

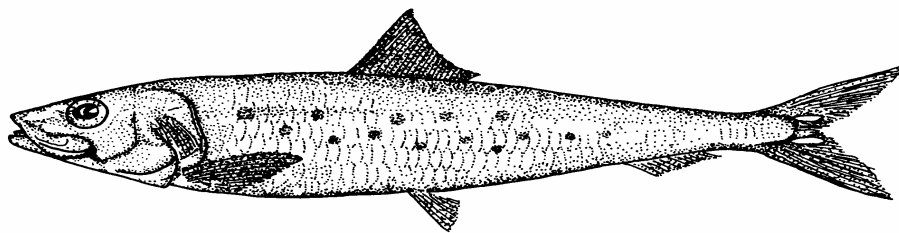
PACIFIC REGION

INTEGRATED FISHERIES

MANAGEMENT PLAN

PACIFIC SARDINE

JUNE 1, 2011 TO
FEBRUARY 9, 2012



Sardine (*Sardinops Sagax*)



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada

This Integrated Fisheries Management Plan is intended for general purposes only. Where there is a discrepancy between the Plan and the regulations, the regulations are the final authority. A description of Areas and Subareas referenced in this Plan can be found in the Pacific Fishery Management Area Regulations.

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Sardine fishery in the Pacific Region, as well as the management measures that will be used to achieve these objectives. This document also serves to communicate the basic information on the fishery and its management to DFO staff, legislated co-management boards and other stakeholders. This IFMP provides a common understanding of the basic “rules” for the sustainable management of the fisheries resource.

This IFMP is not a legally binding instrument which can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the Fisheries Act.

Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail to the extent of the inconsistency.

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1. OVERVIEW

1.1. Introduction

The Pacific sardine fishery is an opportunistic fishery dependent on the migration rate of sardines into Canadian waters. Sardine migration and population levels are heavily influenced by oceanic conditions that determine the survival and recruitment of juveniles into the adult stock. Ocean conditions off California have been favourable in recent years. It is anticipated that Pacific sardine stock size and production will be sufficient to support a moderate fishery in B.C. over the short and medium term.

This plan applies to a fishery for Pacific sardine in tidal waters of the Pacific Ocean on the west coast of Vancouver Island, the central coast, and the north coast. Pacific sardine stock status is reviewed annually by the Pacific Scientific Advice Review Committee (PSARC) to determine available harvest yields.

1.2. History

From 1996 to 2001, there was a limited experimental harvest of Pacific sardines by a small number of harvesters. Given the results of the experimental fishing, and the de-listing of Pacific sardines by the Federal-Provincial Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in May 2002 as a species of “special concern”, the seine component of the fishery moved to a commercial phase in 2002 consistent with the New Emerging Fisheries policy (NEFP). A one-year interim plan was developed in 2002 using a precautionary approach while providing opportunity for continued assessment of the viability of the fishery and the potential for future expansion.

An experimental/exploratory phase was initiated to investigate the feasibility of alternative gear types and areas. From 2003 to 2006, the Department developed a three year fishing plan that allowed for an incremental approach to development of the fishery while continuing to follow the principles of the NEFP. From 2007, the Department has developed an annual Integrated Fisheries Management Plan to support growth of the fishery.

1.3. Type of Fishery and Participants

1.3.1. Commercial

There are 50 available licences for the Pacific sardine fishery (25 commercial and 25 communal commercial licences) which have been harvested by 13 – 20 vessels in past years. Annual harvest limits are divided equally among commercial and communal commercial licences and subsequently divided equally among licences. All commercial harvest of Pacific sardine is currently made using purse seine

gear. Vessels are generally 60 – 70 feet in length with 4 - 5 crew members. The fishery is open from June 1 to February 9 each year and is managed by individual licence quotas. The majority of the harvest occurs in August and September.

1.3.2. First Nations

In addition to commercial opportunities provided to First Nations through communal commercial licences, First Nations are permitted to harvest fish annually for food, social and ceremonial (FSC) purposes coastwide where authorized by a communal licence. There is no known FSC fishing for Pacific sardine in the Pacific Region. For more information about communal licences, please visit the DFO internet site at:

<http://www.pac.dfo-mpo.gc.ca/abor-autoc/licences-permis-eng.htm>

1.3.3. Recreational

A recreational fishery is permitted to occur annually coastwise. A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish in tidal waters. Tidal Waters Sport Fishing Licences can be purchased at many tackle stores and marinas or online by using the Fisheries and Oceans website. There is no known recreational fishery for sardine in the Pacific Region. For more information about recreational fishing for Pacific sardine, please visit the DFO internet site at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/SFG-GPS-eng.htm>

1.4. Location and Timing of Fisheries

1.4.1. Commercial

With the exception of permanent and seasonal closures (outlined in appendix 5), the Pacific Sardine fishery will be open from June 1 to February 9 each year, in Pacific Harvest Management Areas (PHMA) 3 – 13, 20, 23 to 27, 101 to 110, 121, 123 to 127, 130 and 142.

1.4.2. First Nations

Aboriginal harvest may occur annually coastwide, where appropriately licensed. There have been no food, social or ceremonial (FSC) sardine licences issued to First Nations to date.

1.4.3. Recreational

Recreational harvest may occur annually coastwide, where appropriately licensed.

1.5. Fishery Characteristics -Summary of Key Management Decisions

1.5.1. Commercial Licence Eligibility

Due to commercial participants' desire for stability and certainty, Fisheries and Aquaculture Management (FAM) moved forward in 2007 with a consultative process to develop an on-going licence eligibility list for 25 commercial sardine licences.

Extensive consultations were undertaken through meetings with the Departments Sardine Integrated Advisory Board (SIAB) and a public workshop to develop criteria for screening and ranking applicants for an on-going eligibility list. The Department of Fisheries and Oceans (DFO) invited all parties that had expressed an interest in the sardine fishery since its inception in 1997, as well as coastal First Nations to the public workshop.

Based on these consultations, FAM utilized a point system to determine the on-going licence eligibilities and ranking, using control dates of 1997 to 2006, based on the following criteria:

- Number of years licenced – 50%
- Landings (points per year for minimum landings of 5 metric tonnes shared between the licence holder and vessel owner) – 25%
- Effort (points per year for effort determined by hail records to the service provider shared between the licence holder and the vessel owner) – 25%

DFO then underwent a review and verification process of all the landing records for all Canadian Pacific sardine licences. In February of 2007, letters were sent to all individuals who were issued a Pacific sardine licence between the years of 1997 to 2006 to provide an opportunity for each individual/company to review their fishing history and for DFO to verify its records of their Pacific sardine catch and effort. Licence holders/vessel owners who found a discrepancy with their catch history statements were able to submit the details in writing along with the appropriate documentation (i.e. logbooks, validation records or fish slips) to the Pelagic Resource Manager for review.

As the last administrative level for appeals, a final licence appeal process was initiated in the fall of 2008. The Pacific Sardine Licence Appeal Committee was assembled and they reviewed the appeals in January of 2009, making recommendations to the Minister for final approval. The Committee was composed of four independent people from outside of the Department: the chair and three members of the Pacific Region Licence Appeal Board. In 2009, the 25 commercial participants on the final eligibility list were confirmed.

1.5.2. Multiple Designations of Licences

In 2007 a two year pilot program to allow multiple designations of commercial and communal commercial Pacific sardine licences was initiated. This permitted a maximum of five unfished sardine licences to be designated to one vessel at one time. The maximum of five licences designated to one vessel includes all Pacific sardine licences whose quota has not been completely harvested.

A review during the 2008/2009 and 2009/2010 post-seasons, evaluated the pilot based on the following criteria:

- Fish harvesters ability to make allocation changes to their licence within 1 business day;
- Ability of the service provider to accurately match catch to licences;
- No related enforcement issues; and
- No increased cost to Fisheries and Oceans Canada.

Based on the successful review through the post-season advisory process, designations of multiple licences to one vessel have continued to be permitted in the sardine fishery.

1.5.3. Sharing of Harvest

To minimize wastage and reduce mortality of Pacific sardines, licensed vessels have been permitted to share individual sets of harvest since 2007/2008. Since this time a vessel that has commenced fishing may remove fish from the seine gear of another vessel engaged in fishing. Requirements include that all vessels that receive portions of a set must record this fishing activity in the Sardine Harvest Logbook including the location and vessel the fish came from with the receiving vessel responsible for transporting the fish to land for validation.

1.6. Governance

The *Fisheries Act* and the regulations made there under.

Areas and Subareas, as described in the *Pacific Fishery Management Area Regulations*, are referenced in describing Pacific sardine Management Areas.

Fishery (General) Regulations (i.e. Conditions of Licence) and the *Pacific Fishery Regulations*, 1993 (i.e. open times).

The British Columbia Sport Fishing Regulations (1996) and the *Aboriginal Communal Fishing Licences Regulations*.

The Oceans Act.

The Species At Risk Act.

These documents are available on the Internet at:

http://www.pac.dfo-mpo.gc.ca/ops/fm/toppages/actreg_e.htm

In addition, the national Sustainable Fisheries Framework contains policies for adopting an ecosystem based approach to fisheries management including:

- A Fishery Decision-Making Framework Incorporating the Precautionary Approach;
- Managing Impacts of Fishing on Benthic Habitat, Communities and Species;
- Policy on New Fisheries for Forage Species.

Along with existing economic and shared stewardship policies, these help the department meet objectives for long-term sustainability, economic prosperity, and improved governance. See the Internet at:

<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/overview-cadre-eng.htm>

Scientific advice for this fishery is peer-reviewed through a committee called the Pacific Region Scientific Advice Review Committee (PSARC).

1.7. Consultation

Fisheries and Oceans Canada (DFO) has a broad mandate, with the authority to regulate and enforce activities, develop policy, provide services and manage programs. To help ensure that the department's policies and programs are aligned with its vision and effectively address the interests and preferences of Canadians, DFO supports consultations that are transparent, accessible and accountable.

Fisheries and Oceans Canada, Pacific Region, undertakes consultations in order to improve departmental decision-making processes, promote understanding of fisheries, oceans and marine transport issues, and strengthen relationships. Policy guidance and strategic direction for public consultation activity is provided by the Consultation Secretariat in the Policy Branch.

The Sardine Integrated Advisory Board (SIAB) is the Departments' primary consultative body which provides recommendations on operational and policy decisions related to the Pacific Sardine fishery. SIAB is comprised of representatives from communal commercial and commercial licence holders, processing sector, environmental groups and the recreational sector. In addition there is active participation from a representative of the Province of BC. Government of Canada representation is coordinated by the sardine resource manager based on meeting agenda items. Stakeholders are encouraged to participate in the advisory process by expressing their interests and views through elected advisors or attending meetings as observers. Please refer to the list of SIAB representatives in Appendix 9. Please also refer to the DFO consultation website for

information on SIAB meetings including meeting minutes, presentations and the SIAB Terms of Reference at:

<http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/pelag/sardine/index-eng.htm>

1.8. Approval Process

The 2011/2012 Pacific Region Sardine Integrated Fisheries Management Plan (IFMP) is valid for the period of June 1, 2011 to February 9, 2012. The Regional Director General, Pacific Region approves this plan.

These licences are a privilege and are issued annually at the Minister's discretion. The issuance of a licence provides no guarantee that the fishery will not be limited or cancelled for conservation or other reasons at the discretion of the Minister. In addition, Fisheries and Oceans Canada has no obligation and provides no assurance or guarantee to participants that the maximum or any amount of fish allowed under a licence will be harvested or that the value of fish taken will be adequate to cover the costs of fishing.

2. STOCK ASSESSMENT, SCIENCE AND TRADITIONAL KNOWLEDGE

2.1. Biological Synopsis

The Pacific sardine population has undergone substantial and dramatic fluctuations in abundance. Scale-deposition studies have revealed hundreds and thousands of years of "boom and bust" cycles of Pacific sardine populations off California (Baumgartner et al. 1992) and Chile (Valdes et al. 2008). Sardines were fished extensively off the Pacific Northwest coast of the United States and Canada from the early 1900s through the late 1940s. Subsequently, the population collapsed and Pacific sardines were completely absent from the area until the early 1990s when they were again observed in Canadian waters. Historically and in recent years, peak spawning for this population has occurred off the southern coast of California but more northward spawning has also been observed. The coast-wide Pacific sardine population was less than 20,000 tonnes in the early 1980s and has recently exceeded one million metric tonnes declining during the last few years. Sardine abundance rivals the levels of the early 1900s and again supports a substantial fishery in United States waters. The abundance estimate for the adult population in 2010 was about 500,000 tonnes and a considerable proportion of these fish (>25%) was estimated to have migrated into Canadian waters to forage. It is expected that a substantial proportion of the coastwide population will continue to migrate into Canadian waters in summer to feed. Sardine population levels are heavily influenced by oceanic conditions that determine the survival and recruitment of juveniles into the adult stock and the extent of movement into the Canadian zone. Adult sardines that avoid natural and fishing mortality can spawn annually between 2 and 10 years of age and

strong year classes can have a large impact on the abundance of the coastwide population. It is anticipated that Pacific sardine stock size and production will be sufficient to support a moderate fishery in B.C. over the short and medium term.

2.2. Ecosystem Interactions

Pacific sardine are a transboundary species spawning off southern California and migrating to the Pacific Northwest including British Columbia during the summer to feed on abundant plankton resources. The extent of the northward migration is, in part, related to oceanographic conditions, particularly sea surface temperature, such that stocks move further north during warmer years. Sea surface temperature has also been related to juvenile survival for recruitment to the adult spawning population with stronger recruitment occurring during warmer years. Similar to other forage species, sardine are preyed upon by a variety of fish, bird, and mammals, particularly salmonids, sharks, sea lions, and humpback whales.

2.3. Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

Aboriginal Traditional Knowledge and Traditional Ecological Knowledge in the form of observations and comments collected from commercial and aboriginal harvests over many years contributed to decisions on scientific survey locations and are considered in management decisions.

2.4. Stock Assessment and Data Sources

Similar to recent years, the total allowable catch of Pacific sardine in Canadian waters in 2011 is based on an estimate of adult biomass from the U.S. stock assessment model, an estimate of seasonal migration into BC, and a predetermined harvest rate. However, as a result of a recent review of the sardine trawl results and the fishing locations, incremental sardine biomass estimates were derived for Queen Charlotte Sound increasing the estimated migration rate into Canada. United States scientists annually produce a stock assessment of the coastwide population using a catch-age model based on biological sampling data from research and commercial catches, an adult abundance index from an egg deposition survey and, beginning in 2009, information from a summer aerial survey conducted along the west coast of the U.S. The 2010 biomass estimate of adult sardines from the U.S. assessment is 537,173 metric tonnes. Canada contributes age composition and total catch data to the U.S. assessment and in future will provide biomass estimates from the west coast of Vancouver Island summer research trawl survey. Based on the re-analysis of west coast of Vancouver Island trawl survey and catch data, the annual migration rate was updated to 27% for 2011, the average from the three most recent survey years. The framework for setting allowable catch of sardine in Canada adopts the U.S. harvest rate of 15%. Therefore for the 2011 fishing season, of the 537,173 mt

population, 146,111 mt or 27.2% are expected to migrate into Canada. Applying a 15% harvest rate results in an allowable harvest of 21,917 metric tonnes.

Size and age distributions of sardines caught in B.C. waters generally show that compared to sardines caught off California and Oregon, larger and older fish migrate into B.C. The average sardine weight from 2002-2004 west coast of Vancouver Island catches was about 190 grams (g) but declined in 2005 to 157 g due to the presence of a younger and highly abundant 2003 year class. The 2003 year class (8 year old fish in 2011) will be a reduced component of the population in 2011. For additional information, see the PSARC Pelagics Subcommittee stock status reports and research documents at:

<http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/index-eng.htm>.

2.5. Stock Scenarios

The current abundance of the coastwide sardine population remains somewhat uncertain due to a series of changes in the US assessment model. The population is being sustained by a very strong 2003 year-class that will soon be exiting the stock. Without strong recruitment, sardine abundance is expected to continue declining. In the longer term, sardine populations are noted for their variability and exhibit cycles in abundance of 30-60 years. It is unknown when or how soon the current abundant cycle may be expected to end.

2.6. Precautionary Approach

The Department has implemented the Sustainable Fisheries Framework (SFF), which is a toolbox of existing and new policies for Fisheries and Oceans Canada (DFO) and other interests to sustainably manage Canadian fisheries in order to conserve fish stocks and support prosperous fisheries.

Fisheries worldwide are under increasing pressure, creating challenges for policy makers, resource managers and industry leaders to make informed decisions regarding the conservation, recovery and wise management of these precious resources. DFO held consultations throughout Canada in 2007 and 2008 to develop strategies to ease ecosystem pressures and enhance the capacity of the resource to sustain growing industry needs. New conservation policies were developed to implement a precautionary and ecosystem-based approach to fisheries management. These policies, incorporated into development of new Integrated Fisheries Management Plan (IFMP) templates, have joined existing policies in a new framework to promote sustainable fisheries.

