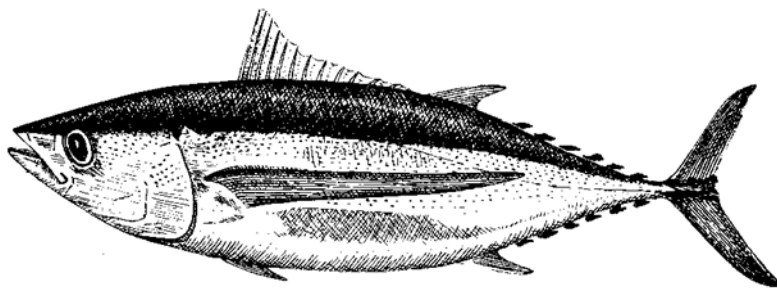


PACIFIC REGION

INTEGRATED FISHERIES MANAGEMENT PLAN

April 1, 2019 – March 31, 2020

ALBACORE TUNA



Albacore Tuna (*Thunnus alalunga*)

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INDEX OF WEB-BASED INFORMATION

FISHERIES AND OCEANS CANADA – GENERAL INFORMATION

MAIN PAGE: <http://www.dfo-mpo.gc.ca>

Our Vision, Latest News, Current Topics

TWITTER: DFO Pacific: [@DFO_Pacific](https://twitter.com/DFO_Pacific) / En Français: [@MPO_Pacifique](https://twitter.com/MPO_Pacifique)

ACTS, ORDERS, AND REGULATIONS: <http://www.dfo-mpo.gc.ca/acts-loi-eng.htm>

Canada Shipping Act, Coastal Fisheries Protection Act, Department of Fisheries and Oceans Act, Financial Administration Act, Fish Inspection Act, Fisheries Act, Fisheries Development Act, Fishing and Recreational Harbours Act, Freshwater Fish Marketing Act, Navigation Protection Act, Oceans Act

REPORTS AND PUBLICATIONS: <http://www.dfo-mpo.gc.ca/reports-rapports-eng.htm>

Administration and Enforcement of the Fish Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*, Audit and Evaluation Reports - Audit and Evaluation Directorate Canadian Code of Conduct for Responsible Fishing Operations, Departmental Performance Reports, Fisheries Research Documents, Standing Committee's Reports and Government responses, Sustainable Development Strategy.

LIBRARY CATALOGUE: <https://science-libraries.canada.ca/eng/fisheries-oceans/>

Fisheries and Oceans Canada online library catalogue

PACIFIC REGION – GENERAL

MAIN PAGE: <http://www.pac.dfo-mpo.gc.ca/index-eng.html>

General information, Area information, Latest news, Current topics

POLICIES, REPORTS AND PROGRAMS: <http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/pol/index-eng.html>

Reports and Discussion Papers, New Directions Policy Series, Agreements

OCEANS PROGRAM: <http://www.pac.dfo-mpo.gc.ca/oceans/index-eng.html>

Integrated Coastal Management, Marine Protected Areas, Marine Environmental Quality; Oceans Outreach, Oceans Act

PACIFIC REGION – FISHERIES MANAGEMENT

MAIN PAGE: <http://www.dfo-mpo.gc.ca/fm-gp/index-eng.htm>

Commercial Fisheries, New and Emerging Fisheries, Recreational Fisheries, Maps, Notices and Plans

ABORIGINAL FISHERIES STRATEGY: <http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html> or <http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/index-eng.htm>

Aboriginal Fisheries Strategy (AFS) principles and objectives, AFS agreements, Programs, Treaty Negotiations

AQUACULTURE MANAGEMENT: <http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html>

The new federal regulatory program for aquaculture in British Columbia, Program overview and administration, public reporting, and aquaculture science

RECREATIONAL FISHERIES: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.htm>

Fishery Regulations and Notices, Fishing Information, Recreational Fishery, Policy and Management, Contacts, Current BC Tidal Waters Sport Fishing Guide and Freshwater Supplement, Rockfish Conservation Areas, Shellfish Contamination Closures, On-line Licencing

COMMERCIAL FISHERIES: <http://www.dfo-mpo.gc.ca/fisheries-peches/pac-yukon-eng.html>

Links to Groundfish, Herring, Salmon, Shellfish and New and Emerging Fisheries homepages; Selective Fishing, Test Fishing Information, Fishing Areas, Canadian Tide Tables, Summary

Fishery Management Plans, Commercial Fishery Notices (openings and closures). Full Management Plans can be found at the Library website (above).

