taking of halibut such portion or portions of an area or areas as the IPHC finds to be populated by small, immature halibut and designates as nursery grounds.*

In November 1993, the NMFS issued a final rule to implement Amendment 15 to the Fishery Management Plan (FMP) for the Groundfish Fishery of the BSAI Area and Amendment 20 to the FMP for Groundfish of the GOA Area. These are regulatory amendments affecting the fishery for Pacific halibut in and off Alaska. These regulations established an individual fishing quota (IFQ) limited access system in commercial fixed gear fisheries for Pacific halibut and sablefish in and off Alaska. In addition, this action implemented a Western Alaska Community Development Quota (CDQ) program for halibut and sablefish fixed gear fisheries. These actions were intended by the NMFS to promote the conservation and management of halibut and sablefish resources, and to further the objectives of the Northern Pacific Halibut Act of 1982 (Halibut Act) and the Magnuson Fishery Conservation and Management Act (Magnuson Stevens Act or MSA) that provided authority for regulating these fisheries. The IFQ program was intended to resolve various conservation and management problems that stemmed from the "open access" regulatory regime in place at that time. The CDQ program was intended to help develop commercial fisheries in Western Alaskan communities on the Bering Sea coast by allowing them exclusive access to specified amounts of halibut and sablefish in the BSAI. Amendments 15 and 20 implemented halibut and sablefish IFQ program to the Groundfish FMPs of Alaska. These amendments effectively provide a framework for the management of halibut resources in the BSAI and GOA.

The Alaska halibut fishery is managed cooperatively by the IPHC, NMFS and the NPFMC.
NPFMC and NMFS manage the halibut fishery in the Alaska region of the American EEZ. Management decisions are made by the NPFMC, and implemented and enforced by NMFS. The NPFMC has developed Pacific halibut regulations that are in addition to, and not in conflict with, the regulations of the IPHC. These Council regulations generally address domestic allocation concerns (e.g., catch sharing between sectors, subsistence, local area management planning), some of which had profound management and conservation impact. For example, the IFQ program regulations developed by the Council facilitated the maintenance of total commercial harvest within the catch limits specified by the IPHC while addressing domestic allocation concerns in the fishery.

The Council develops its Pacific halibut fishery regulations pursuant to the authority in section 5(c) of

the Northern Pacific Halibut Act of 1982 (Halibut Act). The Council's Halibut Act regulations are implemented only after review and rulemaking conducted by the NMFS. The NPFMC process is extremely transparent and inclusive of all stakeholders; all stakeholders are active participants. All stakeholders have a voice in the IPHC process, either directly, or through the Commission's Conference Board and/or Processor Advisory Group.

The IPHC outputs (Annual Reports, Reports of Assessment and Research Activities, Scientific Reports, Technical Reports, Regulations, Information Bulletins, Annual Meeting Reports) seek to address the fishery development and conservation objectives set out in the various Agreements between US and Canada to manage the Pacific halibut stock. The Commission's Annual Report details the performance of the fisheries (commercial, sport, and personal use), with emphasis on the biological considerations, stock assessment, management issues (e.g. bycatch), and scientific research. The Report also presents the results of the Commission's annual meeting (usually held in January), at which the catch limits for upcoming season are determined.

www.iphc.washington.edu/home.html
http://www.fakr.noaa.gov/frules/76fr14300.pdf
http://iea.uoregon.edu/pages/view_treaty.php?t=1923-Halibut.EN.txt&par=view_treaty_html
http://iea.uoregon.edu/pages/view_treaty.php?t=1953-Halibut.EN.txt&par=view_treaty_html
www.iphc.washington.edu/library/annual-reports.html
www.fakr.noaa.gov/npfmc/default.htm
http://www.fakr.noaa.gov/regs/summary.htm
www.nmfs.noaa.gov/sfa/mag**act**
www.fakr.noaa.gov/ram/ifq.htm
http://www.iphc.washington.edu/papers/sa10.pdf
http://alaskafisheries.noaa.gov/frules/fr59375.pdf

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 IPHC collects yearly data from a variety of sources to characterize the fishery, status and population trends in all regulatory areas, and assist in fitting a population assessment model. The key datasets collected include IFQ e-landings catch, sport catch, bycatch, personal use and wastage data. Every year, the IPHC places a sampler aboard the NMFS EBS groundfish/crab trawl survey. The sampler collects biological data on the halibut catches, taking lengths of almost all halibut caught and selecting a subsample for aging. Additionally, this year, the NMFS also operated their biennial GOA survey, used in a comparison of NMFS trawl and IPHC assessment biomass estimates. The triennial Aleutian Islands (AI) survey was not carried out this year. The swept-area estimates of abundance derived from the three NMFS trawl surveys (BS, GOA, AI) are a valuable independent indicator of long-term trends in halibut biomass. Eleven commercial longline vessels, seven Canadian and four U.S., were chartered by the IPHC for survey operations in 2011. Of the 1,315 stations planned for the 2011 survey, 1,314 (99.9%) were completed, and 1,299 (98.7%) survey stations were effective for stock assessment analysis. Seabird occurrence data have also been collected during IPHC stock assessment surveys since 2002. Bycatch data collected during the IPHC surveys are used as proxy to estimate total bycatch in the halibut fishery. New methods for estimation of non-halibut bycatch have been developed this year and estimates have been provided to groundfish stock assessment authors. NMFS announced to NPFMC on June 7th 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 to restructure the funding and deployment system for observers in the North Pacific groundfish and halibut 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.

Observations from the survey, commercial and other fisheries

The IPHC collects yearly data from a variety of sources to characterize the fishery, status and population trends in all regulatory areas, and assist in fitting a population assessment model. Some of the more important datasets are summarized below.

Halibut removals

Total removals from the halibut populations come from five categories (figure 1):

1) commercial catch (IFQ e-landings & IPHC port survey data are included in this category),
2) sport catch (Charter boat logbook, ADFG port samplers and annual mail-in survey),
3) bycatch (observer data and logbooks from a variety of fisheries targeting species other than halibut),

4) personal use (port samplers, subsistence interviews and SHARC reports), and
5) wastage from the commercial fishery (on board observers).

Bycatch and wastage are subdivided into O26 (over 26 inches) and U26 (under 26 inches) components as the U26 components are not used for purposes of determining fishery CEY (they are factored into the harvest rate). Detailed descriptions of each category are contained in the Fishery Removals section of the annual Report of Assessment and Research Activities (Gilroy et al. 2011).

On a coastwide basis, total removals are at their lowest level since 1984 and commercial removals at their lowest point since 1983. For temporal context, total removals are about 40% below the peak of the 1990s and about double the lowest value seen in the late 1970s. The pattern of changes between the mid-1980s removals and 2011 removals has been quite different among regulatory areas, however.

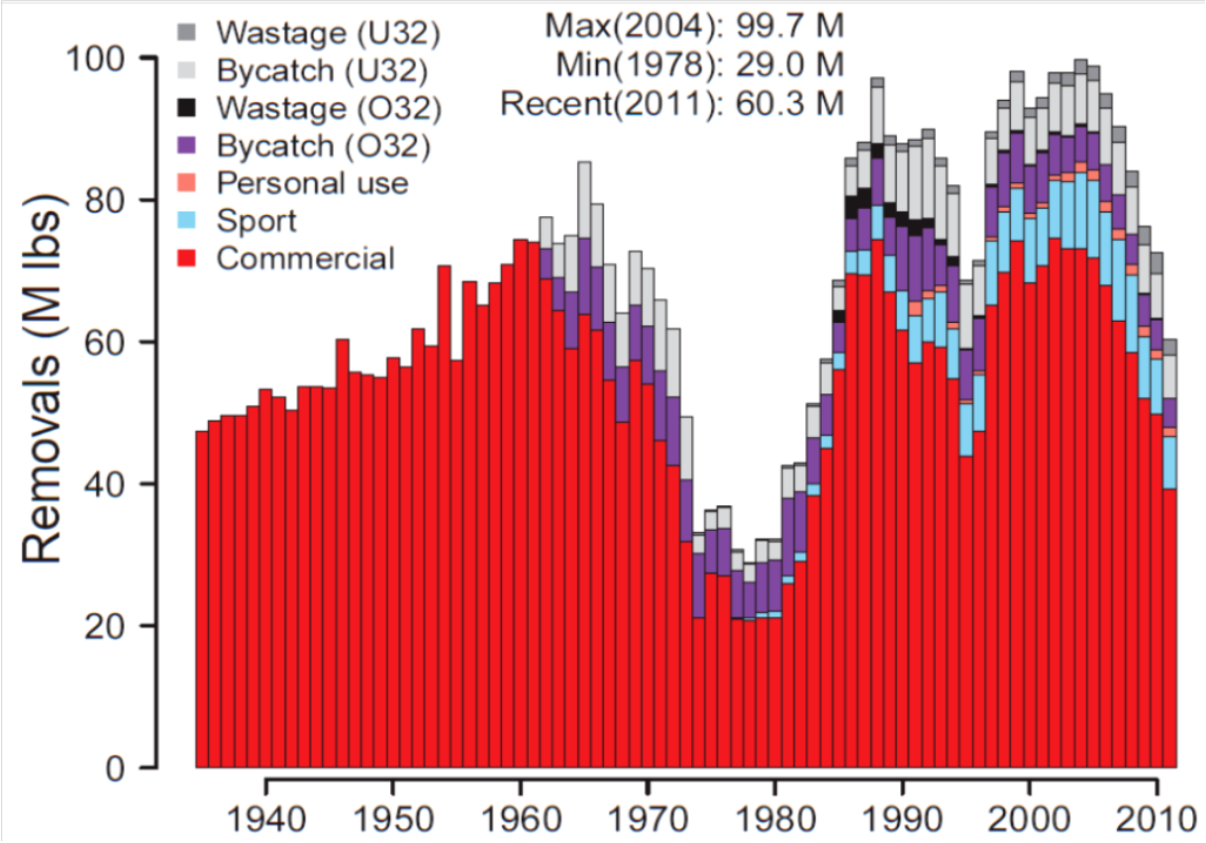


Figure 1. Total coastwide Pacific halibut removals for the period 1935-2011.

NMFS and ADFG trawl surveys

Bering Sea

Every year, the IPHC places a sampler aboard the National Marine Fisheries Service (NMFS) Eastern Bering Sea (EBS) groundfish/crab trawl survey. The sampler collects biological data on the halibut catches, taking lengths of almost all halibut caught and selecting a subsample for aging. The EBS groundfish trawl survey is used to assess halibut because of the high cost, and very low catch rate when conducting setline survey for halibut in the EBS. For this reason, the IPHC does not conduct the Standardized Stock Assessment (SSA) grid survey in that region. While the IPHC survey does operate along the Area 4D shelf edge, that region is not indicative of densities and trends across the broad

shelf.

The traditional NMFS survey (i.e., as operated from 1982-present) generates swept area estimates of abundance for the southern part of the EBS shelf (equivalent to operational IPHC area 4S, the southern part of the EBS shelf). Beginning in 2010, Area 4S comprises the part of the shelf covered by the traditional NMFS EBS shelf survey, including the southern parts of IPHC regulatory areas 4D and 4E. This differs from the definition of Area 4S utilized in 2009. The reason for the change is that starting in 2010 the NMFS expanded the EBS trawl survey north to 65.5 °N and covering the entire remainder of the EBS shelf. ADFG also conducts trawl surveys that are included in the IPHC assessment.

From the NMFS trawl survey IPHC obtains swept area estimates of abundance at length and can then apply the stock assessment estimated survey selectivity at length schedule to the full catch to provide an index of survey catch rate, comparable to the SSA survey fishing gear.

Gulf of Alaska/Aleutian Islands

Additionally, this year, the NMFS also operated their biennial Gulf of Alaska survey (Sadorus and Paulsson 2012, Figs. 11a-c). The triennial Aleutian Islands survey was not conducted this year, however it is used in a comparison of NMFS trawl and IPHC assessment biomass estimates. In the Gulf of Alaska, swept area estimates of total biomass and total numbers of halibut showed a decline from the high levels seen in the 2009 survey. The large confidence intervals preclude determination of a statically significant trend but appear to indicate relatively level total abundance over the 1993-2011 time period. Trends in Gulf of Alaska exploitable biomass and exploitable numbers are, however, much more evident. Area 3B has declined steadily since the peak in 1999, while 3A has declined steadily since its peak in 2003. Due to the difficulty of trawling in many parts of 2C, it is questionable how representative the trawl survey is for halibut abundance in that region.

Alaska trawl swept-area estimates of abundance

The swept-area estimates of abundance derived from the three NMFS trawl surveys (Bering Sea, Gulf of Alaska, Aleutian Islands) are a valuable independent indicator of long-term trends in halibut biomass. While the survey regions do not correspond precisely to IPHC regulatory areas nor are the trawl surveys each conducted in all years, nevertheless they provide a useful estimates of abundance trends.