The new fishery decision-making framework incorporating the precautionary approach policy (<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/precaution-eng.htm>) applies to key harvested fish stocks managed by Fisheries and Oceans Canada, including commercial, recreational, or subsistence fisheries.

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is healthy, to promote rebuilding when stock status is low, and to ensure a low risk of serious or irreversible harm to the stock. It also requires a rebuilding plan when a stock reaches low levels.

In general, the precautionary approach in fisheries management is about being cautious when scientific knowledge is uncertain, and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to fish stocks or their ecosystem. This approach is widely accepted as an essential part of a sustainable fisheries management.

Applying the precautionary approach to fisheries management decisions entails establishing a harvest strategy that:

- identifies three stock status zones – healthy, cautious, and critical – according to upper stock reference points and limit reference points;
- sets the removal rate at which fish may be harvested within each stock status zone; and
- adjusts the removal rate according to fish stock status variations (i.e., spawning stock biomass or another index/metric relevant to population productivity), based on pre-agreed decision rules.

2.7. Research

Sardine research and stock assessment effort has largely focused on understanding the factors and processes that determine the extent and timing of migration into Canadian waters. Since 1997, summer trawl surveys off the west coast of Vancouver Island have been conducted to measure the distribution and relative abundance of Pacific sardines in B.C., and to provide biological data on their size and age distribution. Sardine stomach samples are also collected and analyzed to better understand prey selection and feeding success in northern waters. Recently, methods have been developed to measure oil content in sardine meat and a new procedure for determining sardine ages from otoliths has been developed. Species catch composition and predator stomach contents are also collected because they assist in understanding species associations and ecological linkages. In addition to biological and catch data acquired from trawl tows, environmental information from plankton and ocean water sampling is collected concurrently during summer surveys.

A better understanding of the factors that affect the timing and degree of migration into British Columbia is intended to provide the sardine industry with more consistent harvesting opportunities and market stability. In 2005, three additional industry sponsored scientific surveys were conducted along the BC coast. These were feasibility

studies to develop guidelines for conducting future hydro-acoustic surveys to assess sardine biomass in the Canadian zone.

An apparent increase in the amount of sardine in British Columbia waters in recent years prompted DFO Science staff to review the estimate of migration rate of sardine used in setting the harvest ceiling. The Centre for Science Advice Pacific (CSAP) formerly PSARC, met in January 2011 to review the migration rate of sardine based on the trawl surveys conducted on the west coast of Vancouver Island since 2006 and determined that migration has been considerably higher than the earlier estimated level of 10%. As a result, CSAP recommended that the migration rate be amended to reflect the most recent three years of trawl survey data including the revised biomass estimates that included an addition for the areas north of Vancouver Island that have been supporting the fishery in recent years.

Recent U.S. research and development on sardine aerial survey methodology has generated data that was applied in the U.S sardine stock assessment model in 2009 to generate current abundance forecasts and harvest guidelines. In 2008 and 2009, small scale aerial survey trials were undertaken in areas off the west coast of Vancouver Island to test additional methods of observing abundance and distribution of sardines. For the 2011 season, a U.S. and Canada co-operative aerial survey is being discussed that would extend U.S. aerial survey protocols into the Canadian zone to provide a rangewide sardine abundance estimate. In addition, the summer trawl survey will be conducted in 2011 to assess the distribution, biological and ecological characteristics of the population in Canadian waters and to provide an independent abundance estimate.

3. SOCIAL, CULTURAL AND ECONOMIC IMPORTANCE

3.1. First Nations

In 1990, the Supreme Court of Canada released its decision in *R. v. Sparrow*. In this landmark decision, the Court held that, after conservation and other “valid legislative objectives”, Aboriginal rights to fish for food, social and ceremonial purposes have priority over all other uses of the fishery. The Court also held that infringements of Aboriginal rights must be justified and that part of that justification analysis involved an assessment of whether adequate consultation has occurred.

3.2. Recreational

Over five million anglers enjoy recreational fishing in Canada in many ways, in all seasons and in all areas of the country. Sport fishing gives Canadians access to their land and its rich natural environment. It is also important for the \$4.9 billion economic activity it generates each year in our communities, whether through tourism, recreational industries or other activities. In this context, Fisheries and Oceans Canada must ensure

fishing opportunities are provided to all fish harvesters – commercial, Aboriginal and sport. The Department’s resource management policies must consider access for recreational purposes.

3.3. Commercial

The Pacific sardine fishery provides full and part-time seasonal employment in the processing and fishing sectors of communities across the south coast of British Columbia and in particular Vancouver Island (fishing crews come from all over BC). There are 50 available licences for the Pacific sardine fishery with approximately 13-17 vessels participating in recent years, each with 4-5 crew members.

Historically the sardine fishery has landed from 1,500 to 4,000 metric tonnes (MT; 1 MT = 2,204.62 pounds). Since 2008 a large increase in harvest has been seen and in 2010, 22,223 MT was landed through 50 licences. Based on sales slips submitted to the Department, harvesters received an average landed value of 155 – 200 dollars per tonne with an export value of 800-850 dollars for sardine in 2010 (data submitted by the province of BC).

Traditional markets for Pacific sardines have been aquaculture feed, bait, and onshore food markets in Asian markets (mainly limited to Japan). Although aquaculture feed and bait markets continue, participants have had success in both expanding the onshore food market in Asia as well as developing new markets in Europe (e.g., Russia, Spain, Ukraine, etc.) and Australia.

Challenges identified by sardine fishery participants include market concerns (e.g. finding appropriate fish for buyers (size and fat content)), the variability in migration patterns and timing of sardine into BC waters, and a lack of infrastructure (freezer space).

The Department will continue to work with industry to support a sustainable fishery through the development of annual Integrated Fisheries Management Plans (IFMPs).

4. MANAGEMENT ISSUES

4.1. Incidental Catch

There is minimal incidental catch in the sardine fishery. Due to concerns for possible incidental catch of sensitive wild Chinook populations originating from the west coast of Vancouver Island (WCVI) there will be in-season closures and additional at-sea observer coverage in specific areas of concern. These closures are developed by DFO salmon science and management in consultation with the Sardine Integrated Advisory Board (SIAB) which includes recreational fishing, commercial, communal commercial and First

Nation representatives. Details of the 2011 monitoring program can be found in section 4 of Appendix 5.

4.2. Communal Commercial Licence Distribution

Beginning in 2006, the process used in the distribution of communal commercial licences has included an initial application process for participants in the previous year and a lottery process for any remaining licences after a deadline. Due to an increase in interest in the sardine fishery, 2008 was the first year in which all 25 available licences were issued. In 2009 and 2010 all 25 licences were issued to those who participated in the previous year and no lottery process took place.

Concerns with the lack of opportunity to apply for additional access under the current licensing process have been raised by some participants at past First Nations sardine workshops with several different solutions suggested. However, it remains unclear at this time which of the alternatives suggested has support from First Nations. The department will continue to work collaboratively with interested parties to develop a consensus proposal. In the interim, the established licence process will remain in place, as it provides a method for issuing licences annually to twenty-five participants through a priority application process (which provides stability of access for past participants issued licences in previous years) and a lottery process (which is fair and available broadly) for opportunity for any remaining licences after a priority application deadline date.

The Department is interested in developing a long-term process to allocate the 25 communal commercial licences with the objective of increasing stability and certainty for communal commercial participants. Developing a long-term licensing process will require extensive consultations with SIAB, First Nation groups and other interested parties. First Nations workshops will continue to be held at least twice yearly to provide an opportunity for discussion on long-term goals for the communal commercial fishery.

The 2011 communal commercial licence application process is detailed in section 2.3 of appendix 5.

To provide feedback or recommendations on a long term process to distribute communal commercial licences, please contact a SIAB representative (in appendix 9) or the Sardine Resource Manager at (604) 666-2188.

4.3. Species at Risk Act

The *Species at Risk Act* (SARA) came into force in 2003. The purposes of the Act are “to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of a wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened”.

In addition to the existing prohibitions under the *Fisheries Act*, under SARA it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with SARA, to engage in an activity affecting the listed species or the residences of its individuals. Species listed as special concern are not included in these prohibitions.

Endangered, threatened, and special concern marine species in Pacific region currently listed under Schedule I of SARA are:

1. Basking Shark - Endangered
2. Blue whale – Endangered
3. Killer whale southern resident population – Endangered
4. Killer whale northern resident population – Threatened
5. Killer whale transient population – Threatened
6. Leatherback turtle – Endangered
7. North Pacific right whale – Endangered
8. Sei whale – Endangered
9. Northern Abalone – Threatened¹
10. Fin whale – Threatened
11. Humpback whale – Threatened
12. Sea otter – Special Concern
13. Green sturgeon – Special Concern
14. Grey whale – Special Concern
15. Harbour porpoise – Special Concern
16. Killer whale offshore population – Special Concern²
17. Olympia oyster – Special Concern
18. Steller sea lion – Special Concern
19. Longspine Thornyhead – Special Concern
20. Rougheye Rockfishes Types I & II – Special Concern
21. Bluntnose Sixgill Shark – Special Concern
22. Tope (Soupfin) Shark – Special Concern

Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated species in Pacific region currently under consideration for listing under Schedule I of SARA can be found at: <http://www.pac.dfo-mpo.gc.ca/consultation/sara-lep/index-eng.htm>.

¹ In 2009, COSEWIC re-assessed Northern Abalone as Endangered. Northern Abalone is currently in the listing process, proposed to be re-listed as Endangered replacing the current Threatened listing.

² In 2008, COSEWIC re-assessed Offshore Killer Whales as Threatened. Offshore Killer Whales are currently in the listing process, proposed to be re-listed as Threatened, replacing the current Special Concern listing.

The formal SARA legal listing process begins when the Minister of Environment issues a response statement, detailing how he intends to proceed with the COSEWIC species designations. Response statements can be found on the SARA Public Registry website at: http://www.sararegistry.gc.ca/sar/listing/response_e.cfm.

4.3.1. COSEWIC Assessments

For a full list of the 2009 assessment results, please visit:

http://www.cosewic.gc.ca/rpts/Detailed_Species_Assessments_e.html.

In April 2010, COSEWIC will be assessing the status of yellowmouth rockfish, loggerhead seaturtle and spiny dogfish. Assessments produced by COSEWIC help inform the Minister of Environment's decision on whether to list species under Schedule I of SARA. For more information, please visit the COSEWIC website at:

<http://www.cosewic.gc.ca>.

4.3.2. Whale and Leatherback Turtle Sightings

The Department welcomes assistance in the reporting of any whale or leatherback turtle sightings or entanglement. Sightings for leatherback turtles and many whale species are infrequent in Pacific Canadian waters, and the collection of sightings data is very useful to scientists in determining population size and distribution. Establishing this information can in turn help in the recovery planning under SARA.

To report a whale sighting contact the BC Cetacean Sighting Network:
Toll free: 1-866-I-SAW-ONE (1-866-472-9663)
Fax: (604) 659-3599
Email: sightings@vanaqua.org

Website: <http://wildwhales.org/sightings/>

Website: <http://www.vanaqua.org/conservation/turtle-sightings.html>

To report a turtle sighting contact the Sea turtle Sighting Network:
Toll free: 1-866-I-SAW-ONE (1-866-472-9663)
Fax (604) 659-3599
Email: turtles@vanaqua.org

<http://www.bcreptiles.ca/reportsightings.htm#1>

To report sick, injured, distressed or dead marine mammals and sea turtles contact the Marine Mammal Incident Reporting Hotline:
Toll free: 1800-465-4336

4.3.3. Basking Shark – Avoidance of Entanglement and Reporting of Sightings

Basking Sharks are gentle giants of the sea that eat zooplankton. They are the second largest fish in the world, and are rarely seen in Canadian Pacific Waters.

The Department is collecting information on Basking Shark distribution, and welcomes assistance in the reporting of Basking Shark sightings. Sightings for Basking Sharks are infrequent in Canadian Pacific waters, and the collection of sightings data is very useful to scientists in determining population size and distribution. Your information will help us to determine how many exist off our coast and the potential for recovery of these impressive sharks. Please refer to your conditions of licence for more details.

If you see a Basking Shark, take pictures so that we can validate the sighting. Good quality photographs of dorsal fins can be used to identify individuals. Other helpful details:

- Date and time of sighting
- Location (geophysical coordinates, if possible)
- Number and estimated size of sharks
- Any other behaviours you observe

Report your sightings to the Basking Shark Sightings Network:

Toll free: 1-866-50-SHARK

Email: BaskingShark@dfo-mpo.gc.ca

www.pac.dfo-mpo.gc.ca/SharkSightings

More information on SARA, COSEWIC, or wildlife sightings can be found at:

www.cosewic.gc.ca/index.htm

www.dfo-mpo.gc.ca/species-especies/home_e.asp

www.sararegistry.gc.ca/

4.4. Oceans and Habitat Considerations

In 1997, the Government of Canada enacted the *Oceans Act*. This legislation provides a foundation for an integrated and balanced national oceans policy framework supported by regional management and implementation strategies. In 2002, *Canada's Oceans Strategy* was released to provide the policy framework and strategic approach for modern oceans management in estuarine, coastal, and marine ecosystems. As set out in the *Oceans Act*, the strategy is based on the three principles of sustainable development, integrated management, and the precautionary approach.

PNCIMA: As part of *Canada's Oceans Strategy*, Fisheries and Oceans Canada has initiated an integrated management planning process for the Pacific North Coast

Integrated Management Area (PNCIMA). The PNCIMA is bounded by the BC-Alaska border, the base of the shelf slope and the mainland, stretching south as far as Campbell River and the Brooks Peninsula. The PNCIMA initiative marks a shift toward a broader ecosystem approach to ocean management. This is consistent with the Government of Canada's overall direction and with Fisheries and Oceans Canada's new Wild Salmon Policy. The PNCIMA initiative is bringing the area's stakeholders together to collaboratively develop an integrated management plan for the region that achieves conservation, sustainable resource use, and economic development goals for oceans and coastal areas. The PNCIMA initiative will also function as an umbrella for various ocean management processes, complementing and linking existing processes and tools, including IFMPs.

Marine Protected Areas (MPAs): Fisheries and Oceans Canada is also responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated two MPAs in the Pacific Region. The Endeavour Hydrothermal Vents, designated in 2003, lie in waters 2,250m deep 250 km southeast of Vancouver Island. The Bowie Seamount, designated in 2008, is 180 km west of Queen Charlotte Islands (Haida Gwaii) rising from a depth of over 3,000 m to within 25 m of the sea surface. Work is ongoing to consider MPA designations for other areas along the Pacific Coast, including the Race Rocks area off Rocky Point south of Victoria (currently designated as a Provincial Ecological Reserve) and the Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs.

National Marine Conservation Areas (NMCAs): The *Canada National Marine Conservation Areas Act* provides for the establishment of National Marine Conservation Areas (NMCAs). The Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Gwaii Haanas Marine Area) was established in June 2010. As part of the establishment process Parks Canada, Fisheries and Oceans Canada and the Council of the Haida Nation have developed an Interim Management Plan for the Gwaii Haanas Marine Area which will be implemented in 2011. The Interim Management Plan includes an Interim Zoning Plan which identifies six Fully Protected Areas. Commercial and recreational fishing is not permitted in these areas. Development of a long term management plan for the Gwaii Haanas Marine Area will take place over a five year period following establishment in consultation with the commercial and recreational fishing sectors through the Department's established integrated fishery planning and advisory processes.

Fisheries and Oceans Canada is also working with other federal and provincial agencies to coordinate efforts towards establishing a national system of Marine Protected Areas to fulfil Canada's commitments to the UN Convention on Biological Diversity.

More information on integrated management planning and Pacific MPAs under Canada's *Oceans Act* can be found at:

www.pac.dfo-mpo.gc.ca/oceans/default_e.htm

Coldwater Coral and Sponge Conservation Strategy: Fisheries and Oceans Canada is working with other federal and provincial agencies, First Nations and stakeholders to develop a coldwater coral and sponge conservation strategy for the Pacific Coast. The Strategy consists of conservation, research and management objectives that guide strategies and actions to be taken by resource and fisheries managers.

4.5. International Issues

Widespread and growing concern over the state of the world's industrial fisheries, many of which suffer from resource over-exploitation and fleet over-capacity, have led to international agreements on the conduct of fisheries. These agreements include the *UN Straddling Fish Stocks and Highly Migratory Fish Stocks Agreement* (otherwise known in Canada as the UN Fisheries Agreement or UNFA), the *Food and Agriculture Organization Code of Conduct for Responsible Fisheries*, the *International Plan of Action (IPOA) for the Management of Fishing Capacity*, and the *UN Compliance Agreement*. These all require a precautionary approach to fisheries management and Flag State control over fishing vessels, wherever they fish.

Pacific sardines are a migratory species annually moving northward into Canadian waters during the summer to feed and returning to California spawning areas in the fall. In some years, some sardine remain in Canadian waters year round. Understanding this migratory behaviour is essential to developing appropriate assessment and management approaches for this stock. United States agencies, in conjunction with Canadian researchers, who provide information on total catch and biological information including size and age distribution, conduct the annual Pacific sardine stock assessment.