FISHERIES NOTICES: <http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?>

Want to receive fishery notices by e-mail? If you are a recreational sport fisher, processor, multiple boat owner or re-distribute fishery notices, register your name and/or company at the web-site address above. Openings and closures, updates, and other relevant information regarding your chosen fishery are sent directly to your registered email. It's quick, it's easy and it's free.

LICENCING: <http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.html>

Contact information; Recreational Licencing Information, Commercial Licence Types, Commercial Licence Areas, Licence Listings, Vessel Information, Vessel Directory, Licence Statistics and Application Forms

PACIFIC REGION – POLICY AND COMMUNICATIONS

MAIN PAGE: <http://www.dfo-mpo.gc.ca/media/index-eng.htm>

Media Releases; Salmon Updates, Backgrounders, Ministers Statements, Publications; Contacts

CONSULTATION SECRETARIAT: <http://www.pac.dfo-mpo.gc.ca/consultation/index-eng.html>

Consultation Calendar, Policies, National, Partnerships, Fisheries Management, Oceans, Science and Habitat and Enhancement Consultations, Current and Concluded Consultations

PUBLICATIONS CATALOGUE: <http://www.pac.dfo-mpo.gc.ca/publications/index-eng.html>

Information booklets and fact sheets available through Communications branch

SPECIES AT RISK ACT (SARA): <http://www.dfo-mpo.gc.ca/species-especies/index-eng.htm>

SARA species, SARA permits, Public Registry, Enforcement, Stewardship Projects, Consultation, Past Consultation, Indigenous people, Related Sites, For Kids, News Releases

PACIFIC REGION – SCIENCE

MAIN PAGE: <http://www.pac.dfo-mpo.gc.ca/science/index-eng.html>

Science Divisions, Research Facilities, PSARC, International Research Initiatives

GLOSSARY AND LIST OF ACRONYMS

| | |
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| 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. |
| ALBWG | The Albacore Working Group of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. |
| Area and Subarea | Defined in Section 2 of the Pacific Fishery Management Area Regulations. A map of Pacific Fishery Management Areas is available at: http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm |
| Biomass | Total weight of all individuals in a stock or a population. |
| Bycatch | The unintentional catch of one species when the target is another. |
| Canadian Science Advice – Pacific (CSAP) | Formerly named PSARC, CSAP is the Pacific Regional body responsible for review and evaluation of scientific information on the status of living aquatic resources, their ecosystems, and on biological aspects of stock management. |
| Canadian Science Advisory Secretariat (CSAS) | Coordinates the peer review of scientific issues for DFO. |
| 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. |
| CPUE | Catch Per Unit Effort. |
| Designated service provider | A private sector company authorized by the Department to collect and collate information for the purpose of assisting vessel masters in meeting their conditions of licence with regards to reporting of information. |
| DFO | Department of Fisheries and Oceans (Canada). |

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| Ecologically and Biologically Significant Area (EBSA) | 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. |
| Encounter | An interaction between a marine mammal or sea bird and fishing gear. Encounters are described as a system breach, accidental drowning, or entanglement and must be reported as soon as an encounter is discovered to the DFO Reporting Hotline (1-800-465-4336). |
| Entanglement | An entanglement occurs when a marine mammal or sea bird is caught, ensnared in fishing gear or the infrastructure (nets) of an enclosure which results in drowning. |
| Exclusive Economic Zone (EEZ) | The area generally extending 200 nautical miles from shore, within which the coastal state has the right to explore and exploit, and the responsibility to conserve and manage, both living and non-living resources. |
| Fishing Effort (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 Indigenous groups for food, social and ceremonial purposes. |
| Inter-American Tropical Tuna Commission (IATTC) | The regional fisheries management organization which seeks to ensure the long-term conservation and sustainable use of tuna and tuna-like species and other species of fish taken by vessels fishing for tunas and tuna like species in the Eastern Pacific Ocean. |