IPHC setline survey

Eleven commercial longline vessels, seven Canadian and four U.S., were chartered by the International Pacific Halibut Commission for survey operations in 2011. During a combined 73 trips and 694 charter days, these vessels fished 28 charter regions and two bait experiments, covering habitat from southern Oregon, to the island of Attu in the Aleutian Islands, and north along the Bering Sea continental shelf edge. Of the 1,315 stations planned for the 2011 survey, 1,314 (99.9%) were completed, and 1,299 (98.7%) survey stations were effective for stock assessment analysis. Approximately 664,821 pounds of halibut, 160,899 pounds of Pacific cod, and 49,034 pounds of rockfish were landed from the standardized survey stations and bait experiments combined. Compared to the 2010 survey, weight per unit effort (WPUE) increased in Regulatory Areas 2A, 2C, and 3A. WPUE decreased in areas 2B, 3B, 4A, 4C, and 4D. WPUE in Area 4B was unchanged. http://www.iphc.int/publications/rara/2011/2011.491.2011Standardizedstockassessmentsurvey.pdf

The current SSA survey has been conducted since 1996 in almost all areas and in all years. A triangular design was used in 1996 and 1997, with the current 10 nmi regular grid used from 1998 to the present. The surveys prior to 1984 used "J" hooks while all surveys from 1984 onwards were based on use of "Circle" hooks. In its current configuration, stations are placed on a 10-nautical mile grid between depths of 20 and 275 fm, resulting in a total of approximately 1280 stations. The 2011 SSA survey is fully described in White et al. (2012). A key indicator of stock status in each regulatory area is the weight of O32 halibut caught per standardized skate, termed the survey WPUE. Survey WPUE has declined by over 50% on a coastwide basis over the past 10 years. While the rate of decline has differed among areas, there has been a substantial decrease in WPUE in all areas, indicative of a consistent coastwide decline in exploitable biomass.

The survey catch of halibut is sampled to obtain biological information about the stock including sex and age distribution and is described in Forsberg (2012a). In 2011 as in the last several years, there is a general tendency for an older age structure in the western areas, relative to the eastern areas. In particular, the lack of fish older than 20 years is noted for Area 2. Areas 3B and 4A present somewhat anomalous age distributions in that they more closely resemble Area 2 than Area 3A or most Area 4 distributions. At least part of the explanation for the higher number of young fish may be that the settlement of juveniles from Gulf-wide spawning occurs primarily in these areas.

The age-specific catch rates are affected by the change in size at age thus the survey indexes numbers of fish selected to the gear and not necessarily total numbers of fish in the population compared across years. The very strong 1987 and 1988 classes are readily apparent. There is optimism for additional recruitment pulses in future years; since it appears that the 1999 and 2000 year classes are now entering the survey catch at higher rates than the assessment model had been predicting for the last few years. The declining size at age is likely responsible for the delay in recruitment to the survey and it may still be a few years before these two year classes fully enter the commercial fishery in proportion to their overall numbers in the population.

Commercial fishery

The second major component of the annual IPHC data collection is sampling the commercial catch. The port sampling program is detailed in Erikson and MacTavish (2012) and age sampling in Forsberg (2012b). From commercial fishing logs, commercial CPUE is computed for each regulatory area. As with the survey WPUE, there has been a consistent coastwide decline in commercial WPUE though not quite as pronounced. This is not unexpected however, as commercial fishers tend to move their effort to maintain their catch rate, whereas the survey maintains the same fishing locations every year. Approximately 1500 otoliths are collected and aged from each regulatory area (smaller samples in Areas 2A and 4B). Because commercially-caught halibut are gutted at sea, the sex of halibut is unknown when sampled at the port of landing. A statistical methodology has been developed, based on sex ratio at length in survey catches, to parse out male and female proportions at age (see Clark 2004). It is important to note that the distribution of ages for the total (sexes combined) is not statistically estimated (the distribution represents the otolith readings); it is the sex-specific distributions that are statistically derived. As with the survey age samples, the fish in Area 2 are, on average, several years younger than fish caught in Areas 3 and 4. Here, as well, Area 3B (but not Area 4A) is anomalous in that the average age of fish is closer to the Area 2 average.

Part of the coastwide decline in exploitable biomass can be attributed to a decline in size at age. For

a given number of halibut in the population, a smaller size at age results in a smaller cumulative biomass. Average weight has declined by 25% in the survey catches and 33% in the commercial catches. While the decline could be due to a decline in average age of the fish in the catches (since younger fish are smaller), data shows this has not been the case, as average ages in both the survey and commercial catch have not declined at nearly the same rate.

Lost yield from U32 bycatch

In 2009, a methodology was developed to estimate yield loss from bycatch in the non-directed fisheries (Hare 2010). Bycatch, which is unsexed but for which length samples are available, was partitioned into age and sex components and a life history simulation model then produced estimates of how much yield was lost to the directed commercial fishery, in units of pound of lost yield per pound of U32 bycatch. The yield loss ratio in general is around one pound per pound but varies by regulatory area, depending both on the size of the bycatch when taken as well as the size at age of halibut when taken in the commercial fishery. Neither these, nor the previous calculations in Hare (2010) factored migration into the estimates, which has the effect of "spreading" the lost yield downstream from the area of capture. Work on evaluating the effect of migration on downstream distribution of lost yield is reported in Valero and Hare (2010 and 2011).

Trends in seabird occurrence on stock assessment surveys (2002-2011) Tracee O. Geernaert

Seabird occurrence data have been collected during International Pacific Halibut Commission (IPHC) stock assessment surveys since 2002 from the west coast of Washington, Oregon, British Columbia (B.C.), southeast Alaska (inside and outside waters), the central and western Gulf of Alaska, Aleutian Islands, and the southeastern Bering Sea Edge. Samplers aboard research vessels counted the number of seabirds in the vicinity of the vessel's stern immediately following gear retrieval (i.e., haul). Sampling seabird occurrence after the haul addresses the question of where and when certain seabird species occur. It also aids in the assessment of individual species at risk by providing information that may reflect population trends over time. Seabird counts were performed within a 50-meter hemisphere (count zone) at the stern, immediately after the longline gear was hauled.

A total of 12,468 observations were conducted over the last nine years, and the number of stations where bird counts were performed ranged from a low of 1,218 to a high of 1,284 per year. More than 583,000 birds were recorded since 2002. Start dates for each year's survey ranged from May 25 to June 7 and the end dates from August 27 to September 14, but the bulk of observations took place from June through August.

The most common species during all years was the northern fulmar (*Fulmarus glacialis*), making up 73% of the sightings. Glaucous-winged gulls (*Larus glaucescens*) made up eight percent of the overall sightings, with black-footed albatrosses (*Phoebastria* nigripes) and fork-tailed storm petrels (*Oceanodroma furcata*) representing seven and two percent of sightings, respectively. Over time, the observed number of unidentified gulls has continually decreased, inversely correlated with an increased number of observations of glaucous-winged gulls and herring gulls (*L. argentatus*), the most common of the gull species on the eastern Pacific coast. This shift is likely the result of increased focus on gull identification during annual IPHC sampler training. Overall, the number of unidentified birds has decreased, indicating that the IPHC sea samplers have improved their

identification skills. Black-footed albatross (*P. nigripes*) were more commonly observed in Washington/Oregon and northward into the Gulf of Alaska, whereas Laysan albatross (*P. immutabilis)* were seen in greatest numbers in the central and western Aleutian Islands and only rarely east of Kodiak Island. A total of 204 endangered short-tailed albatross (*P. albatrus)* were sighted in Area 3A and regions westward, more often in July and August than in June. The survey is not conducted at the same time in each area, and this may affect the bird sighting information. Further work is needed to more fully examine the potential influence of charter timing on bird observation trends. Because of the large geographic scope and consistent spatial pattern of the surveys, these data are helpful to scientists studying populations of threatened and endangered birds commonly seen during the counts.
http://www.iphc.int/publications/rara/2011/2011.529.Trendsinseabirdoccurrenceonstockassessmentsurveys(2002-2011).pdf

Bycatch data collection

Approximately 111 species of fish and invertebrates were caught as bycatch during the survey.
Though skippers on survey vessels take precautions to avoid marine mammal and bird catch, one harbor seal (*Phoca vitulina*) was captured in 2A. No birds were caught on survey. Hook occupancy of species-groups varied by regulatory area. Halibut were the most commonly caught species in Areas 2C, 3A, and 3B. The most frequently incidentally-captured species overall was Pacific cod, followed by spiny dogfish (*Squalus suckleyi*). The most common bycatch in Areas 2A, 2B, 2C, and 3A was sharks, primarily dogfish. The most frequent bycatch in Areas 3B, 4A, and 4B was Pacific cod. In Areas 4A, 4B, 4C, and 4D, the "other species," category was comprised primarily of Arrowtooth flounder (*Atheresthes stomias)*, white-blotched skates (*Bathyraja maculata),* Alaska skates *(Bathyraja parmifera),* grenadiers (*Corypaenoididae* spp.), yellow Irish lord sculpins (*Hemilepidotus jordani*), and Great sculpins *(Myoxocephaluspolyacanthocephalus).*
Dogfish were the largest component of the shark species category in Areas 2A (97%), 2B (99.9%), 2C (96%), and 3A (97%). Sleeper sharks (*Somniosus pacifi cus*) made up the largest component of the shark species category in 3B (53%), 4A (69%), and 4D (80%).
New this year, trends in bycatch number per unit effort (NPUE) are presented. Bocaccio (*Sebastespaucispinus*), canary rockfish (*S. pinniger*), and yelloweye rockfish (*S. ruberrimus*) populations are of concern in Areas 2A, 2B, and 2C and their numbers often drive catch regulations. Catch rates of bocaccio and canary rockfish are so low on IPHC surveys that it is difficult to make any inferences; however, the encounter rate for bocaccio in all three areas was higher in 2011 than in 2010. Yelloweye rockfish have been trending up over the last five years in Areas 2B and 3A, and have been fairly flat in 2C. Trends in bycatch NPUE over the last ten years for the other major incidentally-captured species and species groups show that the encounter rate for most remained relatively constant over time. In Area 4D, arrowtooth flounder (*Atheresthes stomias*) are more common than in all other Areas and have been encountered at about twice the rate in 4D than in other regions over those ten years, except in 2009, when arrowtooth flounder encounters from 2B though 4D were very similar. Pacific cod (*Gadus macrocephalus*) in Area 4D have been generally declining since 2007, but other areas (2B, 2C, 3A, 3B, 4A) have seen substantial increases.
http://www.iphc.int/publications/rara/2011/2011.491.2011Standardizedstockassessmentsurvey.pdf

Developments of the observer program in regards to non-halibut bycatch in the directed halibut

fishery.

Following site visits for this surveillance assessment in March 2012, the IPHC confirmed that positive steps had being taken to address scarcity of data for non-halibut bycatch in the directed halibut fishery in various ways. The 2011 FAO-Based RFM Full Assessment report for the AK Pacific halibut commercial fishery details several *"items for surveillance"*, as follows:

Surveillance Actions Proposed during full assessment in 2012	**Updates and developments during the first surveillance assessment in 2012.**
Current methods for estimating bycatch of non-target species in the halibut fishery are currently under review. To address these non-halibut bycatch issues in the halibut fishery, 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 fishery.	A paper titled *Methods for the estimation of non target species catch in the unobserved halibut IFQ fleet* was produced in August 2011 ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf. 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. This will be monitored and evaluated accordingly in the second surveillance assessment for Pacific halibut. In the meantime, the estimates were furnished to the assessment scientists and published within the various SAFE reports: http://www.afsc.noaa.gov/refm/stocks/assessments.htm
Developments on the Observer Restructuring Program with its related implications in improving bycatch and discards estimation in the groundfish and halibut fisheries off Alaska will be monitored and appropriately assessed during the surveillance assessment of the Pacific halibut fishery. A complete re-evaluation of the Observer Program will then take place between years 4 and 5 should certification be granted.	The NMFS announced to NPFMC on June 7th 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 and halibut 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. http://www.fakr.noaa.gov/sustainablefisheries/amds/amds86_76/approval060712.pdf 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. NOAA hopes to deploy observers under the restructured program by January 1, 2013. http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm http://www.fakr.noaa.gov/notice/77fr29961.pdf
The discarded catch of non-target species in the halibut 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&G, IPHC and NPFMC working group, to improve bycatch estimation in the halibut fishery have great implications to assess the impacts of the directed Pacific halibut fishery on the ecosystem. Both of these developments will be monitored and appropriately assessed during the surveillance assessment of the Pacific halibut fishery.	As illustrated above.