Understanding the biology and productivity of Pacific sardine has been facilitated by the Trinational sardine forum between Mexico, the United States, and Canada. The forum was initiated in 2000 and annually brings together scientists, academics, and industry to discuss issues surrounding the sardine resource, including planning joint surveys and collaborative research studies and tackling questions of importance to the sardine industries in all three countries. In 2010 the 11th Annual Sardine Trinational was held in Victoria, BC and was attended by DFO science, management and industry representatives. It is anticipated that the 12th Annual Sardine Trinational will be held in the fall of 2011 in the United States.

4.6. Gear Impacts

The sardine fishery is conducted using seine gear and under normal operating circumstances, there is minimal to no environmental impacts from gear used in the Pacific sardine fishery. To date, there is very little by-catch observed and little to no impact to marine mammals or sea birds. However, all interactions are required to be recorded within logbooks so that management can continue to monitor by-catch within the fishery and develop management measures as required.

5. OBJECTIVES

5.1. National

Fisheries and Oceans Canada aims to:

- Meet conservation objectives and ensure healthy and productive fisheries and ecosystems;
- Manage fisheries to provide opportunities for economic prosperity;
- Provide stability, transparency, and predictability in fisheries management and improved governance.

5.2. Pacific Region

In 1994, the Biological Objective Working Group of the Pacific Scientific Advice Review Committee (PSARC) identified three biological objectives for management of Pacific Region fish and invertebrate stocks (Rice et al, 1995):

- Ensure that subpopulations over as broad a geographical and ecological range as possible do not become biologically threatened (in the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) sense of “threatened”);
- Operationally, Objective 1 requires at least that management allow enough spawners to survive, after accounting for all sources of mortality (including all fisheries and natural mortality), to ensure production of enough progeny that they will, themselves, be able to replace themselves when mature;
- Fisheries may have collateral effects on other species, mediated by the ecological relationships of the target species. Fisheries should be managed in ways that do not violate the above objectives for ecologically related species, as well as target species.

The objectives remain relevant today, particularly in light of development of the national objectives around sustainable fisheries.

5.3. Pacific Sardine

5.3.1. Stock Conservation

The biological objective is to harvest the available biomass in a sustainable manner in consideration of the fluctuating population and migration rate of sardine into Canadian waters and impacts to the surrounding ecosystem.

5.3.2. Social, Cultural, and Economic Considerations

First Nations: the Department will continue to provide opportunities for First Nations to harvest for food, social and ceremonial purposes, in a manner consistent with the decision of the Supreme Court of Canada in the Sparrow

decision, and other court decisions. See Appendix 3 for more detail.

Recreational: the Department will continue to provide opportunities for a recreational fishery for sardine. See Appendix 4 for more detail.

Commercial and Communal Commercial: The Department will continue to work collaboratively with harvesters to maximize the long term profitability and stability of the Pacific sardine fishery in a manner that ensures long-term sustainability of the resource.

5.3.3. Compliance Objectives

Fisheries and Oceans Canada aims to continue implementing a comprehensive monitoring program and annually assessing compliance with the program which includes a hail and logbook program, at-sea observer coverage and 100% dockside validation.

Details on performance measures to meet the above objectives are described section 10.

6. ACCESS AND ALLOCATION

The Minister can, for reasons of conservation or for any other valid reasons, modify access, allocations, and sharing arrangements as outlined in this IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

6.1. Quotas and Allocations

6.1.1. First Nations

Aboriginal harvest of Pacific sardine for FSC purposes may occur coast wide where authorized by a communal licence. To date, no limits have been placed on aboriginal harvest for food, social and ceremonial purposes. There is no known FSC fishery for sardine.

6.1.2. Recreational

Recreational harvest of Pacific sardine may occur coast wide if authorized by a British Columbia Tidal Waters Sport Fishing Licence. The daily limit for Pacific sardine is 100 pieces and the possession limit is 200 pieces. There is no known recreational fishery for sardine.

6.1.3. Commercial

Total Allowable Catch

The total allowable catch (TAC) is developed by using the projected biomass from the U.S. stock assessment, applying a migration rate based on the Canadian trawl surveys and applying a 15% harvest rate.

50% of the TAC is allocated to First Nations for communal commercial licences and 50% of the TAC is allocated to commercial licences. Every licence within each category is subsequently allocated an equal share of the TAC.

Incidental Catch

Vessels are permitted to harvest a maximum of 10 mt of chub and jack mackerel. Retention of mackerel is intended to reduce wastage of mackerel normally encountered when fishing for Pacific sardines and not to create a directed mackerel fishery. All mackerel retained must be recorded in the sardine harvest logbook and validated at dockside.

All other by-catch must be released immediately to the water in a manner that minimizes catch and release mortality.

7. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

Please see the Aboriginal, Recreational and Commercial Harvest Plans, Appendix 3 to 5 for details on the 2011/2012 fishery including:

- Total Allowable Catch (TAC);
- Fishing Seasons/Areas;
- Control and Monitoring of Removals;
- Decision Rules;
- Licensing;
- Habitat Protection Measures.

8. SHARED STEWARDSHIP ARRANGEMENTS

8.1. Commercial

The Department and the fishing industry have a long and productive history of working together in a co-managed fashion to improve the sustainability and economic prosperity of Pacific fisheries. Given the co-management arrangements since the inception of this fishery, the Department's goal is to continue engaging all Pacific sardine fish harvesters in the co-management process.

The Department and D&D Pacific Fisheries Ltd. have cooperatively planned and administered the sardine logbook monitoring program. This monitoring program including coordination, distribution and submission of data is fully funded by industry.

As in previous years and consistent with the development of the sardine fishery under the New Emerging Fisheries Policy (NEFP), a tripartite Joint Project Agreement (JPA) with The First Nation Sardine Association (FNSEA) and the Canadian Pacific Sardine Association (CPSA) will be developed for the cost sharing of science and management activities related to the fishery. For the 2010/2011 season this resulted in a total cash contribution of \$77,000. This was four thousand dollars less than in the previous year.

The Department is currently working with industry associations to develop the 2011/2012 agreement based on science and management priorities for the coming season and in consideration of the cost to harvesters.

8.2. Fisheries and Oceans Canada

In-kind costs borne by the Department have and will continue to include infrastructure, management, science, enforcement, travel, licensing, and administration.

9. COMPLIANCE PLAN

In keeping with its mandate to manage Canada's fisheries in a sustainable manner, Fisheries and Oceans Canada (DFO) is responsible for enforcing the *Fisheries Act* and other regulations and legislation. Enforcement activities are carried out by Fishery Officers across Canada who conduct regular patrols on the land, on the sea and in the air.

The Department also promotes compliance with the law through education and awareness activities that encourage Canadians to protect fishery resources and habitats.

The Conservation and Protection directorate (C&P), within the Department, has as its primary mandate the development and implementation of a Strategic Enforcement Plan directed at the conservation and protection of fish and fish habitat. There are approximately 176 fishery officers stationed in the Pacific Region (which encompasses the province of B.C. and Yukon Territory). They are designated as “fishery officers” under Section 5 of the *Fisheries Act*. Their powers and responsibilities are outlined in the Act, the *Coastal Fisheries Protection Act*, the *Criminal Code of Canada* and the *Constitution Act*.

Marine enforcement officers (MEO) employed by Canadian Coast Guard, also carry “fishery officer” designation, and have the similar powers and responsibilities as fishery officers. They are trained in enforcement duties and are armed.

C&P staff monitor and enforce issues and problems related to the sardine fishery in conjunction with the monitoring and enforcement activities dedicated to the identified priority fisheries in the Pacific Region.

The legislative controls for the sardine fishery are derived from the *Fisheries Act*, *Coastal Fisheries Protection Act*, *Fishery (General) Regulations*, *Pacific Fishery Regulations, 1993*, and Conditions of licence. These controls are designed to conserve and protect sardine stocks to ensure Canada is meeting its commitment under the *United Nations Straddling Fish Stocks and Highly Migratory Fish Stocks Agreement (UNFA)*.

Contraventions of the *Fisheries Act*, the *Coastal Fisheries Protection Act*, the regulations made there under or the conditions of licence may result in seizure and forfeiture of vessel and gear as well as fines up to \$100,000 or imprisonment for a term up to one year or both, for a first offence.

9.1. Main Program Activities

The Department has the responsibility to enforce the *Fisheries Act*, *Coastal Fisheries Protection Act* and associated regulations, to address conservation, health and safety issues and to maintain proper management and control of the various fisheries.

Users of the resource have a responsibility to report violations. Any suspected or actual fisheries, wildlife or pollution violations can be quickly and discretely reported to the appropriate enforcement officer by using the toll free Observe, Record and Report hotline. This toll free number is available 24 hours a day. Confidentiality is assured. Fishery officers attempt to follow through on the reports as often as time and resources allow.

Observe, Record and Report: 1-800-465-4DFO (4336).

Enforcement enquiries can also be directed to Enforcement Operations at 604-202-4582 during regular office hours.

9.2. Aerial Surveillance

Air surveillance is done under two different programs. For shore-oriented, localized enforcement and monitoring needs, local air charters are contracted on an as-needed basis. In addition, there is a more comprehensive offshore air surveillance program. The purpose of this program is to monitor vessels and track activities off the west coast as well as obtain vessel counts from recreational, commercial and in some cases, First Nations fisheries and to detect suspicious vessels (e.g., those suspected of fishing in closed areas). Aircraft are tasked on a daily basis for specific surveillance duties. On occasion Canadian Coast Guard fixed wing and helicopter craft are also employed depending on availability. Air surveillance is an excellent platform for monitoring the activities of vessels at sea.

10. PERFORMANCE REVIEW

10.1. Management Plan Evaluation Criteria

10.1.1. National

- To meet conservation objectives to ensure continued health and productivity of fisheries and surrounding ecosystems through the development of harvest limits and management measures based on the best scientific information available.
- Make reasonable effort to provide opportunities for economic prosperity while maintaining conservation objectives.
- Conduct an open and transparent consultation process to discuss harvest management issues in this fishery by making meeting information available prior to meetings and by posting meeting notes as soon as possible following meetings with stakeholders and First Nations.

10.1.2. Pacific Region

- Ensure conservation and protection of Pacific sardine stocks and their habitat through the application of scientific management principles applied in a risk averse a precautionary manner based on the best scientific advice available by:
 - Ensuring Pacific sardine stocks do not become biologically threatened;
 - Allowing sufficient spawners to survive to ensure production of enough progeny;
 - Protecting ecologically related species; and
 - Collecting accurate and timely catch and effort data, by geographic location and time period.

10.1.3. Pacific Sardine

10.1.3.1. Stock Conservation

To ensure the harvest of Pacific sardine occurs in a sustainable manner in consideration of population dynamics and ecosystem impacts the Department will:

- Conduct annual surveys of sardine off the west coast of Vancouver Island to determine population levels and distribution.

- Coordinate with US fishery scientists to include annual surveys in Canadian waters in the US stock assessment to ensure all available information is included in annual population assessments.
- Recommend a sustainable annual harvest rate of 15% of the estimated biomass in Canadian waters.
- Continue a comprehensive monitoring program to gather catch and effort information for the sardine fishery with 100% validation of all harvest.
- Review harvest activities so they occur in a manner that will minimize impacts to sensitive fish habitats and populations.

10.1.3.2. Social, Cultural and Economic Considerations

- Hold a minimum of two advisory board meetings for the purpose of post-season review and pre-season planning discussions.
- Develop annual management plans in consideration of advice and recommendations developed through the Sardine Integrated Advisory Board (SIAB) and through bi-lateral discussions with First Nations.

10.1.3.3. Compliance

- Monitor compliance of conditions of licence including the monitoring and validation program.

11. REFERENCES

- Baumgartner, T.R., A. Soutar, and V. Ferreira-Bartrina. 1992. Reconstruction of the history of Pacific sardine and northern anchovy populations over the past two millennia from sediments of the Santa Barbara Basin, California. *CalCOFI Rep.*, 33, 40 pp.
- Valdes, J., L. Ortlieb, D. Gutierrez, L. Marinovic, G. Vargas, and A. Sifeddine. 2008. 250 years of sardine and anchovy scale deposition record in Mejillones Bay, northern Chile. *Progr. Oceanogr.* 79: 198-207.

12. GLOSSARY

Aboriginal Traditional Knowledge (ATK)	Knowledge that is held by, and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual, and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines.
Abundance	Number of individuals in a stock or a population.
Age Composition	Proportion of individuals of different ages in a stock or in the catches.
Area and Subarea	Defined in Section 2 of the Pacific Fishery Management Area Regulations. A map of Pacific Fishery Management Areas is available on the Department's Internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
Biomass	Total weight of all individuals in a stock or a population.
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	Committee of experts that assess and designate which wild species are in some danger of disappearing from Canada.
Communal Commercial Licence	Issued to First Nation organizations pursuant to the Aboriginal Communal Fishing Licences Regulations for participation in the general commercial fishery. Licences issued are equivalent to the capacity of licences that have been retired under the Treaty and Aboriginal Policy Directorate Licence Retirement/Allocation Transfer Program.
Communal Licence	A licence issued to First Nations organizations under Section 4 of the Aboriginal Communal Fishing Licences Regulations, pursuant to the Fisheries Act, to carry on fishing and related activities.
CSAS	Canadian Scientific Advice Secretariat, chaired by DFO and including other federal and provincial government agency representatives and external participants.
Dockside Monitoring	A monitoring program that is conducted by a company that has been designated by the Department, which verifies the species composition

Program (DMP)	and landed weight of all fish landed from a commercial fishing vessel.
EBSA (Ecologically and Biologically Significant Area)	An EBSA is an area that has particularly high Ecological or Biological Significance, and should receive a greater-than-usual degree of risk aversion in management of activities in order to protect overall ecosystem structure and function within the LOMA.
Ecosystem-Based Management	Taking into account of species interactions and the interdependencies between species and their habitats when making resource management decisions.
Enhancement	The culture and release of wild stocks for stock rehabilitation and/or to increase stock sizes above natural levels of abundance. An enhanced stock is a common property resource and is subject to the public right to fish.
Fishing Effort	Quantity of effort using a given fishing gear over a given period of time.
Fishing Mortality	Death caused by fishing, often symbolized by the mathematical symbol F.
Food, Social and Ceremonial (FSC)	A fishery conducted by Aboriginal groups for food, social and ceremonial purposes.
Harvest Quotas	A fixed amount of catch provided as an opportunity for harvest to a licensed fisher or vessel.
High Grading	Sorting through the catch and discarding less desirable animals (small, dark, other characteristics) underwater at the time of harvest, or on board the vessel.
Incidental Catch	The unintentional catch of one species when the target is another
Individual vessel quota (IVQ)	Individual Vessel Quota: a portion of the total allowable catch (TAC) allocated annually to an individual vessel licence.
Landed Value	Value of the product when landed by the licensed vessel.
Landing	Quantity of a species caught and landed. Harvested animals transferred from a vessel to land.
LOMA (Large Ocean Management Area)	Integrated management planning in Canada is focused in five high priority LOMAs, these are: Placentia Bay and the Grand Banks, the Gulf of St. Lawrence, the Scotian Shelf, the Beaufort Sea and the Pacific North Coast.

Maximum Sustainable Yield (MSY)	Largest average catch that can continuously be taken from a stock.
Natural Mortality	Mortality due to natural causes, symbolized by the mathematical symbol M.
Observer	An individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries and Oceans Canada pursuant to section 39 of the Fishery (General) Regulations and in the employ of a service provider company that has been certified by the Canadian General Standards Board (CGSB) for Dockside Monitoring.
Observer Coverage	When a licence holder is required to carry an officially recognized observer onboard their vessel for a specific period of time to verify the amount of fish caught, the area in which it was caught and the method by which it was caught.
Population	Group of individuals of the same species, forming a breeding unit, and sharing a habitat.
Precautionary Approach	Set of agreed cost-effective measures and actions, including future courses of action, which ensures prudent foresight, reduces or avoids risk to the resource, the environment, and the people, to the extent possible, taking explicitly into account existing uncertainties and the potential consequences of being wrong.
Quota	Portion of the total allowable catch that a unit such as vessel class, country, etc. is permitted to take from a stock in a given period of time.
Recruitment	Amount of individuals becoming part of the exploitable stock e.g. that can be caught in a fishery. The process whereby young animals are added to a fishable stock or population.
Research Survey	Survey at sea, on a research vessel, allowing scientists to obtain information on the abundance and distribution of various species and/or collect oceanographic data. E.g.: bottom trawl survey, plankton survey, hydroacoustic survey, etc.
Sampling Program	A program in which representative samples of animals are collected for the calculation of parameter estimates that describe such things as weight, length or age within the general population.
Spawner	Sexually mature individual.
Spawning Stock	Sexually mature individuals in a stock.