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| Indigenous Traditional Knowledge (ITK) | Knowledge that is held by, and unique to Indigenous 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 Indigenous knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines. |
| Interaction | Incidental mortality and serious injury (usually refers to marine mammals). This includes entanglements and collisions. |
| ISC | The International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. |
| Landed Value | Value of the product when landed by the licensed vessel. |
| Landing | The part of the catch that is put ashore. Harvested animals transferred from a vessel to land. |
| Large Ocean Management Area (LOMA) | 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. |
| lb | Imperial pound(s), which is equal to 0.45359237 kg. |
| Management Procedure | Repeatable processes for providing fisheries management advice. Comprised of assessment data, a particular assessment model, and harvest control rule |
| Management Strategy Evaluation (MSE) | The systematic determination of the expected performance of a fishery management system against a set of specified objectives. Allows for longer term decision making with management procedures and objectives that can be tested through simulations. |
| 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. |

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| National Online Licensing System (NOLS) | The online licensing system that allows harvesters to complete licensing transactions with the Department over the Internet. This includes renewal of licences, payment of fees and printing of licence and licence conditions. |
| Operational Control Point | A biomass point that indicates a catch level or harvest rate change |
| Pacific Fishery Licensing Unit (PFLU) | DFO unit that processes and issues fishery licence applications through the NOLS. For more information on the PFLU, please visit: http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.htm |
| Population | Group of individuals of the same species, forming a breeding unit, and sharing a habitat. |
| Precautionary Approach | In Fisheries Management, the principle of being cautious when scientific knowledge is uncertain, and not using the absence of adequate scientific information as a reason to postpone action or failure to take action to avoid serious harm to fish stocks or their ecosystem. |
| 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. |
| RFMO | Regional Fisheries Management Organization (international). |
| 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. |

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| 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 Assessment | 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. |
| Stock Assessment Area | Stock assessment groupings used since 1993 by the PSARC to monitor, assess, forecast and harvest herring. |
| Substrate | The ground (often the ocean bottom) and its composition, in or on which animals live. |
| Sub tidal | A portion of the bottom of the ocean that is not exposed at low tide stages. The ocean bottom at elevations below low water or chart datum. |
| Tonne | Metric tonne, which is 1000kg or 2204.6 lb. |
| Total Allowable Catch (TAC) | 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. |

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| Western and Central Pacific Fisheries Commission (WCPFC) | The regional fisheries management organization which seeks to ensure the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1982 United Nations Convention on the Law of the Sea and the 1995 UN Fish Stocks Agreement. |
| Year-class | Individuals of a same stock born in a particular year. Also called "cohort". |

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Albacore Tuna 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 Fisheries and Oceans Canada (DFO, the Department) 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.

I OVERVIEW

I.1 Introduction

This Integrated Fisheries Management Plan (IFMP) for Pacific Albacore Tuna covers the period from April 1, 2019 to March 31, 2020.

This IFMP provides a broad context to the management of the Pacific Albacore Tuna fishery and the interrelationships of all fishing sectors involved in this fishery. Section 2 considers stock assessment, science and traditional knowledge, while Sections 3 and 4 consider the social, cultural, and economic values and performance of the fishery, as well as broader management issues. Section 5 describes oceans and ecological considerations relevant to the fishery. Section 6 outlines objectives for the management of the fishery. Sections 7 to 9 describe allocation and management procedures. Finally, Section 10 outlines how the performance of the fishery will be evaluated with regards to the objectives described in Section 5.

The appendices provided with the IFMP include the sector-specific fishing plans and additional information that may be updated annually.

I.2 Changes from the Previous IFMP

The present document contains many updates to information presented in the previous IFMP for Pacific Albacore Tuna. A number of changes that relate directly to the operation of the fishery are highlighted briefly here. More information can be found in Appendices 6-8 and in conditions of licence.

Single-year IFMP

The previous IFMP for Pacific Albacore Tuna covered the two-year period from April 1, 2017 until March 31, 2019. The present IFMP covers a single-year, from April 1, 2019 to March 31, 2020. This change from a two-year to a single-year IFMP is intended to ensure that each IFMP contains the most up to date information possible for the fishery.