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

Coastwide exploitable biomass at the beginning of 2012 is estimated to be 260 M lbs, down from the end of 2010 estimate of 317 M lbs. The model variant chosen for the assessment in 2011 differs from the production version of the past few years. Termed "WobbleSQ" (as opposed to the earlier "Trendless"), its treatment of survey catchability is the only difference between the two models. The downward revision reflects weaker recruitment of the 1989-1997 cohorts, revised weight per unit effort (WPUE) indices based on late-season data in 2010, and the ongoing retrospective behaviour shown in the model. Female spawning biomass is estimated at 319 million pounds at the start of 2012, a decline of nearly 9% over the beginning of 2011 estimate of 350 million pounds. The female spawning biomass shows somewhat lesser retrospective behaviour, possibly lending credence to IPHC's belief that the ongoing declines in size at age, which strongly affect selectivity-at-age, is one of the root causes of the retrospective behaviour. Trawl estimates of abundance are similar to assessment estimates in most areas, and also provide evidence that while exploitable biomass and numbers continue to decline, the total biomass and number of halibut remains level, or slightly increasing. The IPHC completed a bilateral work session during May 2012 to address issues of research planning, peer review of the 2012 halibut stock assessment, ongoing external peer review of the stock assessment, and the development of a framework for public engagement in a Management Strategy Evaluation. These topics were identified as priority areas for action by the Commission at its Annual Meeting in January 2012.

2011 Pacific Halibut Stock Assessment by the IPHC

As noted in Issue 4, the EBS, GOA and AI trawl surveys conducted by NMFS provide important verification of abundance trends and support or replace the setline survey in some areas. This, in addition to the IPHC's setline survey, port sampling and e-landings provide the data for model assessment.

Since 2006, the IPHC stock assessment model has been fitted to a coastwide dataset to estimate total exploitable biomass. Coastwide exploitable biomass at the beginning of 2012 is estimated to be 260 M lbs, down from the end of 2010 estimate of 317 M lbs. The model variant chosen for the assessment in 2011 differs from the production version of the past few years. Termed "WobbleSQ" (as opposed to the earlier "Trendless"), its treatment of survey q is the only difference between the two models. The downward revision reflects weaker recruitment of the 1989-1997 cohorts, revised WPUE indices based on late-season data in 2010, and the ongoing retrospective behaviour shown in the model. Female spawning biomass is estimated at 319 million pounds at the start of 2012, a

decline of nearly 9% over the beginning of 2011 estimate of 350 million pounds. The female spawning biomass shows somewhat lesser retrospective behaviour, possibly lending credence to IPHC's belief that the ongoing declines in size at age, which strongly affect selectivity-at-age, is one of the root causes of the retrospective behaviour. Trawl estimates of abundance are similar to assessment estimates in most areas, and also provide evidence that while exploitable biomass and numbers continue to decline, the total biomass and number of halibut remains level, or slightly increasing.

In order to obtain an unbiased estimate of the total exploitable biomass (EBio), beginning with the 2006 assessment, the staff built a coastwide data set and fitted the standard assessment model to it. Exploitable biomass in each regulatory area was estimated by partitioning, or apportioning, the total EBio in proportion to an estimate of stock distribution derived from the IPHC setline survey catch rates (WPUE). Specifically, an index of abundance in each area was calculated by weighting survey WPUE by total bottom area between 0 and 400 fm (Hare et al. 2010). The logic of this apportionment is that survey WPUE can be regarded as a fishery-independent, consistent and relatively unbiased index of density, so multiplying it by bottom area gives a quantity proportional to total abundance. Beginning in 2009 two adjustments to the index for each area, one based on hook competition and the other on survey timing, were computed for use in biomass apportionment (Webster and Hare 2011). The staff's Catch Limit Recommendations are based on use of both adjustments. New in 2010 was a change to the weighting which has been used for the last several years of survey WPUE. Based on a statistical analysis of relative variability within a year compared to variability between years (Webster 2011), the new weighting places far more emphasis on the most recent year than was the case previously. The new "Kalman" weights are in the ratio of 75:20:5 for the past three years WPUE values (after adjusting for hook competition and survey timing). The estimated proportion in each area is then the adjusted and weighted index value for that area divided by the sum of the adjusted and weighted index values. An alteration to the method by which individual regulatory area data are weighted to produce the coastwide dataset was implemented this year. Two types of data weighting are used, depending on the data type: "area-weighting" and "abundance-weighting" (Clark and Hare 2007). Area weighting uses the relative amount of bottom area to weight the individual datasets; WPUE time series are an example of data for which area-weighting is appropriate. Abundance weighting refers to the weighted-average of area specific data with weights computed as bottom area times survey NPUE. Age/sex compositions and mean length at age/sex are data for which abundance-weighting is appropriate. Until this year, all weighting used the 0-400 fm bottom areas and unadjusted survey NPUEs. This year, four different combinations of bottom area and survey adjustments were used, each matched to the apportionment choices used at the estimation of regulatory area EBio distribution stage (for determination of total CEY). The apportionment scenarios involved using either 0-400 fms or 20-275 fm definitions of bottom area, as well as using (or not using) the survey hook correction and survey timing adjustments. The differential weightings produce coastwide datasets that differ slightly and therefore produce slightly different model fits. The output of greatest concern – EBio – varied by a maximum of 1-2% among the different data weightings. The weighting, and that used in the Catch Limit Recommendations, is that adopted by the Commission in 2010 and uses the 0-400 fm bottom area definition and survey WPUE adjustment for hook competition and survey timing.

Changes to the assessment and apportionment in 2011

The following summarizes changes, additions, and updates to the 2011 assessment and apportionment procedures, compared to the previous halibut assessment (Hare 2011b):

- 2011 survey, commercial, bycatch, sport, personal use and wastage data added.
- The Area 2B survey WPUE was modified slightly by removing, from the mid-1990s, stations on Dogfish Bank, which are outside the area where the current survey design is implemented (Webster and Hare 2012).
- Swept area estimates of Total (TBio) and Exploitable Biomass (EBio) from independent trawl surveys are updated for several regulatory areas.
- A definition of bottom area, reflecting the present survey design, of 20-275 fathoms was used as an alternative apportionment scheme.

Weighting of the regulatory area input datasets in constructing the coastwide dataset now reflects the combination of WPUE adjustments and choice of bottom area used for different apportionment schemes.

Effect of the 2011 data on abundance estimates

Coastwide survey WPUE declined by 5% and commercial WPUE increased by 1% from 2010 to 2011. It must be noted, however, that the 2010 commercial WPUE value was revised downward from a value of 232 pounds/skate to a value of 210 pounds/skate as a result of including late arriving data not available at the time the dataset was locked for the 2010 assessment. This single change caused the Base2010 estimate of EBio of 317 M lbs to be revised downwards to a value of 292 M lbs. The 2011 assessment further reduces the estimate of EBio at the beginning of 2011 to 245 M lbs. The EBio estimate from the Trendless (Base2010) at the beginning of 2012 is then estimated to be 288 M lbs, for a total downward revision of 9% between the (original) 2011 beginning of year estimate and the 2012 beginning of year estimate. The IPHC staff's recommended model this year is the WobbleSQ model and the sequence of revised EBios for this model is as follows: The original beginning of year EBio (from the 2010 assessment) was 295 M lbs, which was revised downwards to 267 M lbs with the 2010 dataset update. The 2011 assessment further revises that value downwards to 223 M lbs which compares to an estimated value of 260 M lbs for the beginning of 2012. Note the estimated biomasses for beginning of year 2012 assume no size at age change between 2011 and 2012, an assumption which may well not hold true given the ongoing decline in size at age.

Description of the assessment model

The IPHC assessment is coastwide (open) age-and sex-structured model. Commercial and survey selectivities are both estimated as piecewise linear functions of observed mean length at age/sex in survey catches. (There is a 32-inch minimum size limit in the commercial fishery.) Commercial catchability is typically allowed to vary from year to year with a penalty of 0.03 on log differences. Some variation in survey catchability between years has been allowed in production fits since 2006. The model is fitted to commercial and survey catch at age/sex and CPUE. The current halibut assessment model has remained essentially unchanged since 2003. It has been thoroughly described in an IPHC Scientific Report (Clark and Hare 2006) and was subjected to a peer review by two external scientists from the Center for Independent Experts (IPHC 2008).

Alternative model fits

As has been done the past few years, several variants of the basic assessment model were fitted. Differences among most of the models concerned how survey and commercial catchability (generally termed "q") were parameterized. An additional model was fitted that excluded commercial CPUE, and is considered similar to many of the NMFS groundfish assessment models.

The models are summarized as such (figure 2 and figure 3):

- (Trendless, also referred to as Base 2010) Survey q is allowed to vary annually, subject to a penalty on the amount of variation, but has an additional requirement that a regression of estimated survey catchability on year have zero slope. This was the selected production model since between 2007 and 2010.
- (Vanilla, Alt. 1) Survey q constant: catchability is a single fixed (though estimated) value in all years.
- (WobbleSQ, Alt. 2) Survey q drift: survey catchability estimated for each year, but (new this year) was allowed to drift freely. This resulted in a better fit, and lower EBio estimate (by 10 million pounds) than placing a penalty on the amount of "wobble", as was done the last few years.
- (NMFS, Alt. 3) Survey q trendless drift (i.e., Base2010 model) but Commercial CPUE is disregarded.
- (CAGEAN, Alt. 4) This is similar to the old IPHC CAGEAN model. Only commercial data are fitted and commercial q is allowed to drift.

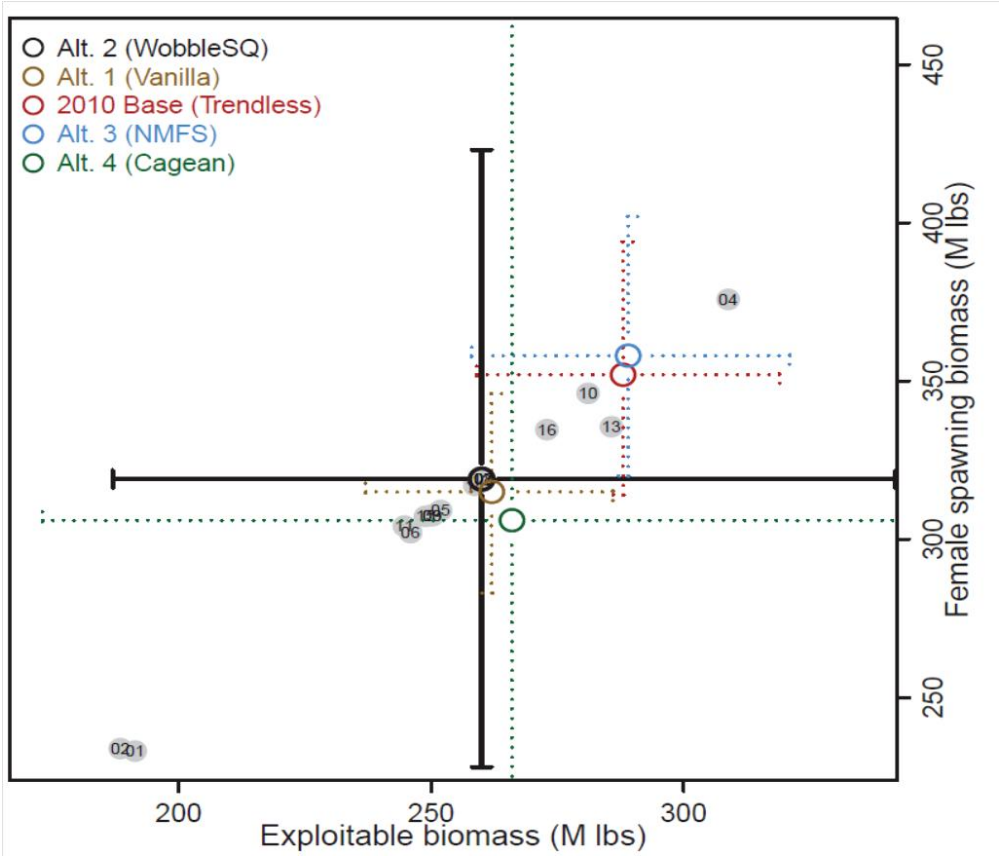


Figure 2. Illustration of maximum likelihood estimates (circles) for Ebio and SBio for various model fits. The 95% percent asymptotic confidence intervals for the likelihood profile are shown by the end caps of the horizontal and vertical bars extending from the circle. In this plot, the 16 alternative model fits are with the WobbleSQ model as the focus.