Species at Risk Act (SARA)	The Act is a federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides the legal protection of wildlife species and the conservation of their biological diversity.
Stakeholders	Individuals or groups with an interest in a particular fishery or activity.
Stock	Describes a population of individuals of one species found in a particular area, and is used as a unit for fisheries management.
Stock Assessments	Scientific evaluation of the status of a species belonging to a same stock within a particular area in a given time period. Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reactions of populations to alternative management choices.
Substrate	The ground (often the ocean bottom) and its composition, in or on which animals live.
Tonne	Metric tonne, which is 1000kg or 2204.6 lb.
Total Allowable Catch (TAC)	Total allowable catch: the amount of catch that may be taken from a stock, determined by analytical procedures, to achieve management objectives.
Traditional Ecological Knowledge (TEK)	A cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.
Validation	The verification, by an observer, of the weight of fish landed.
Vessel Size	Length overall.
Year-class	Individuals of a same stock born in a particular year. Also called "cohort".

APPENDIX 1. POST-SEASON REVIEW

1. Assessment of the 2010/2011 Fishery Objectives

1.1. National Objectives: to ensure a healthy and productive fishery and ecosystem; provide opportunities for an economically prosperous fishery while maintaining conservation objectives; and to conduct an open and transparent consultation process.

1.1.1. Assessment of National Objectives:

- Sufficient stock remained available to safely harvest sardine within the Pacific coast, while maintaining a productive and healthy population and ecosystem. The harvesting opportunities provided resulted in all 50 licences being used with 22,233 MT of sardine landed.
- The Sardine Integrated Advisory Board (SIAB), established in 2005, continued to function as the Department's advisory body in 2011 with 3 meetings held in addition to smaller working groups for specific issues. Meeting minutes from 2011 were drafted, reviewed and posted publicly on the DFO sardine consultation website in a timely manner.

1.2. Pacific Region Objectives: Ensure conservation and protection of Pacific sardine stocks and their habitat through the application of scientific management principles.

1.2.1. Assessment of Pacific Region Objectives:

- The 2010 total allowable catch was developed based on the best science available and incorporated a precautionary harvest rate of 15%. The 2010 monitoring program included logbooks, third party at-sea observer coverage and a dockside validation program. This program successfully recorded incidental catch and harvesting behavior and interactions with related species to inform management objectives and record compliance with conditions of licence.

1.3. Pacific Sardine Objectives

1.3.1. Stock Conservation: **To ensure the harvest of Pacific sardine occurs in a sustainable manner through scientific surveys and in coordination with US scientists.**

1.3.2. Social, Cultural and Economic Considerations: Hold a minimum of two advisory board meetings to gather advice and recommendations from stakeholders and First Nations.

1.3.3. Monitor compliance with conditions of licence and the monitoring program.

1.3.3.1. Assessment of Pacific Sardine Objectives:

- For the 2010 season, a DFO certified third-party service provider was contracted by industry to implement a comprehensive monitoring program that included a hail and logbook program, an at-sea observer program and 100% dockside validation. All harvest activity was monitored in-season to ensure that impacts to sensitive fish habitats and populations were minimized.
- Three advisory board meetings and two First Nations Sardine workshops were held for post-season review and pre-season planning purposes. The 2010 management plan was developed in consideration of advice and recommendations developed through the Sardine Integrated Advisory Board (SIAB) and through discussions with First Nations
- There was a high level of overall compliance with the monitoring program and conditions of licence, however, three high priority non-compliance issues were encountered which resulted in enforcement activity. These included one instance of harvesting without an at-sea observers when required and inappropriate conduct with incidental catch.

2. 2010/2011 Catch and Effort Summaries

The 2010/2011 fishing season was successful with all 50 available licences issued. Using the projected biomass from the 2010 U.S. stock assessment of 702,024 mt, a migration rate of 22 % and a 15% harvest rate, the harvestable total allocable catch (TAC) available for the 2010/2011 Pacific sardine fishery was 23,166 metric tonnes.

The entire TAC was allocated for commercial harvest. Consistent with the allocation framework implemented since the start of the fishery, 50% was allocated to both First Nations for communal commercial licences and 50% to commercial licence holders. The 11,583 metric tonnes allocated for each licence type was subsequently divided among all available licences resulting in an individual licence quota of 463.3 metric tonnes. A summary of historical harvest levels is outlined in Table 1.

Year	Licences Available	Licences Issued	TAC (MT)	IVQ (MT)	% TAC Caught	Catch (MT)
2002	28	14	9000	180	9 %	822
2003	50	25	9000	180	11 %	1006
2004	50	27	15000	300	28 %	4259
2005	50	33	15200	304	21 %	3266
2006	50	43	13500	270	15 %	1558
2007	50	45	1980	396	12 %	1524
2008	50	50	12491	250	83.5 %	10435
2009	50	50	18196	364	84.3 %	15334
2010	50	50	23,166	463.3	95.9 %	22,223

Table 1: Catch and effort summaries from 2002 - 2010

In total, 22,223 MT were harvested with the majority of harvest taking place in July, August and September. Figure 2 provides the breakdown of catch per month for 2010 while Figure 3 provides the 2010 landings by statistical area.

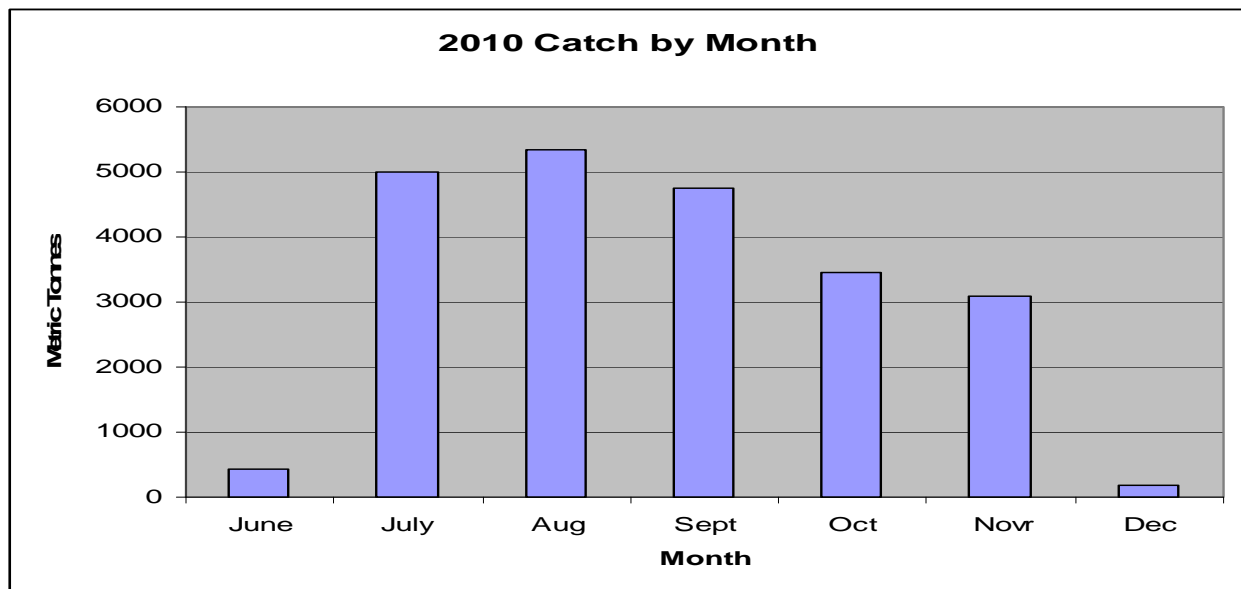


Figure 2: Landings by month for 2010 (metric tonnes)

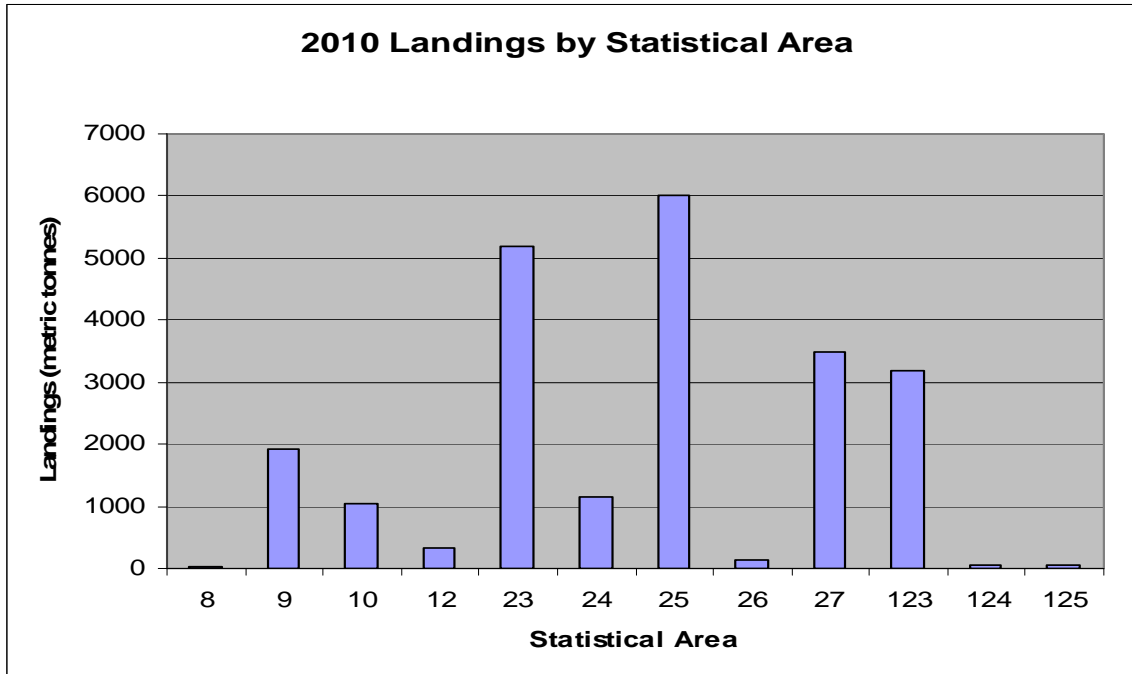


Figure 3: Landings by area for 2010 (metric tonnes)

3. Monitoring Program

The Pacific sardine fishery has a third party, DFO certified, industry funded monitoring program and includes a hail and logbook program, at-sea observer coverage and 100% dockside validation.

The programs' objective is to accurately monitor catch, effort and fishing activity information to support harvest and management decisions both in-season and during the post-season review process.

Levels of incidental catch are extremely low for the Pacific sardine fishery. However, due to concern for possible incidental catch of wild Chinook populations of concern originating from the west coast of Vancouver Island (WCVI), area closures and 100% at sea observer coverage was required in areas of concern. Closures and areas requiring 100% at-sea observer coverage were developed based on DFO science and management assessments and were presented for discussion with the SIAB. The level of incidental catch for salmon populations remained extremely low in the 2010 season. A summary by piece count of all salmon species (including those released at sea) by area, based on logbooks, validations and at-sea observer coverage for 2009 and 2010, is provided in Figure 4.

Pacific Fishery Management Area (PFMA)	'09	'10	'09	'10	'09	'10	'09	'10	'09	'10	'09	'10	'09	'10	'09	'10
	8	8	9	9	10	10	12	12	23	23	25	25	26	26	123	123
Chinook Salmon	1	0	1	5	1	1	0	0	56	63	25	52	0	2	3	31
Chum Salmon	3	0	31	3	5	0	0	1	9	3	76	10	26	13	1	9
Coho Salmon	11	0	47	4	8	6	0	2	48	7	89	36	7	0	5	3
Pink Salmon	77	0	256	0	139	3	0	0	2	0	3	0	0	0	0	0
Sockeye	0	0	2	0	4	1	3	3	15	13	13	53	0	0	0	151
Total per area	92	0	337	12	157	11	3	6	130	86	206	151	33	15	9	194

Table 2: Incidental catch by piece count of species of salmon and PHMA for 2009-2010

APPENDIX 2. STOCK ASSESSMENT RESULTS

The annual stock assessment for Pacific sardine is conducted by the United States through its Pacific Management Council process. The results of the most recent assessment can be viewed at:

ftp://ftp.pcouncil.org/pub/CPS_Sardine_Assessment/Hill_etal_Sardine_2010_Update_FINAL.pdf

The Canadian assessment framework for the sardine resource builds on the US assessment results. We assume that a proportion of the coastwide population will migrate into Canadian waters each year during the latter part of June and set a harvest rate based on the US harvest rate. The coast wide population has stabilized or declined slightly the past few years at less than 1 million metric tonnes (Figure 4).

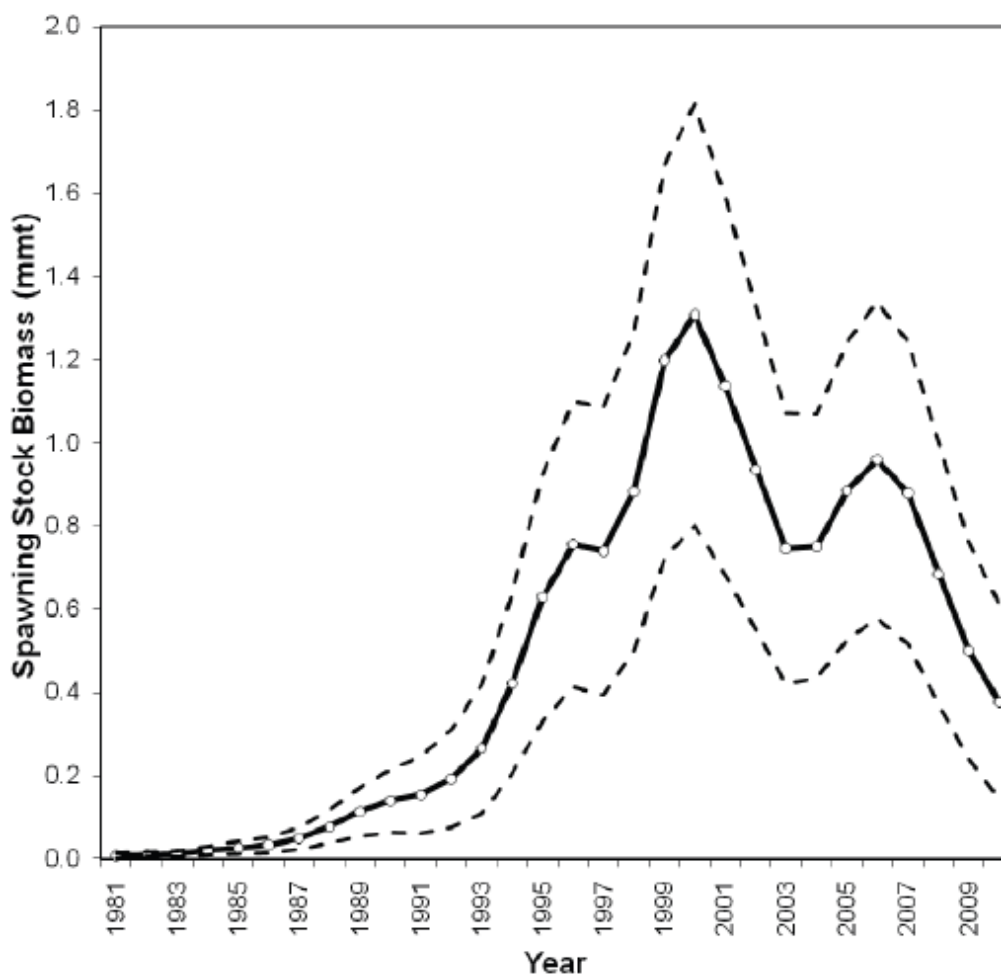


Figure 4. Spawning stock biomass with ~95% confidence limits for the update model ‘10w’ (from Hill et al 2010).

Indications from the most recent stock assessment are that there have been no strong year-classes since the recent 2003 and 1997 recruitments (Figure 5). As a consequence abundance may be

expected to continue to decline in the short term although overall migration of sardine into Canadian waters has been stronger in recent years.