Introduction of a Commercial Fishing Plan for USA Vessels

The present IFMP includes a separate commercial fishing plan for USA-flagged vessels operating in Canadian waters (Appendix 7). This change is intended to make it easier for operators of USA vessels to find and interpret the information provided.

Canadian EEZ Tuna Fishing Licence for USA Vessels

Beginning in 2018, all USA-flagged tuna vessels are required to have a Canadian EEZ Tuna Fishing Licence prior to commencing fishing in Canadian waters. This licence is in addition to the Port Access licence required in previous years. There is no fee for this licence and applications are submitted using the same form and procedures as the Port Access licence.

Longline Gear No Longer Permitted under CT Licences

Beginning in 2019, harvesters fishing under the authority of a CT licence will be not permitted to use longline gear. This change is intended to improve certainty regarding environmental impacts of the fishery and reduce international monitoring and reporting requirements. Recent practice in Canada's Pacific Albacore Tuna fishery has not included the use of longline gear; as such this restriction is not expected to have any impact on fishing operations.

Changes to Hail Reporting Requirements

From the start of the 2019 season, hail-in reports will be required if a vessel operator has ceased tuna fishing operations for a period greater than 7 days. Additionally, change of zone reports will be required when crossing into a new zone for a period greater than 48 hours, regardless of the intended purpose of entering the new zone. These changes are intended to provide DFO with better in-season information regarding vessel locations and participation in the fishery.

Registration with the Inter-American Tropical Tuna Association (IATTC)

Beginning in 2019, all Canadian vessels fishing for Pacific Albacore Tuna must be registered with the Inter-American Tropical Tuna Association (IATTC). This requirement previously applied to all vessels fishing for Pacific south of 50° N (the approximate latitude of Zeballos or Campbell River, BC); therefore, most active vessels should already be registered. Additionally, all vessels over 12 metres must have an International Maritime Organization number included with their IATTC registration no later than December 31, 2019.

Fishing in the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area

Beginning in 2019, CT and Section 68 High Seas licences will not authorize tuna harvest in the WCPFC Convention Area (generally west of 150° W) unless licence holders request amended Conditions of Licence. This change is intended to better ensure compliance with various requirements specific to the WCPFC, including vessel registration and authorized monitoring.

Fishery Monitoring and Catch Reporting Risk Assessment for Pacific Albacore Tuna

The Department has drafted a risk assessment which assesses monitoring levels required for the Albacore Tuna commercial and recreational fisheries. A summary of the draft risk assessment is

included in Appendix 12. Comments on the findings from all resource users are now welcome and the full risk assessment is available on request (contact Bradley.Langman@dfo-mpo.gc.ca).

1.3 Background

The Pacific Canadian tuna fishery is focused on highly migratory Albacore Tuna (*Thunnus alalunga*). Harvest of Pacific albacore is conducted with hook and line (jig) gear. Net gear is not permitted. Harvesters typically troll for tuna with artificial lures towed on or just below the surface of the water behind vessels travelling at approximately 6 knots. Recent practice in the fishery has not included the use of longline gear and, beginning in the 2019 season, longline gear will be removed from the list of authorized gear for Albacore Tuna in the Canadian EEZ.

Canadian harvesters have been fishing albacore since the late 1930's in the North Pacific and since the 1980's in the South Pacific (Ware and Yamanaka 1991, Shaw and Argue 2000). The Canadian fishery started in the coastal waters off British Columbia (B.C.) and has developed into a fishery with two fleet types: smaller vessels fishing coastal B.C. and USA waters and larger vessels fishing on the high seas of the North and South Pacific Ocean. The coastal fishery occurs from June through October each year when albacore are abundant in coastal waters. The South Pacific fishery occurs from December through March (Argue et al. 1999). Catches of North Pacific albacore by the Canadian troll fishery have ranged from a low of 2,166 tonnes in 1997 to a high of 7,857 tonnes in 2004, with an average annual catch of 4,836 tonnes from 1996 to 2016.

For more recent catch and effort information, please see the post-season review in Appendix 1.