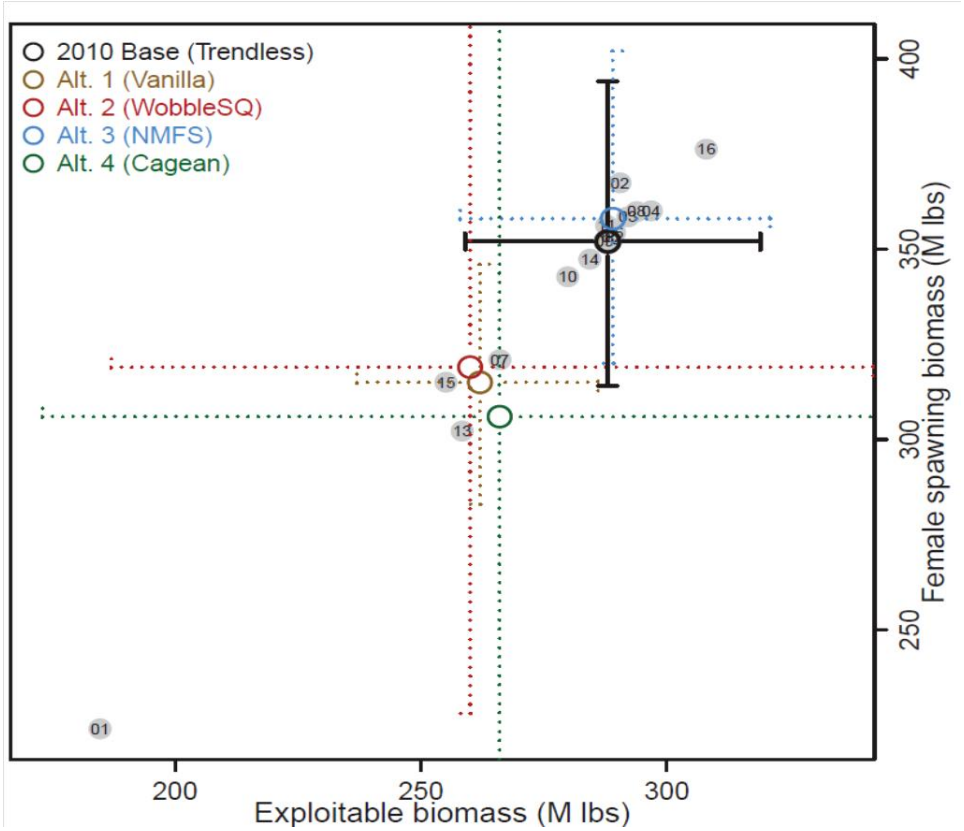
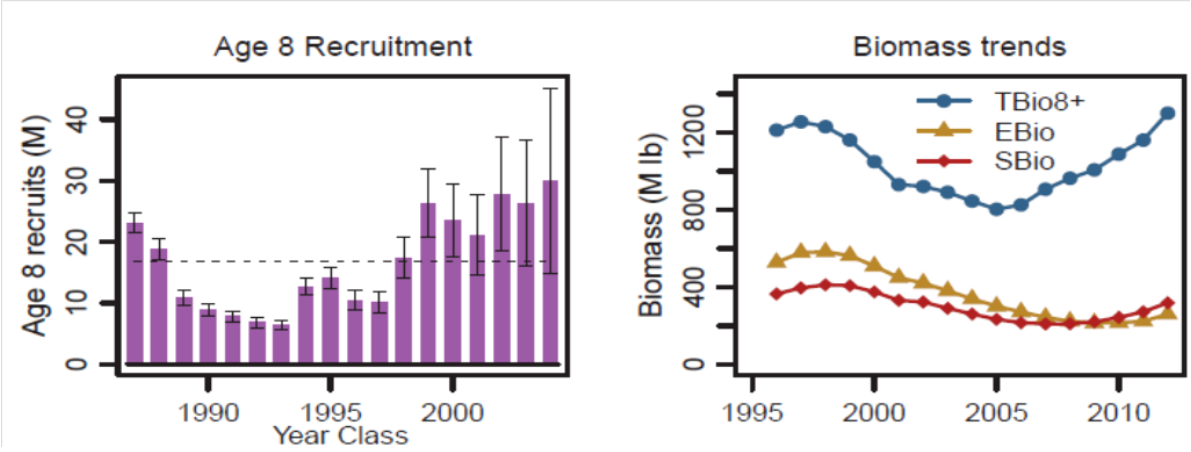


Figure 3. Same as the figure above, but with the Trendless model as the focus.

In previous years, the IPHC selected the Trendless model as the basis for apportionment, despite the fact that WobbleSQ was generally the better fitting model (as measured by AIC). In the 2011 assessment, Trendless was only two AIC points higher than WobbleSQ so it was retained since a difference of two is not large enough to eliminate a model from contention. Further, the argument that has long been made is that a great deal of effort goes into standardizing the survey and the IPHC has no ancillary indications of long-term changes in the catchability of the survey. However, the superior fit of the unconstrained WobbleSQ model, and its more conservative estimate of EBio, tipped the scale in favour of using WobbleSQ as the production model for the 2012 Catch Limit Recommendations. Main results are shown in Figure 4.



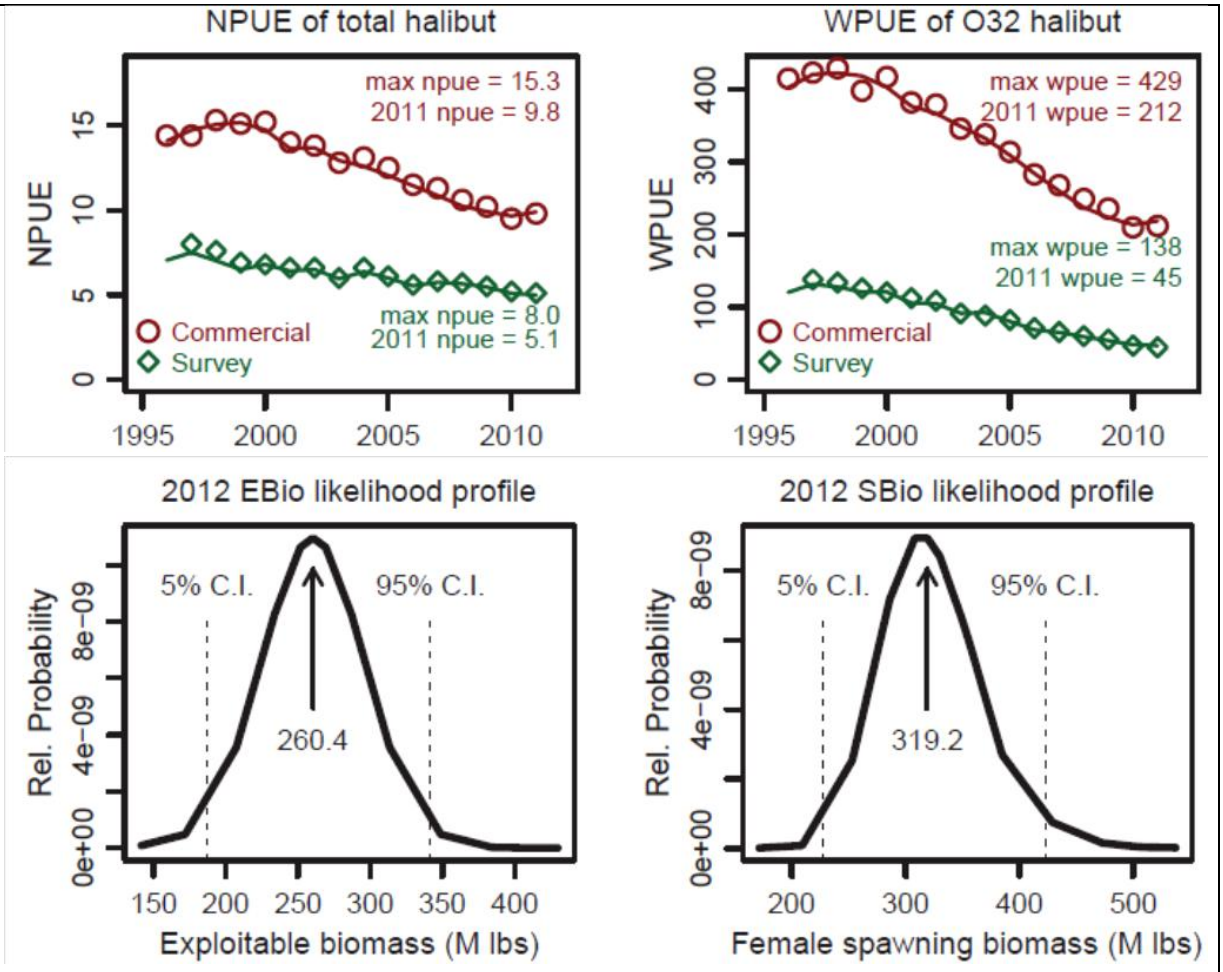


Figure 4. Features of the 2011 halibut coastwide assessment (WobbleSQ variant).

Retrospective Behaviour

IPHC staff notes that "Each year's model estimates the abundance and other parameters for all years in the data series. One hopes that the present assessment will closely match the biomass trajectory estimated by the previous year's assessment. To the extent that it does not, the assessment is said to have poor retrospective behavior (performance). When the new assessment revises the previous several years' exploitable biomass estimates downward, the previous biomass was overestimated, possibly due to issues within the model.

The 2011 IPHC stock assessment report summarised that there is ongoing retrospective behaviour in the halibut assessment. The magnitude of the behaviour showed no signs of slowing this year and the trend of successively lowering all earlier EBio estimates has continued. In response, the staff has continually recommended lower catch limits. A detailed summary of the past and present magnitude of the retrospective behaviour, and its effect on realized harvest rate and harvest policy is contained in Valero (2012b). Given that retrospective behaviour in halibut assessment models has a long history with no resolution, or diagnosis, of the source it is unclear whether this issue can be resolved. Work in the next year will focus intently on attempting to resolve the source and it is anticipated that collaborative work with other assessment scientists will be conducted. Whether the present model and/or data issues are identified, there remains the possibility that an entirely new model should be developed. Another possibility to consider is basing catch limit recommendations

on indicators other than the assessment estimate of biomass. Work along these lines is currently in development (Valero 2012a), in the form of a Management Strategy Evaluation.
http://iphc.int/publications/rara/2011/2011.91.AssessmentofthePacifichalibutstockattheendof2011.pdf

IPHC bilateral work session and issues relating to stock assessment activities

The International Pacific Halibut Commission (IPHC) completed a bilateral work session during May 8-9, 2012 to address issues of research planning, peer review of the 2012 halibut stock assessment, ongoing external peer review of the stock assessment, and the development of a framework for public engagement in a Management Strategy Evaluation. These topics were identified as priority areas for action by the Commission at its Annual Meeting in January 2012.

Research Planning

The Commission is developing a five-year research plan to guide the existing process of annual research planning. The elements of the long-term plan will address the requirements of the Commission's core mandate, as defined by the Halibut Convention, and inform decisions on optimum yield through developing harvest policy, estimating abundance and biomass, understanding the biology of the species, and understanding the environmental and ecological context for halibut. The draft long-term plan is intended to be developed by Commission staff, evaluated and refined by the Commission, presented to the public at the IPHC Interim Meeting in November 2012, and may be approved with any required amendments at the Commission's Annual Meeting in January 2013.

Peer Review of the Stock Assessment

Given the length of time since the last external review of the IPHC assessment model and ongoing concerns about the status of the halibut population and certain properties of the model (e.g., retrospective bias), the Commission considers another peer review to be timely. For 2012 only, this review will be comprised of a small bilateral team to work with Commission staff to: better understand the model structure and its underlying assumptions; explore key model sensitivities; gain insight into causes of retrospective bias in the model; recommend modifications to improve the current halibut stock assessment; and, explore alternative methods to present catch advice. Members of the work team will be tasked to produce a report documenting key findings, model revisions, and any follow-on recommendations. The Terms of Reference for the review will be posted on the IPHC website prior to the review. The report produced by members of the review team will be made available to the public following evaluation by the Commission, as well as any potential Commission's response.

For subsequent years, the Commission will be developing a broader scientific peer review process with more robust public involvement. The intent of this broader process is to support and strengthen the use of a credible, effective stock assessment process, as well as to conduct other reviews, as determined by the Commission, that may include: five-year research plan, updates and changes to survey methodology, white papers on selected critical issues, etc. Opportunities for stakeholder involvement will be a key element in the design and implementation of this longer-term review process.

Management Strategy Evaluation

The IPHC is committed to developing a Management Strategy Evaluation (MSE) to augment the existing assessment-based approach to managing the halibut resource. This MSE approach utilizes simulation and feedback control to develop harvest control procedures that are robust to the uncertainties in the assessment and monitoring processes, our understanding of stock dynamics, and variability in the environment affecting halibut. The Commission formed a bilateral work team to draft Terms of Reference for a MSE working group, to be comprised of IPHC staff, industry stakeholders, managers, and scientists from both countries, to oversee consultation on and engagement in the MSE process. This work group will be engaging the public in the development of harvest objectives, fishery performance metrics, candidate harvest strategies, and control rules for managing the halibut resource. The Commission may receive and review the Terms of Reference for this process at its 2012 Interim Meeting.

http://www.iphc.int/news-releases/283-nr20050530.html
http://www.iphc.int/news-releases/279-nr20120508.html
http://www.iphc.int/documents/review/FINAL_IPHC_Performance_Review-April30.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

IPHC's harvest policy is to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (B30 threshold level) of a level defined as the unfished level. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% (B20 limit level) of this estimated unfished level. The unfished female spawning biomass (Bunfished) is computed by multiplying spawning biomass per recruit (SBR, from an unproductive regime) and average coastwide age-six recruitment (from an unproductive regime). This gives a Bunfished of 768 million pounds, a B20 of 154 million, a B30 of 230 million pounds, and the 2012 female spawning biomass value of 319 million pounds establishes Bcurrent as 42% of Bunfished, down slightly from the 2011 beginning of year estimate of Bcurrent of 43%.