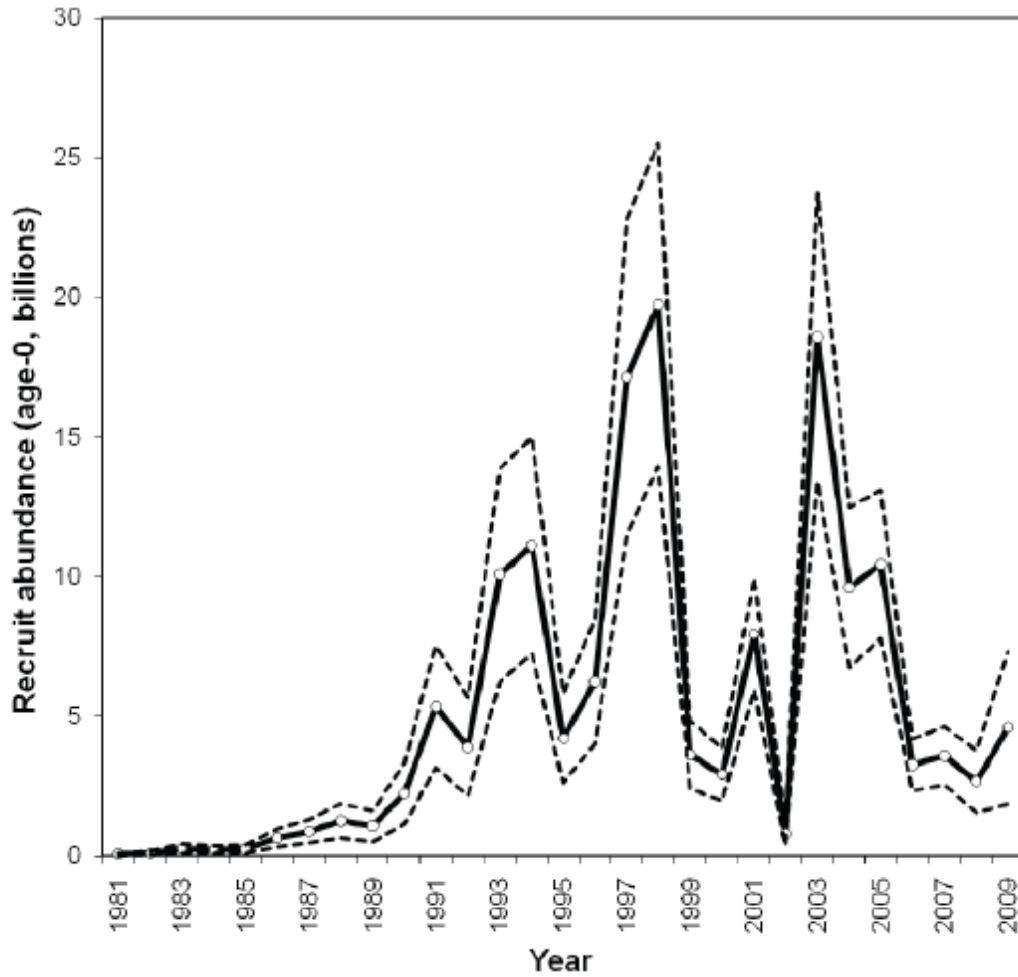


Figure 5. Recruitments with ~95% confidence intervals from the update model '10w' (from Hill et al. 2010)

APPENDIX 3. ABORIGINAL HARVEST PLAN

The department is committed to improving its relationship with Aboriginal people. Aboriginal fisheries play an important role in this relationship and, therefore, are an integral part of fisheries resource management in the Pacific Region. Through consultation, cooperative management and stewardship activities, DFO and Aboriginal groups are working together to build strong, healthy relationships and a sustainable fishery.

Through the Aboriginal Fisheries Strategy, the department seeks to negotiate with Aboriginal organizations access for Food, Social, and Ceremonial (FSC) purposes. Subject to conservation, this access has priority over access for commercial and recreational harvest. FSC fisheries are managed through communal licences that are issued to First Nations organizations. The Department will consult with First Nations organizations to determine appropriate levels of access. In some cases, a portion of a PFMA may be closed to fishing except for fishing by a First Nation organization. These closures may be for the season or for specified times. Whenever possible, the appropriate annual fishing plan will identify such closures. It is possible that situations may arise in the implementation of the plan where in season closure adjustments will be required to ensure access to the fishery by First Nations organizations for FSC purposes.

For additional information on DFO's Treaty and Aboriginal Fisheries programs, please visit:

www.pac.dfo-mpo.gc.ca/tapd/default_e.htm

APPENDIX 4. RECREATIONAL HARVEST PLAN

The recreational harvest of various fish and invertebrate species in BC is regulated via the *British Columbia Sport Fishing Regulations, 1996* made under the *Fisheries Act*. A Fisheries and Oceans Canada Tidal Waters Sport Fishing licence is required for the recreational harvest of all species of fish.

The regulations for recreational fishing of finfish are summarized in the British Columbia Tidal Waters Sport Fishing Guide which lists closed times, bag limits, size limits (where applicable) and closed areas. When required, Fishery Notices are issued to advise fishers of changes to this guide. For more information on the recreational fishery refer to the following web link:

http://www.pac.dfo-mpo.gc.ca/recfish/default_e.htm

The primary consultative body for the recreational fishing community is the Sport Fishing Advisory Board (SFAB). The SFAB has representatives from all parts of the community including the British Columbia Wildlife Federation and the Sport Fishing Institute of British Columbia. If you have any questions or need further information, please contact a recreational fisheries co-coordinator or a local Fisheries and Oceans Canada office (see List of Contacts). Recreational harvest for Pacific sardine is permitted coast wide. The daily limit is 100 pieces and the possession limit is 200 pieces.

APPENDIX 5. COMMERCIAL HARVEST PLAN

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1. COMMERCIAL HARVEST PLAN

1.1. Area Openings

With the exception of time and area closures listed in 1.2, 1.3 and appendix 8 the fishery will be open from June 1, 2011 to February 9, 2012 in Areas 3-13, 20, 23 to 27, 101 to 110, 121, 123 to 127, 130 and 142.

1.2. Time and Area Closures

1.2.1. Temporary Closures

West Coast Vancouver Island

Conservation concerns persist for wild salmon (in particular Chinook) originating from the west coast of Vancouver Island (WCVI) systems. As such, management measures have been developed for the 2011/2012 season. As in 2008, 2009, and 2010, time and area closures and additional at-sea observer coverage for areas of concern will be implemented to monitor interactions between sardine harvesters and salmon.

Closure dates will be consistent with recreational restrictions and finfish closures. In addition to closed areas, buffer zones directly around the mouths of river/creaks/streams in areas 24 – 27 will be included to protect key areas for holding/staging of salmon. Buffer zones will be closed from January 1 to December 31. These closures were developed by DFO salmon and sardine managers based on salmon science recommendations.

Please reference your conditions of licence for closure details. A description of area closures is detailed below with buffer zone descriptions in appendix 8. Maps of these areas will be provided when sardine licences are issued

Please see section 4.2 of Appendix 5 for additional details of the monitoring program.

1.2.1.1. Area 23 through 27 Seasonal Closures

Area 23

Effective August 1 through September 30 the following areas will be closed to fishing sardine:

- Nahmint Bay: That portion of subarea 23-2 bounded on the north by line drawn 66° true from Hocking Point to a square, white fishing boundary sign on the eastern shore of Alberni Inlet, and on the south by a line from a square, white fishing boundary sign

at Chesnucknuw Creek to a square, white fishing boundary sign on the western shore of Alberni Inlet.

- San Mateo Bay/Lower Alberni Inlet: Those portions of subarea 23-3 bounded on the north by a line from Star Point to a white square fishing boundary sign at the mouth of Handy Creek and on the south by a line from a Mutine Point to the navigation light at Chup Point.
- Numukamis Bay: That portion of subarea 23-4 inside a line from a square, white fishing boundary sign at the eastern side of the entrance to Poett Nook to San Jose Islet Light, thence to a square, white fishing boundary sign at the southern tip of Congreve Island, thence northeastward to a square, white fishing boundary sign on Vancouver Island.
- Rainy Bay: In subarea 23-4 that portion of Rainy Bay inside a line commencing at a boundary sign on Seddall Island south of Ecoole to a boundary sign on Chup Point.

Effective June 30 through October 31 the following areas will be closed to fishing sardine:

- Uchucklesit Inlet northwest of a line from Brooksby Point to Burrough Point

Area 24

Effective August 1 through October 31 the following areas will be closed to fishing sardine:

- Subareas 24-1, 24-3 to 24-14, and

Effective August 1 to December 31:

- Tofino Inlet, and

Effective August 1 to September 15:

- Sydney Inlet to the surfline

Effective September 15 to October 31:

- Sydney Inlet to Adventure Point

Area 25

Effective July 15 through October 15 the following areas will be closed to fishing sardine:

- Hisnit Inlet: That portion of subarea 25-4 inside a line drawn between square white fishing boundary signs on opposite sides of the entrance to Hisnit Inlet.
- Head Bay: That portion of subarea 25-5 inside a line drawn between square white fishing boundary signs on the opposite sides of the entrance to Head Bay.
- Nesook Bay: That portion of subarea 25-5 inside a line drawn between square white fishing boundary signs on opposite sides of the entrance to Nesook bay.

- Kendrick Inlet: That portion of subarea 25-6 north-westerly of a line from Boston Point to Salter Point to that portion of subarea 25-8 northerly of a line from Mozino Point to a fishing boundary sign on the opposite shore.
- That portion of subarea 25-4 north-westerly of a line from Salter Point to Hoiss Point to the portion of subarea 25-8 south-easterly of a line from the most northerly tip of Strange Island to a square white boundary sign on the opposite shore of Tahsis Inlet.
- Tahsis Inlet: subarea 25-16.
- Zeballos Inlet: subarea 25-10 [northerly of boundary signs near Little Zeballos River].
- Espinosa Inlet : That portion of subarea 25-11 north of a line commencing at 49° 52.874 N, 126° 56.30'W (0.6km north of Newton Cove) then to a point on the opposite shore of Espinosa Inlet at 49 52.88' N, 126° 54.88'W.
- Port Eliza: subarea 25-12

Area 26

Effective July 15 through October 15 the following areas will be closed to fishing sardine:

- Subareas 26-4, 26-5, 26-8 to 26-9 and,
- That portion of subarea 26-6 shoreward of a line commencing on the Vancouver Island shoreline at 50°01.21'N, 127° 20.65'W then to a point on the Union Island shoreline at 50° 00.37'N, 127° 19.38'W.
- That portion of subarea 26-2 shoreward of a line commencing at Unsworth Pt. on Union Island then to a point on the Vancouver Island shoreline located at 50 01.399 N, 127 11.760 W and,
- Those portions of subarea 26-3 shoreward of a line commencing on the north shoreline of Amai Inlet at 50°01.61'N, 127° 09.11'W then continuing true south to the opposite shore and shoreward of a line commencing at Machta Pt. true south to the opposite shore

Area 27

Effective July 1 through December 31 the following areas will be closed to fishing sardine:

- Subarea 27-9

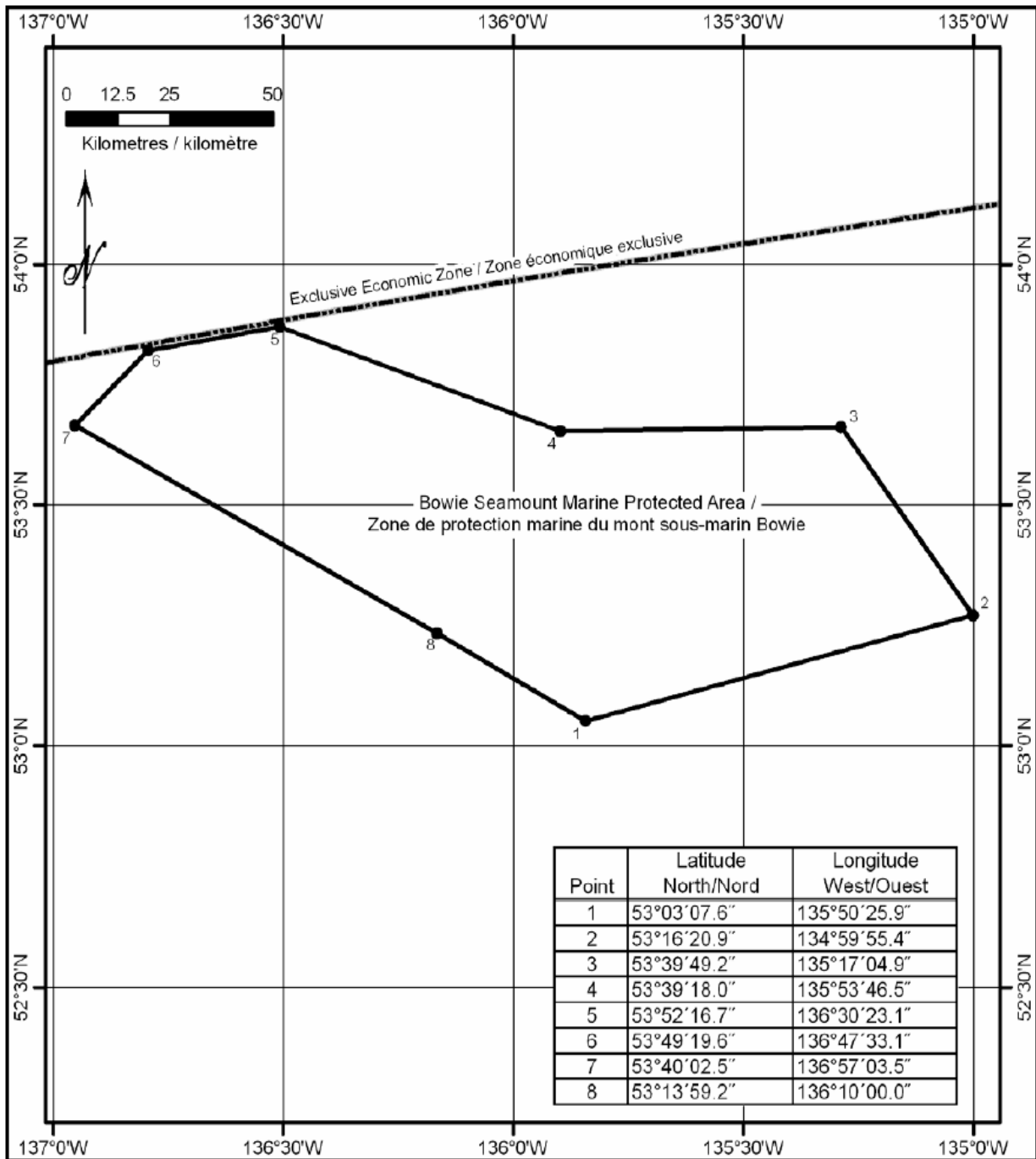
For the 2011/2012 season, a pilot program will be implemented to allow for fishing opportunities in areas 27-7, 27-8, 27-10 and 27-11. Please see section 4.3.3 for more details.

1.3. Permanent Closures

1.3.1. Bowie Seamount Marine Protected Area

In consultation with interested parties, the Department is developing a MPA plan for the Bowie Seamount, including a research and management program. Implementation of Bowie Seamount as a MPA began in 2008.

The Bowie Seamount MPA is closed year-round. The MPA Regulations establish the outer boundary of the MPA as the area of the Pacific Ocean, which includes the Bowie, Hodgkins and Davidson Seamounts — consisting of the seabed, the subsoil and the water column above the seabed — that is bounded by a series of rhumb lines drawn from a point 53°03'07.6" N, 135°50'25.9" W, to a point 53°16'20.9" N, 134°59'55.4" W, then to a point 53°39'49.2" N, 135°17'04.9" W, then to a point 53°39'18.0" N, 135°53'46.5" W, then to a point 53°52'16.7" N, 136°30'23.1" W, then to a point 53°49'19.6" N, 136°47'33.1" W, then to a point 53°40'02.5" N, 136°57'03.5" W, then to a point 53°13'59.2" N, 136°10'00.0" W, then back to the point of commencement. A map of the boundaries is attached in appendix 5 and can be accessed on the internet at the following address: http://laws.justice.gc.ca/en/showdoc/cr/SOR-2008-124/bo-ga:s_5::bo-ga:s_7/20080731?command=HOME&caller=SI&fragment=bowie%20seamount&search_type=all&day=31&month=7&year=2008&search_domain=cr&showall=L&statuteyear=all&lengthannual=50&length=50&page=4



The Department will be developing a Marine Protected Area (MPA) management plan for the Bowie Seamount in consultation with First Nations, stakeholders, environmental groups, academia, the Province of British Columbia, and other federal government departments and agencies; this management plan will elaborate on the regulations to achieve and implement the conservation and management objectives for the MPA. The MPA management plan will address matters such as monitoring, enforcement and compliance.

The regulatory approach being taken is to manage all commercial fishing activities through the regular fisheries management approach. Annual fishing plans will be developed in consultation with stakeholders and specific actions (openings and closures) for the Bowie Seamount Marine Protected Area will be taken under the authority of the *Fisheries Act* and its regulations.

No commercial fishing for Pacific sardine will be permitted in the Bowie Seamount Marine Protected Area.

1.3.2. Gwaii Haanas

The Gwaii Haanas National Marine Conservation Area Reserve (Gwaii Haanas Marine Area) was established in law on June 17, 2010. Implementation of “zones of full protection” to protect special features or sensitive elements of ecosystems within a national marine conservation area is a requirement of the *National Marine Conservation Areas Act*. The initial zoning plan for the Gwaii Haanas Marine Area identifies six areas with high ecosystem and cultural values as zones which will be closed to fishing.

The Interim Management Plan reflects input received during extensive consultations with the fishing industry and other stakeholders over a two year period leading to establishment of the Gwaii Haanas Marine Area.

1. Burnaby Narrows

Those waters of Subareas 2-13 and 2-16 inside a line

commencing at	52°23'071" N	131°20'427" W
East to a point	52°23'079" N	131°22'79" W
then following the southern shoreline of Kat Island east to a point	52°23'104" N	131°22'193" W
then east to a point	52°23'104" N	131°22'193" W
then to a point	52°23'303" N	131°31'277" W
then following the western shoreline of Burnaby Island south to a point	52°20'982" N	131°20'427" W
then west to a point	52°20'733" N	131°21'063" W

then back to the point of commencement.

2. Louscoone Estuary

Those waters of Subareas 2-33 and 2-34 north of a line drawn from 52°11'828" north latitude and 131°15'662" west longitude east to 52°12'269" north latitude and 131°14'579" west longitude.