1.4 Type of Fishery and Participants

Indigenous People of British Columbia

In the 1990 Sparrow decision, the Supreme Court of Canada found that where an Aboriginal group has an Aboriginal right to fish for food, social and ceremonial (FSC) purposes, it takes priority, after conservation, over other uses of the resource. Fisheries are authorized via a Communal Licence issued by the Department under the *Aboriginal Communal Fishing Licences Regulations*.

In addition to fishing opportunities for FSC purposes and domestic purposes for treaty rights for the Maa-nulth First Nation (as of April 1, 2011) and the Tla'amin First Nation (as of April 5, 2016), DFO acknowledges that in *Ahousaht Indian Band et al. v. Canada and British Columbia*, the courts have found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island—Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-

ah—have aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck. DFO is working with the First Nations to find the manner in which the rights of the five First Nations can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery. The outcome of these discussions could lead to in-season management changes. DFO will make every effort to advise stakeholders of any such changes in advance of changes being implemented.

First Nations are permitted to harvest fish for food, social and ceremonial (FSC) purposes coast wide where authorized by a communal licence. There is no known FSC fishing for tuna species in the Pacific Region. For more information about communal licences, please visit:

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

Recreational

Recreational tuna fishing is permitted coast wide, subject to specific area closures. 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 are available online at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.htm>. Data on the recreational tuna fishery are incomplete but the total catch is assumed to be very limited

Commercial

Canadian vessels may fish for tuna species on the high seas under the authority of either a CT or a Section 68 (high seas only) licence. Commercial tuna fishing in Canadian EEZ occurs either under the authority of a vessel-based Category CT licence for Canadian vessels or under the authority of a EEZ Pacific Albacore Tuna Fishing Licence for U.S. Vessels. Since 2013, 45 Canadian vessels each year have been eligible for a USA68 licence which permits fishing for Albacore Tuna in the USA EEZ. Approximately 160-180 Canadian vessels harvest Pacific albacore annually.

1.5 Location and timing of Fishery

Harvest of Pacific Albacore Tuna occurs in open waters, generally a significant distance from shore. The majority of the reported Canadian catch since 2007 has occurred along the North American coast and adjacent waters outside the Exclusive Economic Zones (EEZs). Some larger vessels in the Canadian fleet harvest further into the high seas and occasionally into the Western Pacific Ocean. Between 1996 and 2007 a small number of Canadian vessels fished in the South Pacific Ocean and reported catches ranging from 38 to 313 tonnes of South Pacific albacore; however; there has been no reported Canadian activity or catch in the South Pacific Ocean since 2007. In general, Canadian effort in far offshore areas gradually dwindled in the

late 1990s and early 2000s; since 2007 Canadian vessels have rarely fished west of 150°W latitude.

In Canadian waters, the fishery primarily takes place from July to September, but can start earlier and run later depending on the migration of Albacore Tuna and the oceanic conditions that support this. Canadian vessels are only permitted to harvest tuna in the USA EEZ from June 15 to September 15 each year. There is no defined season for tuna harvest on the high seas.

I.6 Fishery Characteristics

Indigenous People of British Columbia

Tuna fishing for Food, Social, and Ceremonial (FSC) purposes is permitted; however, there have not been any First Nations requests for FSC tuna fishing access.

Recreational

Recreational tuna fishing is permitted coast wide. Sport fishing for Albacore Tuna is known to occur off the west coast of Vancouver Island in late summer each year.

Commercial

Canadian vessels harvesting tuna commercially in the Canadian and USA EEZs are generally between 10m and 19m in length; USA-flagged vessels harvesting in the Canadian EEZ, and Canadian vessels harvesting in the high seas are somewhat larger on average.

The Canadian high seas fleet typically have crews of typically two to four people, can remain at sea for several weeks or months and are equipped with larger freezers than smaller, coastal vessels.

Fishing activity is dependent on price, ocean and weather conditions, fuel prices, and availability of Albacore Tuna. Fishing effort is influenced by the dynamics of other commercial fisheries, particularly the salmon fishery, as fishery participants also may participate in other fisheries. Effort in the Canadian coastal fishery normally peaks in August and September, after the salmon troll season.