Since 1985, the IPHC has followed a constant harvest rate (CHR) policy to determine annual available yield, termed the Constant Exploitation Yield (CEY). A biological target level for total removals from each regulatory area is calculated yearly by applying a fixed harvest rate to the estimate of exploitable biomass in each IPHC regulatory area. IPHC's harvest policy is to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% (threshold level) of a level defined as *the unfished level*. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% (limit level) of this estimated *unfished* level. That is, fishing ceases completely if the stock is below 20% of the unfished biomass.

This combination of harvest rate and precautionary levels of biomass protection have, in simulation model studies, provided a large fraction of maximum available yield minimizing risk to the spawning biomass, while allowing for the quickest stock recovery to at least, threshold levels. The minimum observed spawning biomasses for the three IPHC core areas all occurred in the mid 1970s, approximately 9 million pounds in 2B, 13 million pounds in 2C and 42 million pounds in 3A. By definition, these become the spawning biomass limits.

The unfished female spawning biomass (Bunfished) is computed by multiplying spawning biomass per recruit (SBR, from an unproductive regime) and average coastwide age-six recruitment from an unproductive regime. The recruitment scaling uses the ratio of high to low recruitments based on long term recruitment estimates from Areas 2B, 2C and 3A and applied to the current coastwide average recruitment (Clark and Hare 2006) which we believe to represent a productive regime. The

SBR value, computed from Area 2B/2C/3A size at age data from the 1960s and 1970s is 118.5 lbs per age-six recruit. Average coastwide recruitment for the 1990-2002 year classes (computed at age-six) is 20.39 million, and the estimate of unproductive regime average recruitment is 6.48 million recruits. This gives a Bunfished of 768 million pounds, a B20 of 154 million, a B30 of 230 million pounds, and the 2012 female spawning biomass value of 319 million pounds establishes Bcurrent as 42% of Bunfished, down slightly from the 2011 beginning of year estimate of Bcurrent of 43%. The revised trajectory of SBio, determined in the retrospective behaviour analysis, suggests that the female spawning biomass did drop below the B30 level between 2006 and 2009, which, had it been so estimated at the time, would have triggered a reduction in the harvest rate. On an annually estimated basis, however, the initially estimated stock size has not been that low; it is only retrospectively that the revised estimate of spawning biomass is estimated to have gone below to the reference point threshold. One problem with this method of establishing reference points is that the threshold and limit are dynamic, changing each year as the estimate of average recruitment changes.

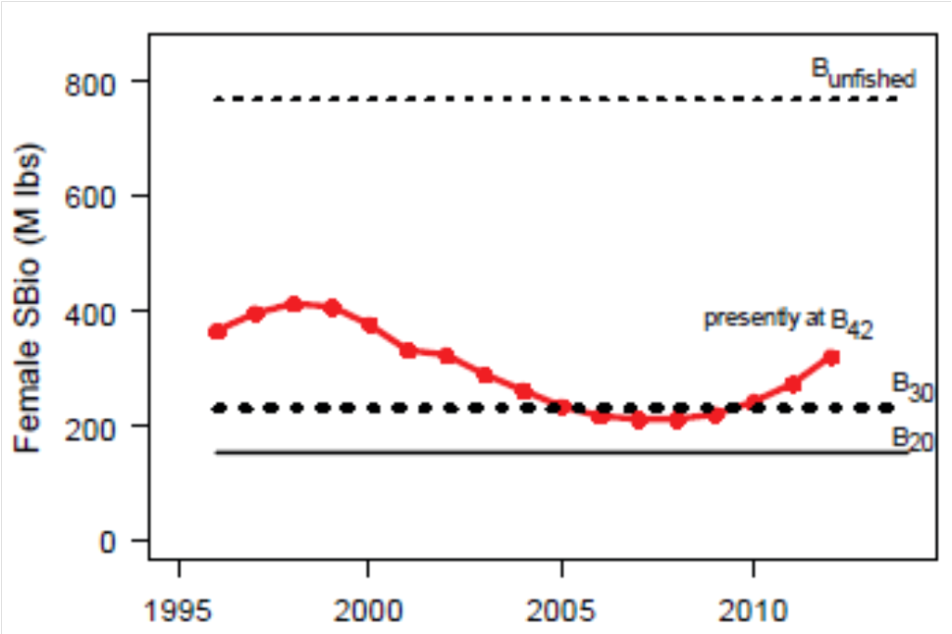


Figure 5. Trend and status of halibut management relative to reference points. Trajectory of female spawning biomass (SBio) relative to B20 and B30, which are 20% and 30%, respectively of female spawning biomass at unfished level.

http://iphc.int/publications/rara/2011/2011.91.AssessmentofthePacifichalibutstockattheendof2011.pdf

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

Beginning with the 2011 Catch Limit Recommendations, the IPHC staff modified the (slow up fast down) SUFastD quota adjustment to a (slow up full down) SUFullD adjustment policy allowing for one third of potential increases to be taken and 100% of decreases to be taken, from one year to the following, depending on biomass projections, ultimately aiming at increasing Pacific halibut biomass. The coastwide survey WPUE value declined by approximately 5% from 2010 to 2011. The Commission has expressed concern over continued declining catch rates in several areas and has taken aggressive action to reduce harvests and recommended the governments of Canada and the United States catch limits for 2012 totaling 33,540,000 pounds, an 18.3% decrease from the 2011 catch limit of 41,070,000 pounds. In addition, the staff has noted a continuing problem of reductions in previous estimates of biomass as additional data are obtained, which has the effect of increasing the realized historical harvest rates on the stock. Commission scientists will be conducting additional research on this matter in 2012. Additionally, the issues of scarce data for non-halibut bycatch in the halibut fleet is an important issue and has been dealt with according to pre-scheduled plans.

The International Pacific Halibut Commission (IPHC) completed the 2012 (Eighty-eighth) Annual Meeting in Anchorage, AK, with Dr. James W. Balsiger of Juneau AK presiding as Chair.

Catch limits adjustments

Beginning with the 2011 Catch Limit Recommendations, the staff modified the (slow up fast down) SUFastD quota adjustment to a (slow up full down) SUFullD adjustment. The basis for the adjustment is described in Hare 2011a and is summarized, briefly, as follows. The policy allows for one third of potential increases to be taken and 100% of decreases to be taken, from one year to the following, depending on biomass projections, ultimately aiming at increasing Pacific halibut biomass. The initial simulations that gave support to the SUFastD did not capture the current conditions faced by the stock over the past several years. Since implementation of the SUFastD adjustment, EBio has been in a constant downward trajectory. As removals have been in excess of 20% of EBio and each subsequent EBio estimate was lower than the previous year's estimate, the target harvest rate could never be met as only 50% of the intended reduction in removals were taken. Additionally, size-at-age of halibut has continued to decline and this always affects performance of the adjustment. Staff Catch Limit Recommendations (CLR) in 2011, as they were in 2010, were based on a SUFullD adjustment.

Stock Assessment and Harvest Rates

The Commission staff reported on the 2011 Pacific halibut stock assessment, comprised of a coastwide estimation of biomass from a variant of the assessment model used since 2006, with apportionment to regulatory areas based on the data from the annual Commission standardized stock assessment survey. Coastwide overall commercial fishery weight per unit effort (WPUE) was largely unchanged (+1%) in 2011 from 2010 values, although a significant decline (-18%) continued in Area 3B. Area 2A commercial WPUE also declined significantly, although this area has significantly shorter openings with the tribal fishery and derby-style commercial fishery, leading to a commercial index that is more variable than other areas. In contrast, commercial WPUE increased from 8-15% in Areas 2B, 2C, and 4B. The 2011 IPHC stock assessment survey WPUE values (adjusted for hook competition, survey timing, and averaged as in the apportionment process) increased notably in Area 2C but continued to decrease by about 20% in Areas 3B, 4A, and 4CDE. The coastwide survey WPUE value declined by approximately 5% from 2010 to 2011.

The Commission has expressed concern over continued declining catch rates in several areas and has taken aggressive action to reduce harvests. In addition, the staff has noted a continuing problem of reductions in previous estimates of biomass as additional data are obtained, which has the effect of increasing the realized historical harvest rates on the stock. Commission scientists will be conducting additional research on this matter in 2012. For 2012, the Commission approved a 21.5% harvest rate for use in Areas 2A through 3A and a 16.1% harvest rate for Areas 3B through 4.

The Commission recommended the governments of Canada and the United States catch limits for 2012 totaling 33,540,000 pounds, an 18.3% decrease from the 2011 catch limit of 41,070,000 pounds. In addition to setting catch limits for 2012, the Commission dealt with a wide range of catch limit and regulatory issues, and also took important actions regarding bycatch management, scientific assessment review, and the IPHC performance review.

The halibut fleet is highly regulated and subjected to defined fishery data collection systems, operating under an IFQ system, with conservatively defined catch quotas, gear specifications and restrictions, size limits, and closed seasons and areas. In addition, if halibut bycatch limits (Prohibited Species Catch) are reached in the groundfish fisheries, or if areas with high concentrations of juvenile halibut are recorded, fishery and area closure measures are adopted respectively.

Non halibut bycatch data collection

The issues of scarce data collection for non-halibut bycatch in the halibut fleet is an important issue and has been approached by management authorities in a several ways.

Following pre-planned timelines of completion, a paper titled ***Methods for the estimation of non target species catch in the unobserved halibut IFQ fleet*** was produced in August 2011 ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf.
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. This will be monitored and evaluated accordingly in the second surveillance assessment for Pacific halibut.

In the meantime, the estimates that were furnished to the assessment scientists and were published within the various SAFE reports at http://www.afsc.noaa.gov/refm/stocks/assessments.htm

The NMFS announced to NPFMC on June 7th 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 and halibut 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.
http://www.fakr.noaa.gov/sustainablefisheries/amds/amds86_76/approval060712.pdf

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. NOAA hopes to deploy observers under the restructured program by January 1, 2013.
http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm
http://www.fakr.noaa.gov/notice/77fr29961.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 IPHC has developed, refined, and utilized a constant harvest rate policy since the 1980's. The policy was initially designed to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% of the unfished level. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% of the unfished level. This combination of harvest rate and precautionary levels of biomass protection have, in simulation studies, provided a large fraction of maximum available yield while minimizing risk to the spawning biomass. Following the 2008 Committee of Independent Experts (CIE) review of the assessment and harvest policy, the simulations on which the harvest policy was based were modified to incorporate "assessment error". Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels and gear) has been reduced, seasons were extended and wastage was reduced. Fishing gear is regulated to longline gear only. Regulations are in placed to address discards. General spawning areas have been mapped in Alaska. The halibut fishery is closed during peak spawning times, by regulation. The NPFMC has established Marine Protected Areas and additional trawl closures that benefit juvenile fish and adult spawners. Bycatch of seabirds were addressed by specific regulations now including the use of streamer (tory) lines, night setting, lineshooters and lining tubes. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery. In terms of marine mammals interactions with the commercial halibut fleet, the NMFS 2011 Marine Mammal SAFE report indicates that there is no incidental serious injury or mortality of marine mammal in Alaska. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet).

Nearly all of the research done by the staff is directed toward one of three continuing objectives of the Commission. These are improving the annual stock assessment and quota recommendations, developing information on current management issues, and adding to knowledge of the biology and life history of halibut.

Management of the fishery is based upon this, and other research. The fishery continues to harvest only those fish surplus to sustaining reproductive capacity.

The IPHC has developed, refined, and utilized a constant harvest rate policy since the 1980's. The policy was fully described in Clark and Hare (2006) and further modified as described in Hare and Clark (2008), and Hare (2011b). Stated succinctly, the policy was initially designed to harvest 20% of the coastwide exploitable biomass when the spawning biomass is estimated to be above 30% of the unfished level. The harvest rate is linearly decreased towards a rate of zero as the spawning biomass approaches 20% of the unfished level. This combination of harvest rate and precautionary levels of biomass protection have, in simulation studies, provided a large fraction of maximum available yield while minimizing risk to the spawning biomass.