3. Flamingo estuary

Those waters of Subarea 2-37 north of a line drawn from 52°14'523" north latitude and 131°22'24" west longitude southeast to 52°14'245" north latitude and 131°21'481" west longitude.

4. Gowgaia Estuary

Those waters of Subarea 2-41 east of a line drawn from 52°24'947" north latitude and 131°32'13" west longitude east to 52°24'233" north latitude and 131°32'021" west longitude.

5. Cape Saint James

Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line

commencing at	51°56'509" N	131°01'547" W
Southwest to a point	51°55'499" N	131°02'468" W
then southeast to a point	51°52'493" N	130°57'907" W
then south to a point	51°51'655" N	130°57'780" W
then southeast to a point	51°50'395" N	130°56'561" W
then northeast to a point	51°51'054" N	130°54'702" W
then north to a point	51°53'826" N	130°55'640" W
then northwest to a point	51°58'517" N	130°59'468" W
then west to a point	51°58'727" N	131°00'620" W

then west following the southern shoreline of Kungit Island back to the point of commencement.

6. SGang Gwaay

Those waters of Subareas 2-31 and 142-1 inside a 3km radius from the centre point on Anthony Island located at 52°05'655" north latitude and 131°13'178" west longitude.

1.4. Total Allowable Catch/Individual Vessel Quotas

1.4.1. Total Allowable Catch

Using the projected biomass from the U.S. stock assessment of 537,173 metric tonnes and a migration rate of 27.2% with a 15% harvest rate, the harvestable total allocable catch (TAC) available for the 2011/2012 Pacific sardine fishery is 21,917 metric tonnes. The entire TAC will be allocated for commercial harvest.

1.4.2. Communal Commercial Allocation

50% of the TAC is allocated to First Nations for communal commercial licences, equating to 10,958 mt. There are 25 communal commercial licences. Each licence will be allocated a quota of 438.3 mt for the 2011/2012 season.

1.4.3. Commercial Allocation

50% of the TAC is allocated to commercial licences, equating to 10,958 mt. There are 25 commercial licences. Each licence will be allocated a quota of 438.3 mt for the 2011/2012 season.

1.4.4. Experimental/Exploratory Quota

As per the Department's *Policy for Selective Fishing*, part of the commercial or communal commercial allocation may be allocated for experimental harvest to test alternative gear types. Proposals are proponent driven and will identify an allocation from an existing licence, along with consent of the licence holder supporting re-allocation of the quota for experimental/exploratory purposes.

2. LICENSING

2.1. Licence Category

A communal commercial Pacific sardine licence, category ZSF, or a commercial Pacific sardine, category ZS licence is required to commercially harvest Pacific sardine. Pacific sardine licences are party based licences.

2.2. Licence Application Fees

There is no fee for a communal commercial licence, category ZSF. Licence fees are \$30 for a commercial licence, category ZS.

2.3. Access and Licence Application Process for the 2011/2012 Fishery

2.3.1.1. Communal Commercial Licences

Communal commercial licence allocation for the 2011/2012 season will follow a similar process as in previous years. This process has been developed in consultation with DFO's advisory board which includes representatives from commercial and communal commercial participants as well as other interested parties.

Communal Commercial Licence Application Process for 2011/2012

- The 25 participants who were issued licences for the 2010/2011 fishery will be provided priority applications for the 2011/2012 season (it is anticipated that this will take place in early May);

- Priority applicants will be provided with a three week deadline for applications to be received by a Pacific Fisheries Licensing Unit (PLFU) and for them to be considered for a 2011/2012 Pacific sardine licence;
- After this deadline applications for a lottery for the remaining licences not issued will be made available to coastal First Nations (should this proceed, it is anticipated to take place the first week of June);
- Applicants for the lottery will be provided with a three week deadline for applications to be received by a PLFU;
- Successful applicants will be ranked in order as established through the lottery (should this proceed, it is anticipated that this will take place in late June);
- A series of three week deadlines will be implemented to ensure all opportunities are given to those committed to participate in the fishery: e.g. opportunities to receive a Pacific sardine licence will be provided to the next successful applicant on the list if lottery applicants do not complete the licensing process by a given deadline.

Please note timelines for submission of applications have been set to ensure that those committed to participate in the 2011/2012 fishery are provided an opportunity to receive a licence within a suitable timeframe relative to the fishery and peak harvesting periods.

Access for 2011/2012 Sardine Fishery

Participation in the 2011/2012 Pacific sardine fishery does not provide any guarantee of access or priority access of communal commercial licences in the future.

Please see section 1.5.2.1 of the main body of the IFMP for more information on past application processes.

2.3.1.2. Commercial Licences

There are 25 available commercial Pacific sardine licences. Access will be provided to the 25 commercial participants on the licence eligibility list.

Please see section 1.5.2.2 of the main body of the IFMP for more information on the licence limitation process.

2.3.2. Licence Application and Issuance

Applications for a 2011/2012 commercial or communal commercial licence for Pacific sardine must be submitted in person or by mail to the Vancouver PFLU.

Commercial Licence Applications

All application forms must be signed by the applicant. If the applicant is a company, only an authorized signing authority may sign the application. The PFLU must have on record a copy of either a Confirmation of Signing Authorities or an Amendment to Confirmation of Signing Authorities form, listing the signing authorities for the company.

Communal Commercial Licence Applications

Where the applicants/vessel owner is a First Nations group, only an authorized signing authority may sign the application. The PFLU must have on record a copy of either a Confirmation of Signing Authorities or an Amendment to Confirmation of Signing Authorities form, listing the signing authorities for the First Nation.

Vessel Designation

Vessel owners may or may not sign at the time of application, but must sign the application prior to licence issuance.

Communal Commercial applicants who do not apply for a licence and meet the requirements by the deadline will forgo their place on the eligibility list and the opportunity to apply for a licence will be given to the next successful applicant as determined by the application to establish eligibility and lottery draw process.

Commercial and Communal Commercial Applicants

Commercial and communal commercial licence applicants must provide a letter confirming that arrangements have been made for participation in the monitoring program for the current year. For communal commercial applicants, this must be done prior to the application deadline. D & D Pacific Fisheries Ltd. is the designated monitoring company for the 2011/2012 season.

Prior to issuance of a commercial or communal commercial Pacific sardine licence, all applicants must:

- a) Be on the list of eligible applicants for the 2011/2012 Pacific sardine fishery and have submitted a complete application by the deadline.
- b) Designate a registered Canadian commercial fishing vessel that is:
 - Eligible for a commercial or communal commercial salmon, schedule II, geoduck, sablefish, halibut, crab, shrimp trawl, groundfish trawl, prawn and shrimp by trap, roe herring seine licence, or a valid category N salmon licence or for communal commercial Pacific sardine applicants only, be designated as a spawn on kelp catcher vessel in 2011.
 - Able to accommodate a certified observer.
 - Geared with a purse seine.
 - Be equipped with at least one of the following systems:

- Refrigerated sea water system (RSW)
- Champagne system
- Super chilling
- Freezing at sea capability (FAS).

Where a vessel has not previously harvested under authority of a Pacific sardine licence, further review may be required.

2.4. Multiple Designation of Licences

Multiple designations of commercial and communal commercial Pacific sardine licences are permitted for the 2011/2012 fishery. A maximum of five unfished sardine licences may be designated to one vessel at one time. The maximum of five licences designated to one vessel includes all Pacific sardine licences whose quota has not been completely harvested. Licences which have already been harvested to the maximum quota may stay on the same vessel and will not be counted against the maximum limit of licences allowed.

Communal commercial priority access applicants may designate the same vessel as other applicants provided the vessel meets the application requirements. Applicants that do not have priority access must first establish eligibility for a licence and then may make an application and designate the same vessel as other applicants.

2.5. Vessel Re-designation

Vessel re-designation after annual licence issuance is permitted at any time during the fishing year. An “Application for Vessel Re-designation” must be completed and signed by the licence holder. Prior to vessel re-designation, the licence holder must:

- Submit up to date logbooks and landing information for the licence to be re-designated to the service provider and provide confirmation that this has been done.
- Provide a letter confirming arrangements have been made for the replacing vessel regarding participation in the monitoring program for the current year.
- Designate a suitable vessel that meets the application requirements and is eligible for a commercial or communal commercial salmon, schedule II, geoduck, sablefish, halibut, crab, shrimp trawl, groundfish trawl, prawn and shrimp by trap, roe herring seine or a valid category N salmon licence or for communal commercial Pacific sardine applicants only, be designated as a spawn on kelp catcher vessel in 2011.

Applications for vessel re-designation will not be considered if the replacement vessel identified has already reached the maximum of five commercial or communal commercial Pacific sardine licences with remaining quota still available (please see section 2.4. of the harvest plan for details).

2.6. Licence Documents

Pacific sardine licences are valid from the date of issuance to February 9, 2012.

Replacements for lost or destroyed licence documents may be obtained by completing a Declaration Concerning Licence Documents form. Please contact PFLU for further details.

For further information on management requirements, contact the Pelagic Resource Manager at (604) 666-2188 or by fax at (604) 666-9136.

3. FISHING ACTIVITY AND CATCH REPORTING

3.1. Species

Pacific sardine (*Sardinops sagax*)
Chub mackerel (*Scomber japonicus*)
Jack mackerel (*Trachurus symmetricus*)

3.2. Gear

Pacific sardine may be captured by purse seine.

Should a vessel wish to harvest by Trap Net or intend on using a fish pen, the vessel master must notify the Pacific sardine resource manager prior to harvest, to ensure the appropriate conditions of licence can be developed and appended. Please contact the Pacific sardine resource manager at 604-666-2188 for more details.

3.2.1. Purse Seine

Purse seine net dimensions must be:

- a) A maximum length of 41.48m (225 fathoms).
- b) A minimum mesh size of 25mm.

3.2.2. Trap Net

A vessel geared with purse seine may use a trap net, meaning a net that is set so as to enclose an area of water into which fish are guided through an opening or openings by one or more leaders.

Trap net must have the following specifications:

- a) Floating frames, used to suspend the trap, must be capable of supporting the weight of the net without collapsing.
- b) The net must be marked with the licence number under the authority of which it is operated; the numerals must be a minimum of eight inches in height, black in colour, on a white background and visible above the water line.
- c) Constructed with knotless web.

- d) The bottom of the net must be a minimum of three meters above the substrate at all times.

3.2.3. Fish Pen

A vessel geared with a purse seine may use one fish pen (meaning an enclosure), attached to the shore of the land or to the seabed, designed to hold live fish. All fish enclosed in a fish pen must be from one vessel only and any fish that have been transported to a fish pen must be transported to land by the same vessel when the fish are removed from the pen.

3.3. Individual Vessel Quota

Vessels are authorized to harvest to the Individual Vessel Quota (IVQ) as per their conditions of a Pacific sardine licence. Vessel masters must discontinue fishing once the available licences on that vessel have reached their cumulative IVQ. Should a vessel's validated weight exceed their IVQ, both the licence holder and vessel master will be notified of any overage and vessel masters will have 2 weeks from the date of validation to cover off any overage.

Vessel masters must operate in a manner that ensures that over harvest does not occur. Any licence holder landing fish in excess of the licensed amount may be, upon review by the resource manager and C&P, subject to prosecution and seizure of the overage as a violation of their Conditions of Licence.

3.4. By-Catch

Vessels are permitted to harvest a maximum of 10 mt of chub and jack mackerel. Retention of mackerel is intended to reduce wastage of mackerel normally encountered when fishing for Pacific sardines and not to create a directed mackerel fishery. All mackerel retained must be recorded in the sardine harvest logbook and validated at dockside.

All other by-catch must be released immediately to the water in a manner that minimizes catch and release mortality. Harvesters do not have the authority to retain or dispose of incidental catch in any manner other than returning it to the sea immediately in the least harmful manner (including marine mammals). Failing to do so is a contravention of Section 33 of the Fishery (General) Regulations.

3.5. Sharing of Harvest

To minimize wastage and reduce mortality of Pacific sardines, licensed vessels will be permitted to share individual sets of harvest. A vessel that has commenced fishing may remove fish from the seine gear of another vessel engaged in fishing. Vessels that receive portions of a set must record this fishing activity in the Sardine Harvest Logbook including the location and vessel the fish came from. The receiving vessel is responsible

for transporting the fish to land for validation. Please see your conditions of licence for more details.

4. CATCH REPORTING AND MONITORING PROGRAM

D&D Pacific Fisheries Limited of Gibsons, B.C. (1-800-775-5505) has been selected by industry to provide the monitoring program for the 2011/2012 fishery. The service provider will provide details to DFO and licence holders on making monitoring arrangements for dockside and at-sea coverage.

The monitoring program will include four components:

1. A hail program
2. A logbook program
3. At-sea observer coverage
4. 100% dockside validation

4.1. Hail Program

4.1.1. Hail Out

When intending to leave port, the vessel master shall notify the designated representative at least 48 hours prior to commencement of any fishing activity and report the following:

- a) Vessel name.
- b) Name and Fisher Identification Number (FIN) of Vessel master.
- c) Name of licence holder.
- d) Vessel registration number.
- e) Date of departure.
- f) Sub area(s) to be fished.
- g) Anticipated landing date, landing location(s) and name of fish buying station(s).

4.1.2. Hail In

The vessel master shall notify the designated representative a minimum of 24 hours prior to arriving at the location where the fish is to be landed and report the following:

- a) Vessel name.
- b) Vessel master name.
- c) Vessel registration number.
- d) Anticipated time of landing, landing location(s) and name of fish buying station(s).
- e) Estimated round weight in kilograms of species taken.
- f) Sub area(s) fished.

4.2. Catch and Fishery Data

4.2.1. Logbook Program

The vessel master is responsible for completing the “Sardine Harvest Logbook” (an example is attached in Appendix 10), in full at the end of each day fished. This logbook requires detailed catch and effort information that is essential for stock assessment.

Vessel masters should reference the sardine harvest logbook instructions for more information. The white copy of the completed pages from the logbook will remain with the dockside observer, the yellow copy of the pages is to be delivered to the buyer and the pink copy remains in the log book and is to be kept by the vessel master onboard the vessel. If fish are to be trucked to a buyer, the yellow copy must accompany the load and be delivered to the buyer.

Within seven days of offloading, the completed pages must be mailed to the service provider. Logbooks can be obtained from the industry selected service provider, D&D Pacific Fisheries Limited.

4.2.2. Fish Slips

An accurate written report shall be furnished on a fish slip of all fish caught under a licence. Fish slips record vessel name, vessel registration number, vessel master name and tally man, landed weight (lbs.), method of dressing the catch, days fished by area, date landed, name of buying station/processor and price per pound on a fish slip for each landing. A report must be made even if the fish landed are used for bait, personal consumption or disposed of otherwise. The vessel master is responsible for submitting fish slips no later than seven days after landing. Slips must be mailed to:

Fisheries and Oceans Canada
Regional Data Unit
Suite 200 – 401 Burrard Street
Vancouver, BC V6C 3S4

This report must be made within seven days of the offloading regardless of whether or not the catch has been sold within that period.

Fish slip books may be purchased through most Departmental Offices. Phone (604) 666-2716 for more information.

4.3. At-Sea Observers

Under Section 46 of the *Fisheries Acts and Regulations*, the licence holder or master of a fishing vessel shall, at the request of the designated service provider under authority of

the Regional Director General, permit a DFO certified observer to go onboard that vessel to perform the designated duties for the period of time specified and arrange for embarkation or disembarkation of the observer at the times and places specified. The vessel master shall provide all reasonable assistance to the observer.

General: If identified by the service provider, arrangements must be made for embarkation of an observer before deployment of any gear from the licensed vessel. The vessel master shall provide the observer access to the vessel's fish holds for inspection. Observers will monitor fishing activities in adherence with Conditions of Licence, collect timely information on catch and effort levels by estimating weights of species caught and recording by-catch and condition of releases, estimate mortality, collect samples for biological purposes and record set information on location, date, time etc. Length frequency data will be collected. A 50 piece (minimum) frozen sample bucket must be taken from each trip (or subarea fished) within a seven day period. For example, if a vessel makes six trips within a three week period all fished in the same subarea, there should be three frozen sample buckets. The frozen sample buckets must remain frozen and be forwarded to DFO as soon as possible.

Harvesting activities for the 2011/2012 Pacific sardine fishery will be monitored to achieve:

1. 100% coverage by onboard certified observers in areas with the possibility of incidental catch of wild salmon populations of concern and new areas; and
2. Random at sea coverage of fishing activities in all other areas to achieve an overall coverage of approximately 25% by onboard certified observers (e.g. existing fishing areas with minimal concerns for incidental catch of sensitive salmon populations);
3. Additional coverage as needed.

4.3.1. Areas of increased coverage

Timely and accurate information on harvest and harvesting practices is essential to properly assess the status of fish stocks and to support resource management for the conservation and the long term sustainability of fish resources. To address all elements, an effective catch reporting system is required to assess the status of stocks.