Catch from Canadian vessels is primarily sold into the high-quality frozen tuna market. Harvesters bring fish aboard live, after which it is quickly bled and then frozen at sea in blast freezers. Catch is landed frozen and purchased for distribution to domestic and international consumption as sashimi and other premium-grade products.

Specific information for commercial fisheries is provided in Appendices 7-10.

1.7 Governance

Canada has obligations to manage its fisheries sustainably through domestic acts and regulations as well as through international instruments and organizations. As albacore is a highly migratory species policies and conservation measures are primarily developed at an international level and then implemented by DFO within the framework of Canada's domestic legislation and regulations.

Additionally, Albacore Tuna harvest and landing by Canadian vessels in the USA EEZ and by USA vessels in the Canadian EEZ is governed by the *Treaty between the Government of the United States of America and the Government of Canada on Pacific Coast Albacore Tuna Vessels and Port Privileges* (the Treaty).

National

Management of Pacific Albacore Tuna is directed by the *Fisheries Act* and other acts and regulations including:

- The *Pacific Fishery Management Area Regulations*,
- The *Fishery (General) Regulations* and the *Pacific Fishery Regulations*, 1993,
- The *Aboriginal Communal Fishing Licence Regulations*,
- The *Maa-nulth First Nations Final Agreement Act*,
- The *Tla'amin Final Agreement Act* (effective date of April 5, 2016),
- The *British Columbia Sport Fishing Regulations*,
- The *Oceans Act*, and,
- The *Species at Risk Act*.

These documents are available on the Internet at: <http://www.dfo-mpo.gc.ca/acts-loi-eng.htm>

In addition, the new 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.
- Guidance for the Development of Rebuilding Plans under the Precautionary Approach Framework: Growing Stocks out of the Critical Zone
- Policy on Managing Bycatch
- Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries

-
- Ecological Risk Assessment Framework (ERAF) for Coldwater Corals and Sponge Dominated Communities

Along with existing economic and shared stewardship policies, these will help the Department meet objectives for long-term sustainability, economic prosperity, and improved governance.

For more information on the Sustainable Fisheries Framework, please visit: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/overview-cadre-eng.htm>