Following the Committee of Independent Experts (CIE) review of the assessment and harvest policy (Francis 2008, Medley 2008), the simulations on which the harvest policy was based were modified to incorporate "assessment error" (Hare and Clark 2008). This was implemented by adding autocorrelated error in estimation of the SBio, and having the harvest rates set according to the "perceived" state, as opposed to the "true" state, of the SBio. This form of robustification of the harvest policy is designed to protect the stock in the common situation where assessments tend to be consistently too high or too low for a sequence of years, which corresponds to the current situation regarding the halibut assessment.
For precautionary purposes, several areas (Area 3B and westwards) have had their target harvest rate reduced to 15%. Staff Catch Limit Recommendations (CLR) in 2011, as they were in 2010, were based on a SUFullD adjustment, whereby 100% of the decreases are taken.

In addition to monitoring the status of the female spawning biomass relative to reference points, success at achieving the harvest rate is also documented (figure 6)**.** The target harvest rate over the past decade for halibut has generally been 0.20. Exceptions include a briefly increased rate to 0.225 and 0.25 between 2004 and 2006, and a lowered rate of 0.15 in Areas 3B and 4.
In 2011, the target harvest rates were set at 0.215 (Areas and 3A) and 0.161 (Areas 3B and 4); however, it is important to note that these were not actual target harvest rate increases. These new rates reflected a change in the method by which O26U32 bycatch and wastage are accounted for in determining fishery CEY (Hare 2011a).

On a coastwide basis, however, recent realized harvest rates have hovered around 0.25. A sizable portion of this above-target harvest rate comes from the retrospective revision of exploitable biomass estimates. Thus, while the intended rate has been around 0.20, with staff recommended catch limits based on such a rate, a retrospective downwards revision of early exploitable biomass estimates, when combined with unchanged estimates of total removals generates higher realized harvest rates (Valero 2012b).

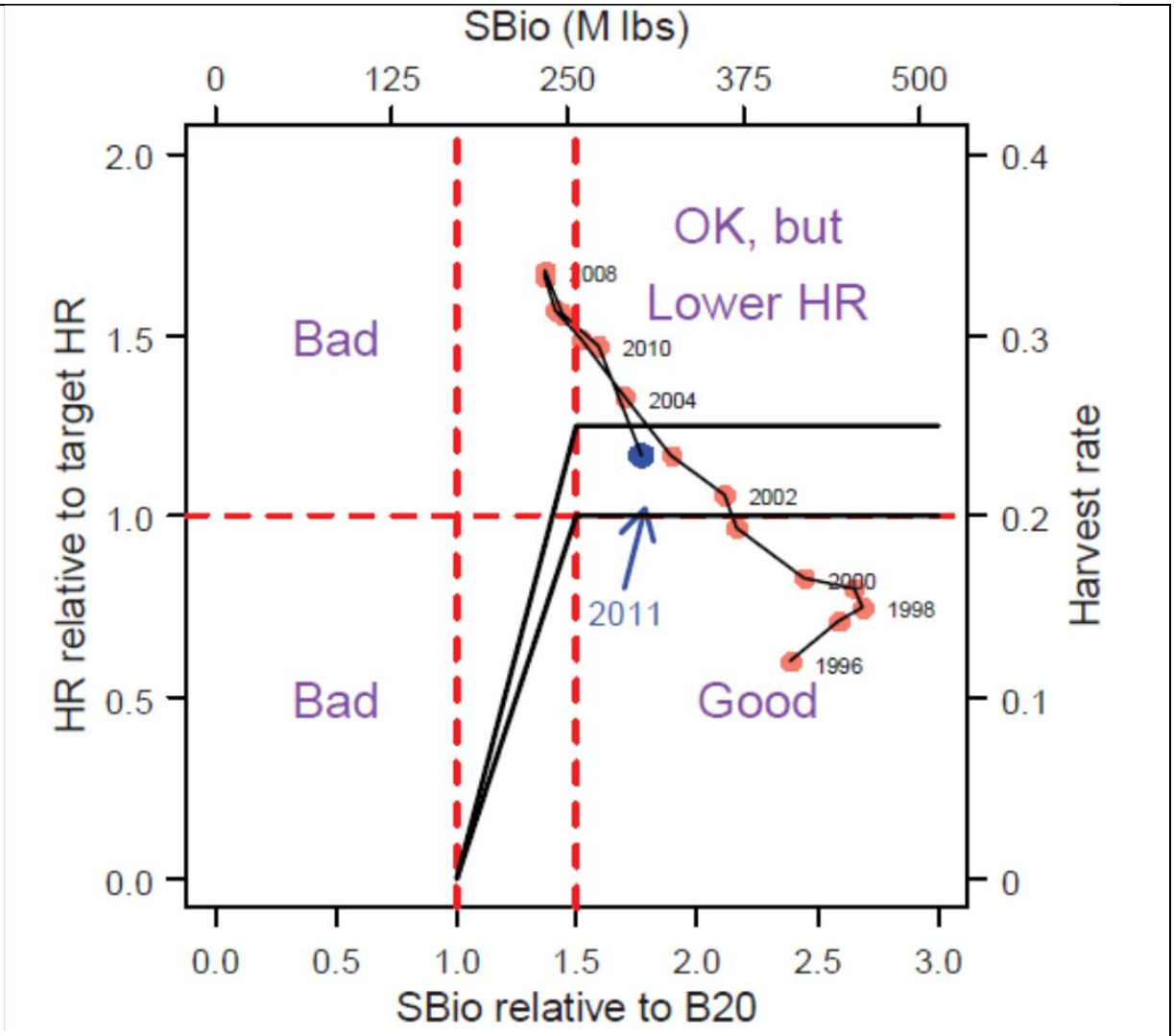


Figure 6. Trend and status of halibut management relative to B20 along the x-axis. The vertical axis illustrates realized harvest rate relative to a target harvest rate of 0.20 (value of 1.0) and the previous target harvest rate of 0.25 (value of 1.25).

Regulations

Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels and gear) has been reduced. With the implementation of IFQs in the fishery, the derby type fishery was eliminated, seasons were extended and wastage was reduced in the halibut fishery. Regulations in place address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. The IPHC, the NMFS, and ADFG promulgate these regulations through the Commission, the NPFMC, and the Alaska Board of Fisheries.
http://www.fakr.noaa.gov/regs/679d42.pdf

In the directed longline fisheries for Pacific halibut, bycatch of other fish species is not well documented. However, management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program

for inclusion of the halibut fleet).

Bycatch of seabirds were addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), and other seabird species in 1998, then revised in 2008. These measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, have been shown to reduce seabird interactions when setting or retrieving gear.
http://www.fakr.noaa.gov/protectedresources/seabirds/national.htm

In the early 1980s the IPHC conducted research on capture efficiency of circle vs **J** hooks and determined that using circle hooks lowered the mortality of undersized halibut caught and released during fishing. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery (http://www.iphc.int/publications/bulletins/ib0028.pdf).

In terms of marine mammals interactions with the commercial halibut fleet, the NMFS 2011 Marine Mammal SAFE report indicates that there is no incidental serious injury or mortality of marine mammals in Alaska. Halibut bycatch and discards are accounted for directly and indirectly by the IPHC in setting yearly Catch Limits for the different regulatory areas. The commercial halibut fishery is limited to retention of fish 32 inches or greater in length. Biologically, and for continued sustainability, this is the preferred portion of the spawning population available for harvest.
http://www.nmfs.noaa.gov/pr/pdfs/sars/ak2011.pdf

Fishing gear is regulated to longline gear only. Longline gear and the manner of fishing have been developed over a long period of time to be selective of target species. Seasons are established in regulation by the IPHC. Open and closed periods, as well as fishing period limits are set in regulation. Regulations are in placed to address discards. General spawning areas have been mapped in Alaska. The halibut fishery is closed during peak spawning times, by regulation. The NPFMC has established Marine Protected Areas that benefit juvenile fish and adult spawners. The Halibut Longline Closure Area is 36,300 square miles in size. Additional trawl closures for areas in the waters of Bristol Bay (19,000 sq mi), the Pribilof Island Habitat Conservation Area (7,000 sq mi), the Aleutian Island (277,000 sq mi), the Northern Bering Sea Research Area (85,000 sq mi), the Eastern Gulf of Alaska (53,000 sq miles) and Cook Inlet (7,000 sq mi) closed thousands of square miles of sea bottom to bottom trawling which provides a significant degree of refuge for juvenile halibut.

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 IPHC and NPFMC objectives for management are based on maintenance of maximum sustainable yield (MSY). The policy for achieving this is based on setting biological reference points that determine the annual CEY for the Pacific halibut stock. Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels and gear) has been reduced. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery, lowering the mortality of undersized halibut caught and released during commercial fishing. Discards of Pacific halibut, considered a Prohibited Species Catch (PSC) by the groundfish fisheries in Alaska is regulated.

The IPHC and NPFMC objectives for management are based on maintenance of maximum sustainable yield (MSY). The policy for achieving this is based on setting biological reference points that determine the annual CEY for the Pacific halibut stock.
http://iphc.int/publications/rara/2011/2011.91.AssessmentofthePacifichalibutstockattheendof2011.pdf

Under the individual fishing quota share system in place for the Pacific halibut fishery, fishing capacity (vessels and gear) has been reduced. Through a public process at the NPFMC, extensive staff analysis was presented, analyzed, and data confirmed 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 qualifications for a fishing fleet with less capacity and with ownership in the resource.

With the implementation of IFQs in the fishery off Alaska, the derby type fishery was eliminated. Seasons were extended and wastage was reduced in the halibut fishery. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery, lowering the mortality of undersized halibut caught and released during commercial fishing.
http://www.iphc.int/publications/bulletins/ib0028.pdf

Discards of Pacific halibut, considered a Prohibited Species Catch (PSC) by the groundfish fisheries in Alaska, is regulated. When PSC limits are reached, groundfish target species closures result. The NMFS has been researching the value in using Electronic Monitoring (EM) to quantify discards at sea in the halibut fleet.

Research has shown that the groundfish trawl industry in Alaska can deploy halibut excluders in their gear with success. The bycatch reduction device was formally tested by an industry trade association in conjunction with a NMFS fishing gear researcher under an Experimental Fishing Permit

in 1998. Results from the experiment showed the device excluded 94% of the halibut while only releasing 38% of the target flatfish when deployed in the Bering Sea.

In a NMFS report on a working group reviewing ghost fishing, the group determined that longline fishing under IFQ management garnered a "Low Priority Recommendations" when compared to pot and net gears. The IPHC makes available all regulatory notices, developments, and requirements through electronic and paper sources. Regulations specifically define legal gear. These have not been circumvented with regard to technical devices in the IFQ Pacific halibut fishery.
http://www.fakr.noaa.gov/regs/summary.htm

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

FAO CCRF 8.1.7/8.1.10/8.2.4/8.4.5

Evidence adequacy rating:

☑High **☐ Medium** **☐ Low**

Rating determination

Any aspirant halibut fisherman must have 150 days of halibut fishing experience before being able to purchase halibut IFQs. Obtaining halibut IFQ share most often will require the purchaser (aspirant halibut fisherman) 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.

Any aspirant halibut fisherman must have 150 days of halibut fishing experience before being able to purchase halibut IFQs. Obtaining halibut IFQ share most often will require the purchaser (aspirant halibut fisherman) 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.

The State of Alaska, Department of Labor & Workforce Development (ADLWD) includes AVTEC (formerly called Alaska Vocational Training & Education Center, now called Alaska's Institute of Technology). One of AVTEC's main divisions is the Alaska Maritime Training Center. The goal of the Alaska Maritime Training Center is to promote safe marine operations by effectively preparing captains and crew members for employment in the Alaskan maritime industry.

The Alaska Maritime Training Center is a United States Coast Guard (USCG) approved training facility located in Seward, Alaska, and offers USCG/STCW-compliant maritime training (STCW is the international Standards of Training, Certification, & Watchkeeping). In addition to the standard courses offered, customized training is available to meet the specific needs of maritime companies. 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.

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.

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 & regulation, to seafood markets & 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 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.

Only one gear type may be used to harvest halibut in the GOA and BSAI – benthic longline (a passive gear type). All longline fishing gear must be marked and operated in accordance with federal fisheries regulations – 50 CFR Part 679: Fisheries of the Exclusive Economic Zone off Alaska. Bycatch and discards are reduced by a combination of technology (e.g. use of circle hooks rather than J hooks, to allow easy release of live by-caught fish) and the Individual Fishing Quota (IFQ) program, which, among other benefits, have reduced unwanted catch and discards.

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/

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**

Scoring Determination

The Northern Pacific Halibut Act, governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679. The 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. The maximum civil penalty under the Northern Pacific Halibut Act is $200,000 for each violation. 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 U.S. Coast Guard (USCG) and NMFS Office of Law Enforcement (OLE) enforce Alaska fisheries laws and regulations, especially 50CFR679.

The *Northern Pacific Halibut Act* governs the commercial, sport, charter, and subsistence halibut fisheries in the U.S. The 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. The maximum civil penalty under the *Northern Pacific Halibut Act* is $200,000 for each violation.

The IFQ Halibut season opened on 12 March. 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 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.