As in previous years 100% at-sea observer coverage will occur in areas of concern for incidental catch of salmon (in particular Chinook) off the west coast of Vancouver Island (Areas within PFMAs 23 to 27) during the time period (July 15 – October 01).

Based on a request from industry to reduce at-sea observer coverage in areas of concern, sardine resource management and science are working to finalize an audit of logbook, dockside validation and at-sea observer reports. This analysis will support decisions for the 2012 monitoring program (including at-sea observer coverage),

which may see changes. DFO will provide information to industry as it becomes available so that harvesters can comment and provide additional on-grounds details.

DFO attempted to complete this analysis for the 2011 season however the preliminary analysis was inconclusive and additional work is required to review:

- differences in results based on gear type and excluder designs;
- timing of fishing activity; and
- incorporating additional historical data to ensure a base-line for comparison of future reports

Other considerations when determining the level of at-sea observer coverage are

- The need to manage to the total exploitation rate of salmon populations at risk in the WCVI;
- Ensuring DFO has the confidence in the data that conservation needs can still be met should a reduction of observer coverage be made in the future;
- Ongoing work to improve gear selectivity.

4.3.2. All other areas

Based on the results from a review of the monitoring program in 2009, a revised version will continue to be implemented on a pilot basis for the 2011/2012 season (as in 2010). The program has been modified to ensure sufficient information of sardine harvest activity is collected for conservation and management purposes and in consideration of the historic low levels of incidental catch and high compliance by participants in the sardine fishery.

For the 2011/2012 season, an initial pool of 65 observer days will be required to provide coverage for existing areas and to attain an approximate coverage of 25%. This level of coverage will be based on the number of fishing trips throughout the season, in consideration of the number of days of harvest per trip when one trip equals more than one day of harvest. **This pool of observer days will not be used for areas of concern (which require additional observer coverage) and will only be allocated in areas of low concern).** The designated service provider and the Department will cooperatively implement the at-sea observer program for the sardine fishery. This initial pool of observer coverage will be allocated in season, to attain adequate coverage throughout the fishing season and across the geographic area of harvest and will focus on the following:

- Beginning of the season (all new sardine vessel masters will be required to carry an on-board observer for their first trip);
- Harvest activity/methods, including incidental catch, disposal of all fish and sharing of harvest as per the conditions of licence;
- During salmon openings to monitor possible encounters and incidental catch outside of areas of 100% observer coverage;

- For monitoring of specific areas/periods of harvest based on in-season reports from the service provider, C&P or resource management.

65 observer days are anticipated to be sufficient to provide approximately 25% overall coverage of harvest activity in areas of low concern, based on the 2011/2012 TAC and previous fishing patterns. Depending on in-season needs additional coverage beyond 65 days may be required. Vessel masters will be required to carry an onboard observer upon request by either the service provider or the Department, should additional days be deemed necessary based on the following criteria:

- To ensure approximately 25% observer coverage of sardine harvest in areas of low concern;
- To ensure adequate coverage throughout the fishing season (dependant on length of season and intensity of fishing) and across the geographic area of harvest;
- To ensure adequate coverage of all sardine harvesters' activity/methods consistent with the conditions of a Pacific sardine licence; and
- To ensure sufficient monitoring of specific areas/periods of harvest based on in-season reports from the service provider, C&P or resource management.

All components of the monitoring program, including observer coverage (both the initial allocation/pool of observer days and additional observer coverage as needed in season), will be paid for by industry.

4.3.3. Area 24 and 27 Pilot Program

Specific to a portion of sub-area 24-2 and area 27 and for the 2011/2012 season, a pilot program will be implemented to allow for sardine fishing activity. For area 24-2 this includes the portion from Adventure Point seaward from the period September 15 to October 31 and in sub-areas 27-7, 27-8, 27- 10 and 27-11 from the period of August 1 to September 30, 2011 (sub-area 27-9 will remain closed during this period to protect marble river Chinook) with the following conditions:

In season activity will be assessed on a daily basis to ensure harvesting pressures do not impact sensitive salmon populations during this period. The service provider will provide daily notification of hail activity and fishing updates from at-sea observer reports to the sardine and area 24 and 27 resource managers and salmon stock assessment scientist.

In-season closures/restrictions may be implemented should the level of effort and/or incidental catch by sardine harvesters put sensitive salmon populations at risk. This pilot will be reviewed at the end of the 2011 season.

4.3.4. Proposal from Industry

At the April 29th Sardine Integrated Advisory Board (SIAB) meeting, a request from industry was discussed which included reduced at-sea observer coverage from 100% to 25% in portions of area 23 and 25 (in addition to the previous request for a general reduction in coverage to 25%). Licence issuance and a fishery opening for June 1 will proceed as planned while this request is under review. Should the request be reviewed and proposal accepted during the 2011/2012 fishery, a notice to industry will be issued and harvesters will be provided the opportunity to apply for updated conditions of licence.

4.3.5. Scouting and Multiple Day Trips

Scouting: vessels may search for Pacific sardines without an observer onboard provided the vessel master has hailed to indicate their intent to scout. As in previous years, vessels that hail out to scout for sardine are not permitted to engage in harvesting activity. Days at sea used for the purpose of scouting will not be included in the evaluation to achieve observer coverage.

Multiple Day Trips: vessel masters, whose harvesting trips last more than one day and who have an at sea observer present, are required to pay for any additional day(s) an observer is on-board. Only one day per trip will be taken from the initial pool of 65 observer days.

4.4. Landing of Catch

All Pacific sardines, chub and jack mackerel taken under authority of a licence must be transported to land by the designated catcher vessel named on the licence (unless sharing of catch as per the conditions of licence has occurred) at the following locations:

Bella Bella; Bellingham, USA; Campbell River; Coal Harbour; French Creek; Gold River; Kitasoo; Port Alberni; Port Angeles, USA; Port Hardy; Prince Rupert; Quadra Island; Tahsis; Tofino; Ucluelet; Vancouver; Westport, USA and Zeballos.

These landing locations have been agreed to between the industry associations and the service provider as locations for dockside validation under the monitoring program. It is the responsibility of fish harvesters to ensure that all necessary approvals have been received from US officials prior to landing in the United States.

4.5. Processing Catch

A designated catcher vessel may only process its own fish. Processing-at-sea of another vessel's harvest is not permitted.

4.6. Offloading

No offloading is to occur at sea. Vessels are not permitted to use packers. All fish must be brought to land by the vessel designated in the licence.

No offloading of any fish is to commence until the validator is on-site and approves offloading. A 100 % dockside validation program is in place for the 2011/2012 fishery.

The validator will inspect fish holds, lazarettes, bait holds, and other areas where fish might be stored. After offloading is completed, the observer will inspect the fish holds, and the above-mentioned areas, to ensure that all fish onboard have been offloaded. The validator will also be responsible for recording any by-catch to be submitted as catch data during the offloading process. It is the responsibility of the vessel owner or master to provide safe access to the vessel's holds for inspection, and to ensure that the vessel does not leave the offloading site prior to completion of the fish hold inspection by the validator.

All fish must be weighed on a scale approved by Industry Canada prior to subsequent harvest activity.

The validator will verify the weights of all fish onboard.

If the fish are to be transported from the location of offloading, the validator will issue one transit slip for each vehicle or vessel transporting fish offloaded from the vessel, after the validation process is completed.

If fish are to be sold by public sale, they must first be offloaded and validated by the observer. All fish harvesters selling fish to the public are required to have obtained, and have in their possession, a Fish Vending Licence, which is available from a provincial government agent.

Split Offloads

As in 2010, for the 2011/2012 season, vessels will be permitted to offload product from one trip at multiple locations on a pilot basis. To ensure that the quality of harvest data is not compromised, harvest activity will be permitted in between offloads only under certain circumstances which ensure that there is no mixing of fish. This will require that additional harvest after an initial offload must be put in a separate compartment. Please see your conditions of licence for more detail. This pilot will be evaluated during the post season review process based on:

- Compliance with conditions of licence and the dockside monitoring program;
- Catch and effort accountability;
- Data accuracy;
- Other criteria as needed.

All fish offloaded during the validation process will be deducted from the vessel's remaining IVQ. If the IVQ has been exceeded the dockside observer will complete an occurrence report to be forwarded to DFO.

Licence holders are advised to reference their Conditions of Licence for these requirements.

APPENDIX 6. CONTACTS

Observe, Record and Report (800) 465-4336

Fisheries and Oceans Canada, Fisheries Management

Regional Pelagics Manager Lisa Mijacika (604) 666-3637
Resource Management
Suite 200 - 401 Burrard Street
Vancouver, B.C. V6C 3S4

Sardine Resource Manager Jordan Mah (604) 666-2188
Resource Management Fax (604) 666-9136
Suite 200 - 401 Burrard Street
Vancouver, B.C. V6C 3S4

North Coast Area, Areas 1 to 10 General Inquiries (250) 627-3499
417 2nd Avenue West Fax (250) 627-3427
Prince Rupert, BC V8J 1G8
North Coast Resource Management David Einarson (250) 627-3455

South Coast Area, Areas 11 to 26 General Inquiries (250) 756-7270
3225 Stephenson Point Road Fax (250) 756-7162
Nanaimo, BC V9T 1K3
South Coast Resource Management Greg Thomas (250) 756-7103

Science Branch

Sardine Research Scientist Jake Schweigert (250) 756-7203

Recreational Fisheries

Recreational Fisheries Coordinator Devona Adams (604) 666-3271

Treaty and Aboriginal Policy Directorate

A/Manager - Aboriginal Fisheries Strategy Kent Spencer (604) 666-8385

Oceans and Habitat

Senior Policy Advisor Kelly Francis (250) 714-3789

Enforcement Officers Conservation and Protection

Conservation and Protection Supervisor Jim Robson (250) 720-4450

Licensing

Pacific Fishery Licence Unit (604) 666-0566
200 - 401 Burrard Street
Vancouver, B.C. V6C 3S4

Pacific Fishery Licence Unit (250) 627-3413
417 - 2nd Avenue West
Prince Rupert, B.C. V8J 1G8

Pacific Fishery Licence Unit (250) 754-0400
60 Front Street
Nanaimo, B.C. V9R 5H7

WorkSafe BC

Occupational Safety Officer, Victoria	Mike Ross	(250) 881-3419
Occupational Safety Officer, Terrace	Shane Neifer	(250) 615-6640
Focus Sector Manager/Fishing, Prince George	Bruce Clarke	(250) 612-3708

Fisheries and Oceans Canada Internet Sites

Sardine Consultation:

http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/sardine/default_e.htm

Fisheries and Oceans Canada-National:
www.dfo-mpo.gc.ca/index.htm

Pacific Region Sardine:
<http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/pelag/sardine/index-eng.htm>

Fisheries and Oceans Canada – Pacific Sardine Science:
http://www.pac.dfo-mpo.gc.ca/sci/herring/pages/sardine_e.htm

Fisheries and Oceans Canada – Pacific Licensing Homepage:
<http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.htm>

APPENDIX 7. SAFETY AT SEA

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with Transport Canada (TC); emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In B.C., WorkSafeBC also regulates health and safety issues in commercial fishing. This includes requirements to ensure the health and safety of the crew and safe operation of the vessel. DFO (Fisheries and Aquaculture Management (FAM) and CCG) and TC through an MOU have formalized cooperation to establish, maintain and promote a safety culture within the fishing industry.

Before leaving on a voyage the owner, master or operator must ensure that the fishing vessel is capable of safely making the passage. Critical factors for a safe voyage include the seaworthiness of the vessel, vessel stability, having the required safety equipment in good working order, crew training, and knowledge of current and forecasted weather conditions. As safety requirements and guidelines may change, the vessel owner, crew, and other workers must be aware of the latest legislation, policies and guidelines prior to each trip.

There are many useful tools available for ensuring a safe voyage. These include:

- Education and Training Programs
- Marine Emergency Duties
- Fish Safe Stability Education
- First Aid
- Radio Operators Course
- Fishing Masters Certificates
- Small Vessel Operators Certificate

Publications:

- Transport Canada Publication TP 10038 '*Small Fishing Vessel Safety Manual*' (can be obtained at Transport Canada Offices from their website at www.tc.gc.ca/MarineSafety/TP/TP10038/tp10038e.htm),
- Gearing Up for Safety – WorkSafeBC
- Safe At Sea DVD Series – Fish Safe
- Stability Handbook – Fish Safe and Measuring Stability –DVD

For further information see: <http://www.tc.gc.ca/marine/menu.htm>

Important Priorities for Vessel Safety

There are three areas of fishing vessel safety that should be considered a priority. These are: vessel stability, emergency drills, and cold water immersion.

Fishing Vessel Stability

Vessel stability is paramount for safety. Care must be given to the stowage and securing of all cargo, skiffs, equipment, fuel containers and supplies, and also to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability, loose water or fish on deck, loading and unloading operations and the vessel's freeboard. Know the limitations of your vessel; if you are unsure contact a reputable naval architect, marine surveyor or the local Transport Canada Marine Safety Office.

Fishing vessel owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. The instructions need to be based on a formal assessment of the vessel by a qualified naval architect and include detailed safe operation documentation kept on board the vessel. Examples of detailed documentation include engine room procedures, maintenance schedules to ensure watertight integrity, and instructions for regular practice of emergency drills.

Emergency Drill Requirements

The master must establish procedures and assign responsibilities to each crew member for emergencies such as crew member overboard, fire, flooding, abandoning ship and calling for help.

The Crewing Regulation under the *Canada Shipping Act (CSA)* states that as of July 30th 2002 all seafarers, including fish harvesters, must have a Basic Safety Certificate (MED A1 or A3 depending upon vessel and operating waters) within 6 months of becoming a crewmember, regardless of time at sea. The MED A1 is a three day course, and must be taken by all crew regardless of duty station.

MED provides a basic understanding of the hazards associated with the marine environment; the prevention of shipboard incidents; raising and reacting to alarms; fire and abandonment situations; and the skills necessary for survival and rescue.

Cold Water Immersion

Drowning is the number one cause of death in B.C.'s fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees. BC waters are usually below 15 degrees. The effects of cold water on the body occur in four stages: cold shock, swimming failure, hypothermia and post-rescue collapse. Know what to do to prevent you or your crew from falling into the water and what to do if that occurs. More information is available in the WorkSafe Bulletin *Cold Water Immersion* (available from the WorkSafe BC website).

Other Issues

Weather

Vessel owners and masters are reminded of the importance of paying close attention to current weather trends and forecasts during the voyage. Marine weather information and forecasts can be obtained on VHF channels 21B, Wx1, Wx2, Wx3, or Wx4. Weather information is also available from Environment Canada website at:

http://www.weatheroffice.gc.ca/marine/index_e.html

Emergency Radio Procedures

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). It is strongly recommended that all fish harvesters carry a registered 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons should be registered with the National Search and Rescue secretariat. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources.

Fish harvesters should monitor VHF channel 16 or MF 2182 Khz and make themselves and their crews familiar with other radio frequencies. All crew should know how to make a distress call and should obtain their restricted operator certificate from Industry Canada. However, whenever possible, masters should contact the nearest Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) station (on VHF channel 16 or MF 2182 kHz) prior to a distress situation developing. Correct radio procedures are important for communications in an emergency. Incorrect or misunderstood communications may hinder a rescue response.

Since August 1, 2003 all commercial vessels greater than 20 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Industry Canada site at: http://www.ic.gc.ca/eic/site/ic1.nsf/eng/h_00014.html

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on MCTS and DSC can be obtained by contacting a local Coast Guard MCTS centre (located in Vancouver, Victoria, Prince Rupert, Comox and Tofino) or from the Coast Guard website:

www.pacific.ccg-gcc.gc.ca

Collision Regulations

Fish harvesters must be knowledgeable of the *Collision Regulations* and the responsibilities between vessels where risk of collision exists. Navigation lights must be kept in good working order and must be displayed from sunset to sunrise and during all times of restricted visibility. To help reduce the potential for collision or close quarters situations which may also result in the loss of fishing gear, fish harvesters are encouraged to monitor the appropriate local Vessel Traffic Services (VTS) VHF channel, when travelling or fishing near shipping lanes or other areas frequented by large commercial vessels. Vessels required to participate in VTS include:

- a) every ship twenty metres or more in length,
- b) every ship engaged in towing or pushing any vessel or object, other than fishing gear,
- c) where the combined length of the ship and any vessel or object towed or pushed by the ship is forty five metres or more in length; or
- d) where the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length.

Exceptions include:

- a) a ship towing or pushing inside a log booming ground,
- b) a pleasure yacht *less than* 30 metres in length, and
- c) a fishing vessel that is *less than* 24 metres in length and not *more than* 150 tons gross.

More detailed information on VTS can be obtained by calling (604) 775-8862 or from Coast Guard website:

<http://www.ccg-gcc.gc.ca/e0003901>

Buddy System

Fish harvesters are encouraged to use the buddy system when transiting, and fishing as this allows for the ability to provide mutual aid. An important trip consideration is the use of a sail plan which includes the particulars of the vessel, crew and voyage. The sail plan should be left with a responsible person on shore or filed with the local MCTS. After leaving port the fish harvester should contact the holder of the sail plan daily or as per another schedule. The sail plan should ensure notification to JRCC when communication is not maintained which might indicate your vessel is in distress. Be sure to cancel the sail plan upon completion of the voyage.

WORKSAFE BC

Commercial fishing is legislated by the requirements for diving, fishing and other marine operations found in Part 24 of the Occupational Health and Safety Regulation (OHSR). Many general hazard sections of the OHSR also apply. For example, Part 8: Personal Protective Clothing and Equipment addresses issues related to safety headgear, safety foot wear and personal floatation devices. Part 15 addresses issues on rigging, Part 5 addresses issues of exposure to chemical and biological substances, and Part 3 addresses training of young and new workers, first aid, and accident investigation issues. Part 3 of the *Workers Compensation Act* (WCA) defines the roles and responsibilities of owners, employers, supervisors and workers. The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website:

www.worksafebc.com

For further information, contact an Occupational Safety Officer (Shane Neifer, Terrace, (250) 615-6640), Bruce Logan (604)244-6477 (Lower Mainland), David Clarabut (250) 881-7563 (Victoria), Pat Olsen (250)334-8777 and Mark Lunny, (250) 334-8732 (Courtney) or the Focus Sector Manager for fishing Mark Peebles, (604) 279-7563.

For information on projects related to commercial fishing contact Ellen Hanson (604) 233-4008 or Toll Free 1-888 621-7233 ext. 4008 or by email: Ellen.Hanson@worksafebc.com.

FISH SAFE

Fish Safe is coordinated by Gina Johansen and directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board). The advisory committee meets quarterly to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

Vessel masters and crew are encouraged to become more knowledgeable regarding vessel stability. FishSafe BC developed the Fish Safe Stability Education Course, which is available to all fish harvesters who want to improve their understanding of stability and find practical application to their vessel's operation.

Fish Safe also works closely with WorkSafeBC to improve the fishing claims process. For further information:

Gina Johansen, Safety Coordinator
Fish Safe
2-11771 Horseshoe Way

Phone: 604-261-9700
Email : fishsafe@telus.net
Website: www.fishsafebc.com

APPENDIX 8. Stream/River Mouth Closures (Area 23 – 27)

AREA 23

Nahmint River: That portion of 23-2 in Alberni Inlet westerly of a line beginning near the southern tip of Hook Bay on Vancouver Island at a point located at 49 04.202 North and 124 51.316 West, then drawn southerly to a point on the west side of Alberni Inlet on Vancouver Island located at 49 03.133 North and 124 51.795 West.

AREA 24

Kennedy River: That portion of 24-12 in Tofino Inlet easterly of a line beginning on Vancouver Island at a point located at 49 09.181 North and 125 40.825 West, then drawn southerly to a point on Vancouver Island located at 49 08.210 and North 125 41.407 West.

Tofino Creek: That portion of 24-12 in Tofino Inlet northerly of a line beginning on Vancouver Island at a point located at 49 13.393 North and 125 36.203 West, then drawn easterly to a point on Vancouver Island located at 49 13.349 and North 125 35.810 West.

Tranquil Creek: That portion of 24-12 in Tofino Inlet northerly of a line beginning on west side of Tranquil Inlet on Vancouver Island at a point located at 49 11.918 North and 125 40.678 West, then drawn easterly to a point on McCaw Peninsula on Vancouver Island located at 49 11.922 North and 125 40.025 West.

Bulson Creek: That portion of 24-10 in Warn Bay north-easterly of a line beginning on north side of Warn Bay on Vancouver Island at a point located at 49 15.410 North and 125 45.026 West, then drawn south-easterly to a point on south easterly side of Warn Bay on Vancouver Island located at 49 14.768 North and 125 44.213 West.

Bedwell River: That portion of 24-7 in Bedwell Sound Inlet northerly of a line beginning on the west side of Bedwell sound on Vancouver Island at a point located at 49 19.976 North and 125 48.540 West, then drawn easterly to a point on Bare Bluff on the east side of Vancouver Island located at 49 19.968 North and 125 48.022 West.

Cypre Creek: That portion of 24-7 in Cypress Bay northerly of a line beginning on Vancouver Island at a point located at 49 15.461 North and 125 55.673 West, then drawn north-easterly to a point southerly of the entrance to Quait Bay on Vancouver Island located at 49 16.167 North and 125 51.584 West.

Moyeha Creek: That portion of 24-5 in Herbert Inlet north-easterly of a line beginning on the west side of Herbert Inlet on Vancouver Island at a point located at 49 23.250 North and 125 56.969 West, then drawn easterly to a point on the east side of Herbert inlet on Vancouver Island located at 49 23.217 North and 125 55.896 West.

Atleo River: That portion of 24-14 in Millar Channel within a 0.5 nautical mile radius of a point located at 49 22.137 North and 126 03.772 West near the Atleo River mouth.

Megin River: That portion of 24-13 in Shelter Inlet within a 0.5 nautical mile radius of a point located at 49 26.031 North and 126 05.240 West near the Megin River mouth.

Watta Creek: That portion of 24-13 in Shelter Inlet north- easterly of a line beginning on Vancouver Island at a point located at 49 26.683 North and 126 02.976 West, then drawn south- easterly to a point on Vancouver Island located at 49 26.483 North and 126 02.393 West.

Sydney River: That portion of 24-2 in Sydney Inlet northerly of a line beginning on the west side of Sydney Inlet on Vancouver Island at a point located at 49 29.891 North and 126 17.745 West, then drawn north- easterly to a point on east side of Sydney inlet on Vancouver Island located at 49 30.032 North and 126 17.235 West.

AREA 25

Gold River: That portion of 25-1 in Muchalat Inlet within a 0.5 nautical mile radius of a point located at 49 40.693 North and 126 06.882 West near the Gold River mouth.

Burman River: That portion of 25-1 in Muchalat Inlet south easterly of a line in Matchlee Bay, beginning on the south west side of Matchlee Bay on Vancouver Island at a point located at 49 37.293 North and 126 03.895 West, then drawn North- easterly to a point on northeast side of Matchlee Bay on Vancouver Island located at 49 37.653 North and 126 03.130 West.

Tsowwin River: That portion of 25-8 in Tahsis Inlet bounded on the north by a line beginning on the west side of the inlet on Vancouver Island at a point located at 49 47.034 North and 126 39.290 West then drawn north- easterly to a point located at 49 47.265 North and 126 38.508 west on the eastside of Tahsis Inlet on Vancouver Island,

And,

bounded on the south by a line beginning on the west side of the inlet on Vancouver Island at a point located at 49 46.132 North and 126 38.599 West then drawn north- easterly to a point located at 49 46.324 North and 49 46.324 West on the eastside of Tahsis Inlet on Vancouver Island.

Tahsis – Leiner River: That portion of 25-16 in Tahsis Inlet northerly of a line beginning on the west side of Tahsis Inlet on Vancouver Island at a point located at 49 53.823 North and 126 40.157 West, then drawn easterly to a point on the east side of Tahsis Inlet on Vancouver Island located at 49 53.812 North and 126 38.925 West.

Little Zeballos River: That portion of 25-10 in Zeballos Inlet bounded on the west by a line beginning on the north side of the Zeballos inlet on Vancouver Island at a point located at 49 57.384 North and 126 49.741 West drawn southerly to a point located at 49 56.872 North and 126 49.944 West on the south side of Zeballos Inlet on Vancouver Island , And, bounded on the east by a line beginning on the southwest side of the Zeballos inlet on Vancouver Island at a point located at 49 56.460 North and 126 49.061 West then drawn north- easterly to a point located at 49 56.976 North and 126 48.136 West on the northeast side of Zeballos Inlet on Vancouver Island.

Zeballos River: That portion of 25-10 in Zeballos Inlet northerly of a line beginning on the west side of Zeballos Inlet on Vancouver Island at a point located at 49 58.341 North and 126 51.474 West, then drawn easterly to a point on the east side of Zeballos Inlet on Vancouver Island located at 49 58.333 North and 126 50.589 West.

Espinosa Creek: That portion of 25-11 in Espinosa Inlet northerly of a line beginning on the west side of Espinosa Inlet on Vancouver Island at a point located at 49 58.527 North and 126 56.652 West, then drawn easterly to a point on the east side of Espinosa Inlet on Vancouver Island located at 49 58.611 North and 126 55.630 West.

Eliza Creek: That portion of 25-12 in Port Eliza Inlet northerly of a line beginning on the west side of Port Eliza Inlet on Vancouver Island at a point located at 49 55.834 North and 127 02.738 West, then drawn easterly to a point on the east side of Port Eliza Inlet on Vancouver Island located at 49 55.904 North and 127 02.298 West.

AREA 26

Kaouk River: That portion of 26-3 in Fair Harbour easterly of a line beginning on the north side of Fair Harbour on Vancouver Island beginning at a point located at 50 04.175 North and 127 08.613 West then drawn southerly to a point on the south side of Fair Harbour on Vancouver Island located at 50 03.748 North and 127 08.698 West.

Tahsish and Artlish Rivers: That portion of 26-4 in Tahsish Inlet North --easterly of a line beginning on the north side of Tahsish Inlet on Vancouver Island beginning at a point located at 50 07.048 North and 127 06.607 West then drawn south-easterly to a point on the south side of Tahsish Inlet on Vancouver Island located at 50 06.138 North and 127 06.103 West.

Malksope River: That portion of 26-8 in Malksope Inlet North easterly of a line beginning on the north side of Malksope Inlet on Vancouver Island beginning at a point located at 50 08.081 North and 127 26.643 West then drawn south-easterly to a point on the south side of Malksope Inlet on Vancouver Island located at 50 07.525 North and 127 26.511 West.

Ououkinsh River: That portion of 26-9 Ououkinsh Inlet east- of a line beginning on the north side of Ououkinsh Inlet on Vancouver Island beginning at a point located at 50 11.200 North and 127 27.325 West then drawn southerly to a point on the south side of Ououkinsh Inlet on Vancouver Island located at 50 10.704 North and 127 27.227 West.

AREA 27

Goodspeed River mouth in upper Holberg Inlet: The portion of Subarea 27-11, closed inside or west of a line from an Unnamed Point at 50 degrees 38.930 minutes north by 127 degrees 59.315 minutes west south to an Unnamed Point at 50 degrees 38.367 minutes north 127 degrees 59.483 minute west (Goodspeed River Boundary).

Quatsino Narrows: All of Subarea 27-9 closed

Coal Harbour - mouth to Stephens Creek: The portion of Subarea 27-11, closed inside or north of a line from Stewart Point at 50 degrees 35.481 minutes by 127 degrees 34.764 minutes west to the northwest to an Unnamed Point at 50 degrees 35.769 minutes north by 127 degrees 35.079 minutes west (Coal Harbour Boundary).

Waukwass Creek and Washlawis Creek mouths in Ruperts Inlet: The portion of Subarea 27-10, closed inside or west of a line from an Unnamed Point at 50 degrees 35.674 minutes north by 127 degrees 26.473 minutes west south to an Unnamed Point at 50 degrees 34.769 minutes north by 127 degrees 26.468 minutes west (Waukwaas and Washlawis Creek mouth boundary).

Colonial/Cayegle River mouth in Neroutous Inlet: The portion of Subarea 27-8, closed inside or south of a line from an Unnamed Point at 50 degrees 21.203 minutes north by 127 degrees 26.950 minutes west east to an Unnamed Point at 50 degrees 21.222 minutes north by 127 degrees 26.308 minutes west (Colonial and Cayegle River mouths Boundary).

Koprino River mouth: The portion of Subarea 27-7, closed inside or north of a line from an Unnamed Point at 50 degrees 29.449 minutes north by 127 degrees 52.442 minutes west east to Prideaux Point at 50 degrees 29.417 minutes north by 127 degrees 29.660 minutes west (Koprino Harbour Boundary).

Mahatta River mouth: The portion of Subarea 27-7 within 0.5 nautical miles from an Unnamed Point at the mouth of the Mahatta River at 50 degrees 27.510 minutes north 127 degrees 51.879 minutes west (0.5 NM Mahatta River Boundary).

Klootchlimmis Creek: No fishing inside a portion of Subarea 27-7 bounded by an Unnamed Point 0.5 nautical miles west of the Klootchlimmis Creek mouth at 50 degrees 29.278 minutes north by 127 degrees 40.579 minutes west northwest to an point 0.5 nautical miles seaward at 50 degrees 29.771 minutes north by 127 degrees 40.498 minutes west thence northeast to a seaward point at 50 degrees 29.733 minutes north by 127 degrees 39.152 minutes west shoreward 0.5 nautical miles south to an Unnamed Point at 50 degrees 29.224 minutes north by 127 degrees 39.174 minutes west (Klootchlimmis Creek Boundary).

Varney Bay – Marble River mouth: The portion of Subarea 27-10 in Varney Bay from the Marble River tidal boundary downstream to the fishing boundary signs at the entrance of Varney Bay.”

APPENDIX 9. Sardine Integrated Advisory Board Representatives

Advisors Name	Representation	Contact
Larry Johnson	Communal Commercial	larry.johnson@huuavaht.org
Charlie Cootes	Communal Commercial	chiefcouncillor@uchuck.ca
Roy Alexander	Communal Commercial	bcseafood@hotmail.com
George Williams	Communal Commercial	gwilliams@ditidaht.ca
David Schmidt	Communal Commercial	daves@gfnec.ca
Bill Wilson	Commercial	bwilson@dcnet.com
Mitch Ponak	Commercial	kanopfish@shaw.ca
John Lenic	Commercial	jalenic@telus.net
Brent Melan	Commercial	melbro@shaw.ca
Bill Bird	Commercial	quadrabirds@gmail.com
Chris Wick	Processor/Buyer	chris@ndseafoods.com
Terry Keuber	Processor/Buyer	scarlet@cablerocket.com
Mickey Flanagan	Processor/Buyer	mickey@kelticseafoods.com
Chris Bos	Sport Fish Advisory Board	c.bos@shaw.ca
Scott Wallace	Marine Conservation Council	Swallace@davidsuzuki.ca
Dennis Chalmers	Ministry of Agriculture	dennis.chalmers@gov.bc.ca

Appendix 10: Sample Logbook Page

HAIL VERIFICATION #: Call: 1-800-776-5406

HARVEST LOG ID #:

SARDINE HARVEST LOGBOOK

Revision Date: May 2009

Section A

VESSEL INFORMATION (to be completed by Vessel Master)

VESSEL NAME: _____

VESSEL MASTER: _____

VRN: _____

VESSEL MASTER FIN: _____
(Fisher Identification Number)

ZS / ZSF TAB #: _____

BUYER NAME: _____

OTHER LOG ID #: _____

DAYS FISHED: _____

SPLIT LOAD: YES / NO

Section B

HARVEST INFORMATION (to be completed by Vessel Master)

ADDITIONAL SETS CAN BE MADE ON THE NEXT HARVEST LOG PAGE

SET #	SET DATE (July 2307)	SET TIME (24 hr clock)	STAT. AREA	SUS AREA	HARVEST LOCATION (name of nearest landmark)	LATITUDE	LONGITUDE	EST. CATCH (metric tonne)	EST. RETAINED (metric tonne)	EST. SHARED (metric tonne)	SHARED VESSEL LOG ID #	EST. MORT. (metric tonne)	SEX METHOD TEMP. (0-12 3-2) (Celsius)
1													
2													
3													
4													
5													

Section C

BY-CATCH INFORMATION (to be completed by Vessel Master)

SET #	SPECIES NAME	SPECIES CODE	# of PIECES	EST. WT. PIECE (Metric - kg)	EST. TOTAL WT. (Metric - kg)	RETAINED (circle one)	CONDITION (circle one)	ESTIMATE METHOD (circle one)
						YES NO	GOOD POOR DEAD	1 2 3
						YES NO	GOOD POOR DEAD	1 2 3
						YES NO	GOOD POOR DEAD	1 2 3
						YES NO	GOOD POOR DEAD	1 2 3
						YES NO	GOOD POOR DEAD	1 2 3

Section D

Observer Information (to be completed by Observers)

AT SEA OBSERVER NAME: _____

DOCKSIDE OBSERVER NAME: _____

OFFLOAD FACILITY: _____

SIT. REP. #

LENGTH SAMPLE	YES	NO	SET #	1	2	3	4	5
BUCKET SAMPLE & LOCATION STORED	YES	NO						

Section E

MACKEREL LANDING INFORMATION

NET WEIGHT (lb.)	CONVERSION FACTOR	P.R.Q. (kg)	NET DOCK WT. (kg)	N.R.Q. (kg)	# TOTES
	X 0.4535 =				

Section F

SARDINE LANDING INFORMATION

NET WEIGHT (pounds)	CONVERSION FACTOR	PREVIOUS R.Q. (kg)	NET DOCK WT. (kilograms)	NEW R.Q. (kg)	# TOTES
	X 0.4536 =				

FISHER & OBSERVER COMMENTS

AT SEA OBSERVER NAME: _____

DOCKSIDE OBSERVER NAME: _____

OFFLOAD FACILITY: _____

Fisheries and Oceans
Canada

Pêches et Océans
Canada

D&D Pacific Fisheries Limited