NMFS OLE

NOAA Office of Law Enforcement Special Agents and Enforcement Officers perform a variety of tasks associated with the protection and conservation of our nation's living marine resources. In order to enforce these laws, OLE special agents and enforcement officers 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 halibut 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 Individual Fishing Quota (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, or 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 mislabeling 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

In addition to enforcing legislation for the commercial halibut fishery, OLE has responsibility for enforcement of the crab rationalization program, subsistence halibut fishing and charter halibut fishing. In addition, OLE's officers inspect and cross check at landings and processors records for reconciliation, and closely monitor Prohibited Species Catch in non halibut fisheries.

The Alaska Wildlife Troopers conduct undercover operations in the sport charter fleet. Fines are high and revocation of sport fishing license as well as sport guide licence for several years are occuring penalties in this program.

50CFR679: www.fakr.noaa.gov/regs/default.htm
NMFS OLE, Alaska region: www.nmfs.noaa.gov/ole/ak_alaska.html
USCG, Alaska region: www.uscg.mil/d17/
IFQ: www.fakr.noaa.gov/ram/ifq.htm
reporting: www.fakr.noaa.gov/ram/webapps.htm
e-landings: http://elandings.alaska.gov/
http://www.fakr.noaa.gov/frules/76fr14300.pdf
http://www.nmfs.noaa.gov/ole/news/2012/03/19_juneau_restaurant_fined.htm
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/investigations.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 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.

It shall be the policy of NMFS to enforce vigorously and equitably the provisions of the North Pacific Halibut act and the Magnuson-Stevens Act by utilizing that form or combination of authorized remedies best suited in a particular case to this end.

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

(c) If a fishing vessel for which a permit has been issued under the Magnuson-Stevens Act is used in the commission of an offense prohibited by section 307 of the Magnuson-Stevens Act, NOAA may impose permit sanctions, whether or not civil or criminal action has been undertaken against the vessel or its owner or operator.

In some cases, the 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.

Table 1. Magnuson Stevens Act Penalty Matrix.

Magnuson-Stevens Penalty Matrix

	Level of Intent			
Harm to the Resource or Regulatory Program, Offense Level	A Unintentional	B Negligent	C Reckless	D Willful
I	Written warning-$1,000	Written warning-$1,500	Written warning-$2,000	Written warning-$2,500
II	Written warning-$2,000	$2,000-$5,000	$5,000-$10,000	$10,000-$15,000
III	$2,000-$5,000	$5,000-$10,000	$10,000-$15,000	$15,000-$25,000
IV	$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*
V	$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*
VI	$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

in 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. This Policy 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

NOAA's OLE 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.
There are very few repeat offenders. Sanctions include the possibility of temporary or permanent revocation of fishing privileges. Withdrawal or suspension of authorizations to serve as masters or officers of a fishing vessel are also among the enforcement options. Within the USA EEZ, penalties can range up through forfeiture of the catch to forfeiture of the vessel, including financial penalties and prison sentences.

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.

50CFR600.740 Enforcement policy
http://www.nmfs.noaa.gov/ole/investigations.html
http://www.noaanews.noaa.gov/stories2011/pdfs/Penalty%20Policy%20--%20FINAL.pdf

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

Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet). Benthic longline gear is not considered to have serious or irreversible impacts on marine habitats. Bycatch of seabirds has been addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), and other seabird species in 1998, then revised in 2008. None have been taken in 2011. These measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, have been shown to reduce seabird interactions when setting or retrieving gear. Seabird occurrence data have been collected during the 2011 IPHC annual setline survey. Bycatch data were also collected this year, indicating that the majority of the bycatch is made up by pacific cod and spiny dogfish. These species are managed by the NPFMC under tier 3 and 5 respectively, using OFL and ABC recommendations and catch limits. It is expected that with the implementation of the restructured observer coverage in a part of the halibut fleet, bycatch data collection will improve and allow management to make better informed decisions, especially for species like sharks and skates that generally tend to have low reproductive rates.

Impacts of fishing gear on the habitat

Benthic longline is considered a passive gear (not towed). There are no serious, irreversible concerns of halibut gear interaction on the habitat that are presented in the recent (2010) NPFMC essential fish habitat review.

http://www.fakr.noaa.gov/habitat/efh/review/efh_5yr_review_sumrpt.pdf
http://www.fakr.noaa.gov/habitat/efh/review.htm

Regulations

Regulations are in place to address waste, discard, bycatch, and endangered species interactions in the halibut fisheries. The IPHC, the NMFS, and ADFG promulgate these regulations through the Commission, the NPFMC, and the Alaska Board of Fisheries. In the directed longline fisheries for Pacific halibut, bycatch of other fish species is not well documented. However, management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline fishery (i.e. methods for the estimation of non target species catch in the unobserved

halibut IFQ fleet and the restructuring the observer program for inclusion of the halibut fleet).

Bycatch of seabirds has been addressed by specific regulations put in place to reduce the incidental mortality of the short-tailed albatross, a listed species under the Endangered Species Act (ESA), and other seabird species in 1998, then revised in 2008. These measures now include the use of streamer (tory) lines, night setting, lineshooters and lining tubes, have been shown to reduce seabird interactions when setting or retrieving gear.

In the early 1980s the IPHC conducted research on capture efficiency of circle vs J hooks and determined that using circle hooks lowered the mortality of undersized halibut caught and released during fishing. In 1983, industry made the operational switch from J-hooks to circle hooks in the commercial fishery.

General spawning areas have been mapped in Alaska. The halibut fishery is closed during peak spawning times, by regulation. The NPFMC has established Marine Protected Areas that benefit juvenile fish and adult spawners. The Halibut Longline Closure Area is 36,300 square miles in size. Additional trawl closures for areas in the Bering Sea, AI and GOA provide a significant degree of refuge for juvenile halibut.

Impact of fishing gear on seabirds

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 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. New regulations and further avoidance measures can be placed on the fishery by NMFS.
A groundfish fishery observer reported to their inseason advisor that they had recovered a short-tailed albatross while monitoring gear retrieval on a Bering Sea freezer longline vessel fishing for Pacific cod. The take occurred on 25 October 2011 at lat. 56°35'N, long. 172°52'W. This is an area over the Bering Sea shelf break, directly west of the Pribilof Islands.
http://www.afsc.noaa.gov/Quarterly/ond2011/divrptsREFM2.htm

Trends in seabird occurrence on stock assessment surveys (2002-2011) Tracee O. Geernaert

Seabird occurrence data have been collected during International Pacific Halibut Commission (IPHC) stock assessment surveys since 2002 from the west coast of Washington, Oregon, British Columbia (B.C.), southeast Alaska (inside and outside waters), the central and western Gulf of Alaska, Aleutian Islands, and the southeastern Bering Sea Edge. Samplers aboard research vessels counted the number of seabirds in the vicinity of the vessel's stern immediately following gear retrieval (i.e., haul). Sampling seabird occurrence after the haul addresses the question of where and when certain seabird species occur. It also aids in the assessment of individual species at risk by providing information that may reflect population trends over time. Seabird counts were performed within a 50-meter hemisphere (count zone) at the stern, immediately after the longline gear was hauled.
A total of 12,468 observations were conducted over the last nine years, and the number of stations

where bird counts were performed ranged from a low of 1,218 to a high of 1,284 per year. More than 583,000 birds were recorded since 2002. Start dates for each year's survey ranged from May 25 to June 7 and the end dates from August 27 to September 14, but the bulk of observations took place from June through August.

The most common species during all years was the northern fulmar (*Fulmarus glacialis*), making up 73% of the sightings. Glaucous-winged gulls (*Larus glaucescens*) made up eight percent of the overall sightings, with black-footed albatrosses (*Phoebastria* nigripes) and fork-tailed storm petrels (*Oceanodroma furcata*) representing seven and two percent of sightings, respectively. Over time, the observed number of unidentified gulls has continually decreased, inversely correlated with an increased number of observations of glaucous-winged gulls and herring gulls (*L. argentatus*), the most common of the gull species on the eastern Pacific coast. This shift is likely the result of increased focus on gull identification during annual IPHC sampler training. Overall, the number of unidentified birds has decreased, indicating that the IPHC sea samplers have improved their identification skills. Black-footed albatross (*P. nigripes*) were more commonly observed in Washington/Oregon and northward into the Gulf of Alaska, whereas Laysan albatross (*P. immutabilis)* were seen in greatest numbers in the central and western Aleutian Islands and only rarely east of Kodiak Island. A total of 204 endangered short-tailed albatross (*P. albatrus)* were sighted in Area 3A and regions westward, more often in July and August than in June. The survey is not conducted at the same time in each area, and this may affect the bird sighting information. Further work is needed to more fully examine the potential influence of charter timing on bird observation trends. Because of the large geographic scope and consistent spatial pattern of the surveys, these data are helpful to scientists studying populations of threatened and endangered birds commonly seen during the counts.
http://www.iphc.int/publications/rara/2011/2011.529.Trendsinseabirdoccurrenceonstockassessmentsurveys(2002-2011).pdf

Bycatch data collection

At present, bycatch data collected during the IPHC surveys forms the principal proxy by which non bycatch estimates for the commercial IFQ halibut fleet are generated. Approximately 111 species of fish and invertebrates were caught as bycatch during the 2011 survey. Though skippers on survey vessels take precautions to avoid marine mammal and bird catch, one harbor seal (*Phoca vitulina*) was captured in 2A. No birds were caught on survey.
Hook occupancy of species-groups varied by regulatory area. Halibut were the most commonly caught species in Areas 2C, 3A, and 3B. The most frequently incidentally-captured species overall was Pacific cod, followed by spiny dogfish (*Squalus suckleyi*). The most common bycatch in Areas 2A, 2B, 2C, and 3A was sharks, primarily dogfish. The most frequent bycatch in Areas 3B, 4A, and 4B was Pacific cod. In Areas 4A, 4B, 4C, and 4D, the "other species," category was comprised primarily of Arrowtooth flounder (*Atheresthes stomias)*, white-blotched skates (*Bathyraja maculata),* Alaska skates *(Bathyraja parmifera),* grenadiers (*Corypaenoididae* spp.), yellow Irish lord sculpins (*Hemilepidotus jordani*), and Great sculpins *(Myoxocephalus polyacanthocephalus).*
Dogfish were the largest component of the shark species category in Areas 2A (97%), 2B (99.9%), 2C (96%), and 3A (97%). Sleeper sharks (*Somniosus pacificus*) made up the largest component of the

shark species category in 3B (53%), 4A (69%), and 4D (80%).

New this year, trends in bycatch NPUE are presented. Bocaccio (*Sebastes paucispinus*), canary rockfish (*S. pinniger*), and yelloweye rockfish (*S. ruberrimus*) populations are of concern in Areas 2A, 2B, and 2C and their numbers often drive catch regulations. Catch rates of bocaccio and canary rockfish are so low on IPHC surveys that it is difficult to make any inferences; however, the encounter rate for bocaccio in all three areas was higher in 2011 than in 2010. Yelloweye rockfish have been trending up over the last five years in Areas 2B and 3A, and have been fairly flat in 2C. Trends in bycatch NPUE over the last ten years for the other major incidentally-captured species and species groups show that the encounter rate for most remained relatively constant over time. In Area 4D, arrowtooth flounder (*Atheresthes stomias*) are more common than in all other Areas and have been encountered at about twice the rate in 4D than in other regions over those ten years, except in 2009, when arrowtooth flounder encounters from 2B though 4D were very similar. Pacific cod (*Gadus macrocephalus*) in Area 4D have been generally declining since 2007, but other areas (2B, 2C, 3A, 3B, 4A) have seen substantial increases. These bycatch species are managed by the NPFMC and NMFS under the direction of the MSA.
http://www.iphc.int/publications/rara/2011/2011.491.2011Standardizedstockassessmentsurvey.pdf

Status of bycatch species

Harbor seal (*Phoca vitulina*): IUCN Red list "Least Concern".

Pacific cod (*Gadus macrocephalus*): From NPFMC SAFE reports: BSAI and GOA stocks above B35% reference points, not overfished. http://www.afsc.noaa.gov/REFM/docs/2011/BSAIpcod.pdf ; http://www.afsc.noaa.gov/REFM/docs/2011/GOApcod.pdf

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

There are currently no directed commercial fisheries for shark species in federally or state managed waters of 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 GOA because the OFL has not been exceeded. Total shark catch in 2010 was 674 t and catch in 2011 was 417 t 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 as Tier 6 species (OFL = average catch 1997-2007, ABC = 0.75*OFL). **The recommended ABC is 6,028 t and OFL is 8,037 t for the shark complex combined.** In 2010, spiny dogfish made up 59% of the shark catch and on average are 54% of total shark catch. Pacific sleeper sharks made up 24% of the total shark catch in 2010 and are on average 30% of the shark catch.

Table 2. Estimates of shark catch (t) by species in the GOA from the Halibut Fishery Incidental Catch estimation (HFICE) working group.

Shark Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blue	0	4	0	7	9	0	0	1	0	0
Misc	3	46	0	0	128	1	0	0	0	0
Salmon	2	10	0	0	0	41	2	5	0	40
Sixgill	0	19	0	0	0	0	0	0	0	0
Pacific Sleeper	8,406	4,709	5,422	6,108	9,618	5,168	7,375	588	493	165
Soupfin	0	0	0	0	0	0	0	0	0	0
Spiny Dogfish	1,301	876	3,518	1,568	2,453	2,722	2,681	1,818	1,680	1,691
Total	9,712	5,664	8,941	7,682	12,208	7,931	10,057	2,413	2,173	1,896

http://www.afsc.noaa.gov/REFM/docs/2011/GOAshark.pdf

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.

The HFICE estimates of shark catch by the BSAI halibut fishery are substantial relative to catch in the groundfish fisheries (on average 67% of groundfish fishery shark catch) and in 2010 represented approximately 9% of the 2010 shark ABC (Table3). The HFICE estimates should be considered preliminary estimates for what is caught in the IFQ halibut fishery. Improved estimates of groundfish catch in the halibut fishery may become available following restructuring of the Observer Program in 2013. The sharks in the BSAI are extremely data limited and they are managed based on historical maximum catch (i.e. the ABC/OFL are not based on biological information). Therefore, it is unknown if there if a significant biological impact from this level of removals. On the other hand, there is no evidence to suggest that overfishing is occurring for any shark species in the BSAI according to the BSAI sharks SAFE report (OFL catch limit is not reached).

Table 3. Estimates of shark catch (t) by species in the BSAI from the Halibut Fishery Incidental Catch estimation (HFICE) working group

Shark Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Misc	0	0	0	0	1	0	0	0	0	0
Pacific Sleeper	738	205	1,119	200	135	36	64	49	104	87
Spiny Dogfish	1	0	0	0	0	1	1	3	0	3
Total	739	205	1,119	201	136	36	64	52	104	89

http://www.afsc.noaa.gov/REFM/docs/2010/BSAIshark.pdf
http://www.afsc.noaa.gov/REFM/docs/2011/BSAIshark.pdf

Arrowtooth flounder (*Atheresthes stomias)*: From NPFMC SAFE reports: BSAI and GOA stocks above B35% reference points, not overfished.
http://www.afsc.noaa.gov/REFM/docs/2011/BSAIatf.pdf;
http://www.afsc.noaa.gov/REFM/docs/2011/GOAatf.pdf

White-blotched skates (*Bathyraja maculata)*: IUCN Red list "Least Concern" and Alaska skates *(Bathyraja parmifera)*: IUCN Red list "Least Concern". The 2011 survey biomass estimates for longnose skates and for many of the *Bathyraja* skates in the GOA are down relative to the 2009 estimates. Fishery length compositions from 2010 are similar to those from 2009. Survey length compositions for big skates in 2011 are similar to those from 2009. For longnose skates, the 2011 length compositions display a shift away from a single large size mode to a more bimodal distribution. The stock assessment authors did not recommend any directed fishing for skates in 2012 in the GOA, due to high incidental catch in groundfish and halibut fisheries and the lack of accurate information regarding the composition of the skate catch; and recommended using an *M* estimate of 0.1, as has been used in past GOA skate assessments, and the average biomass from the last three AFSC trawl surveys.

Table 4. Estimated incidental skate catch in IFQ halibut fisheries in the GOA, 2001-2011

	other skates		big skate		longnose skate	
	kg	t	kg	t	kg	t
2001	261,007	261	570,632	571	2,595,001	2,595
2002	424,288	424	396,659	397	540,015	540
2003	558,384	558	714,623	715	1,137,901	1,138
2004	417,656	418	445,499	445	1,173,218	1,173
2005	427,867	428	487,964	488	1,302,429	1,302
2006	299,645	300	382,522	383	1,663,899	1,664
2007	435,711	436	334,701	335	1,408,000	1,408
2008	492,639	493	191,566	192	1,312,004	1,312
2009	633,306	633	400,075	400	1,591,936	1,592
2010	729,283	729	255,653	256	1,009,865	1,010

http://www.afsc.noaa.gov/REFM/docs/2011/GOAskate.pdf

Alaska skate *(Bathyraja parmifera)* in the BSAI is above B35% reference point and is not overfished.
http://www.afsc.noaa.gov/REFM/docs/2011/BSAIskate.pdf

Grenadiers (*Corypaenoididae* spp.) From NPFMC SAFE reports: BSAI and GOA stocks above catches are well below ABC, not overfished or overfishing occurring.
http://www.afsc.noaa.gov/REFM/docs/2011/BSAIgrenadier.pdf

BSAI yellow Irish lord sculpins (*Hemilepidotus jordani*), and Great sculpins *(Myoxocephalus polyacanthocephalus)*. For the 2012 and 2013 fisheries, stock assessment scientists recommend ABCs of 43,718 t. These ABCs are equivalent to last year's ABCs for 2011 (and 2012) set by the Council. The corresponding reference values for BSAI sculpins are summarized below.

Table 5. Reference values for BSAI sculpins.

Species	Year	Biomass	OFL	ABC	TAC	Catch
Sculpin complex	2011	208,181	58,291	43,718	5,200	4513[1]
	2012	208,181	58,291	43,718		
	2013	208,181	58,291	43,718		

[1]/ Current as of September 17, 2011 http://www.fakr.noaa.gov/2011/car110_bsai_with_cdq.pdf.

http://www.afsc.noaa.gov/REFM/docs/2011/BSAIsculpin.pdf

Yelloweye rockfish (*Sebastus ruberrimus*) is part of the "other rockfish" complex. To estimate removals in the halibut fishery, methods were developed by the HFICE working group and approved bythe Gulf of Alaska and Bering Sea/Aleutian Islands Groundfish Plan Teams and the Scientific and Statistical Committee of the North Pacific Fishery Management Council. A detailed description of the methods is available in Tribuzio et al. (2011). The HFICE estimates should be considered preliminary estimates for what is caught in the IFQ halibut fishery. Improved estimates of groundfish catch in the halibut fishery may become available following restructuring of the Observer Program in 2013. The non-commercial removals for "other slope rockfish" in 2010 showed that only a trace amount totaling 94 kg (<0.1 mt) was taken in the GOA. Estimated catches of "other slope rockfish" in the Pacific halibut longline fishery have been much higher than research catches and other non-commercial removals and range from 81 mt in 2003 to 133 mt in 2004. This level of unaccounted catch, although relatively high compared to the official catch, does not appear to have put stocks of "other rockfish" at risk because the annual catch of these species in the GOA has always been much less than ABC.

Table 6. Estimated catch (mt) of "other slope rockfish" in the Gulf of Alaska halibut fishery, 2001-2010, from the Halibut Fishery Incidental Catch Estimation working group.

Year	Catch
2001	96
2002	89
2003	81
2004	133
2005	132
2006	126
2007	100
2008	100
2009	93
2010	85

http://www.afsc.noaa.gov/REFM/docs/2011/GOAorock.pdf

Bycatch and the observer program

In the directed longline fisheries for Pacific halibut, bycatch of other fish species is not well documented on any sized vessel because of the lack in observer coverage in this fleet. Management actions are in place in respect to increasing knowledge on the bycatch dynamics of the directed halibut longline.

Estimation of bycatch and developments of the observer program in regards to non-halibut bycatch in the directed halibut fishery

Following site visits for this surveillance assessment in March 2012, the IPHC confirmed that positive steps had being taken to address scarcity of data for non-halibut bycatch in the directed halibut fishery in various ways. A paper titled *Methods for the estimation of non target species catch in the unobserved halibut IFQ fleet* was produced in August 2011 to address the issue and help the accounting of groundfish and other species bycatch in other Alaska fisheries.
ftp://ftp.afsc.noaa.gov/afsc/public/plan_team/Halibut_Fishery_Bycatch_8_2011_final.pdf.

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. This will be monitored and evaluated accordingly in the second surveillance assessment for Pacific halibut.
In the meantime, the estimates were furnished to the assessment scientists and published within the various SAFE reports: http://www.afsc.noaa.gov/refm/stocks/assessments.htm

The NMFS announced to NPFMC on June 7th 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 and halibut 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.
http://www.fakr.noaa.gov/sustainablefisheries/amds/amds86_76/approval060712.pdf

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.
NOAA hopes to deploy observers under the restructured program by January 1, 2013.
http://www.fakr.noaa.gov/newsreleases/2012/observers041212.htm
http://www.fakr.noaa.gov/notice/77fr29961.pdf

14. Where fisheries enhancement is utilized, environmental assessment and monitoring shall consider genetic diversity and ecosystem integrity.

FAO CCRF 9.1.2/9.1.3/9.1.4/9.1.5/9.3.1/9.3.5

Evidence adequacy rating:

☐ High **☐ Medium** **☐ Low**

Not Applicable to this fishery.

8. Performance specific to agreed corrective action plans

Not Applicable. This is the 1st FAO RFM Alaska Pacific halibut 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 estimation of bycatch in the halibut fleet and the restructuring of the observer program. The developments have been positive and proceeded as planned. Details of these points are available under Fundamental Clause 4.

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

Not applicable as no unclosed or new non conformance has been issued.

10. Future Surveillance Actions

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

- Re-instatement of Alaska Coastal Management Plan
- Implementation and coverage of restructured groundfish observer program
- Bycatch data collection in the halibut 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 1st 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 Pacific halibut commercial fishery employing benthic longline gear within the IPHC's Regulatory Areas 2C, 3A, 3B, 4A, 4B, and 4CDE, within Alaska jurisdiction (200 nautical miles EEZ), under international [International Pacific Halibut Commission (IPHC)], federal [National Marine Fisheries Service (NMFS)/North Pacific Fishery Management Council (NPFMC)] and state [Alaska Department of Fish and Game (ADFG)] management.

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Appendix 1

Assessment Team details

Based on the technical expertise required to carry out the above fishery assessment, Global Trust Certification Ltd. confirmed the Assessment Team members for this fishery as follows.

Herman Savikko (Assessor)

Herman Savikko holds a degree in Biological Sciences and began his career in fisheries in 1975, working seasonally each year for the Alaska Department of Fish and Game in remote locations, including four Bristol Bay river systems and the Karluk River on Kodiak Island. He worked for the National Marine Fisheries Service at their Auke Bay Biological Laboratory and then returned to the Alaska Department of Fish and Game, working for the Divisions of Sport Fish, Fisheries Rehabilitation, Enhancement and Development, and the Division of Commercial Fisheries where he completed a 30-year state career. Responsibilities were in freshwater and marine species management, research, and policy development. Fisheries were those comprised under a Federal Fisheries Management Plan (FMP) including Bering Sea/Aleutian Island crab, federal groundfish in the Bering Sea and GOA, state-wide scallops, and Southeast Alaska troll salmon. State regulatory procedure was handled through participation in the Alaska Board of Fisheries process for groundfish (e.g., parallel and state managed Pacific cod issues, sablefish limited entry issues, rockfish bycatch concerns), federal FMP species removals, season and gear determinations, and shellfish issues (e.g., category 2 and 3 management measures as identified under the BSAI Crab FMP). Activities included: changes to the fishery observer programs, both in review of electronic and onboard biological staff attributes; establishing protected waters under a provision to describe and identify essential fish habitat (EFH) for FMP fisheries, for the purpose of minimizing the extent of practicable adverse habitat effects caused by fishing; and identifying other actions to encourage the conservation and enhancement of fish habitat. He attended all North Pacific Fishery Management Council meetings, as well as the Alaska Board of Fisheries meetings on crab and groundfish. Prepared and delivered the state's report (oral and written) at each Council meeting (Agenda "B" reports) and answered questions from Council members, NPFMC staff, NMFS staff, the Alaska Board of Fisheries and the public on the department's position and policies with regard to crab, scallops, Pacific cod and other species. During his career he worked for eight governors, seven commissioners, and twelve different directors.

Vito Ciccia Romito

Vito holds a BSc in Ecology and an MSc in Tropical Coastal Management (Newcastle University, United Kingdom). His BSc studies related to the issues of bycatch, discards, benthic impact of commercial fishing gear and the available management and technical solutions, after which he spent a year in Tanzania as a Marine Research officer at Mafia Island Marine Park (MIMP) carrying out biodiversity assessments and populations census for potential inclusion of two additional islands within the MIMP. Subsequently, for his MSc, he focused on fisheries assessment techniques, ecological dynamics of overexploited tropical marine ecosystems, and evaluation of low trophic aquaculture in support to artisanal reef fisheries. Since 2010, he has been fully involved through

Global Trust with the FAO-based RFM Assessment and Certification Programme covering the Alaska salmon, halibut, sablefish, pollock and king & tanner crab fisheries; and the Icelandic cod, haddock, saithe and redfish fisheries.

Dave Garforth

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.