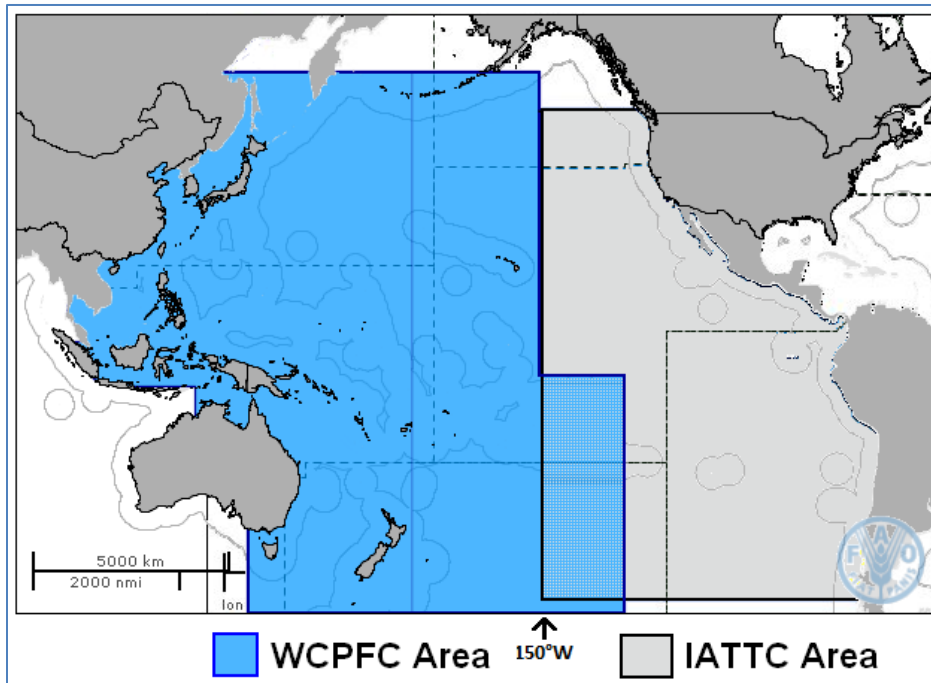
International

Widespread and growing concern over the state of the world's commercial fisheries, many of which suffer from resource over-exploitation and fleet over-capacity, has led to international agreements that affect the conduct and management of Albacore Tuna fisheries. Of particular importance is the United Nations (UN) Straddling and Highly Migratory Fish Stocks Agreement (UNFSA). The UNFSA, which Canada ratified in August 2001, entered into force on December 11, 2001. Under UNFSA, Canada has an obligation to take measures to ensure that vessels flying its flag that harvest on the high seas comply with the conservation and management measures of relevant Regional Fisheries Management Organizations (RFMOs), and that they do not undermine the effectiveness of such measures. The relevant RFMOs for Pacific Albacore Tuna are the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC).

The IATTC Convention Area consists of waters of the Pacific Ocean east of 150°W that lie between 50°N and 50°S. This area includes part of Canada's Exclusive Economic Zone (EEZ) and Canada applies resolutions adopted by the IATTC throughout its territorial waters. More information is available on the IATTC website (<http://www.iattc.org/HomeENG.htm>).

The WCPFC Convention Area encompasses the Western and Central Pacific Ocean, generally west of 150°W. The WCPFC is a consensus based management organization. Conservation and Management Measures (CMM's) adopted by the WPCFC apply to all Canadian vessels fishing for tuna in this area. More information is available on the WCPFC website (<http://www.wcpfc.int/>).

Figure 1: IATTC and WCPFC Convention Areas



Additionally, the International Scientific Committee (ISC) provides scientific advice regarding the status of tuna stocks and bycatch species in the North Pacific Ocean to both the IATTC and WCPFC. More information is available on the ISC website (<http://isc.fra.go.jp/>).

Canada has numerous obligations related to the management of Pacific Albacore Tuna which are a result of IATTC and WCPFC resolutions. These obligations include specifying and enforcing certain requirements for Canadian tuna harvesting vessels, which is often done through Conditions of Licence.

Other international agreements that Canada is committed to include the:

- Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries;
- FAO Compliance Agreement;
- International Plan of Action (IPOA) for the Management of Fishing Capacity;
- FAO IPOA to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing;
- IPOA on Reducing Incidental Catch of Seabirds;
- IPOA for the Conservation and Management of Sharks;
- UN Compliance Agreement; and the,
- UN General Assembly resolutions.

As well as the *Treaty between the Government of Canada and the Government of the United States of America on Pacific Albacore Tuna Vessels and Port Privileges* (described below).

Canada-USA Pacific Albacore Tuna Treaty

Fishing for Albacore Tuna by Canadian fishing vessels in USA fisheries waters is governed by the *Treaty Between the Government of Canada and the Government of the United States of America on Pacific Albacore Tuna Vessels and Port Privileges* (the "Treaty"). Under the Treaty, Canadian and USA harvesters may fish Pacific Albacore Tuna in the other country's 200-mile EEZ and may land Albacore Tuna at designated ports in the other country. The Treaty also provides for the exchange of catch, effort and scientific information in order to inform management decisions and better understand the Albacore Tuna stocks that migrate off the west coast of North America.

The Treaty was established in 1981 and was initiated by the USA to ensure that their fleet had access to Albacore Tuna in Canadian waters after the implementation of the 200-mile Exclusive Economic Zones (EEZs) in the late 1970s. Limitations on fishing effort were first introduced through an amendment to the Treaty in 2002.

DFO introduced a separate licence for Canadian vessels fishing in USA waters (the USA68 licence) in 2003. In 2004, only vessels meeting specific criteria were issued this licence and effort was limited to 680 vessel fishing months. In 2005, a licence limitation regime was adopted which considered past participation before and after a control date of April 15, 2000. This limitation regime provided priority access to the Canadian vessels most consistently active in USA waters.

Vessels on the 2005 eligibility list needed to have been commercially licensed as of December 31, 2004, have recorded Albacore Tuna catch in USA waters between 1995 and 1999, and have continued participation between 2000 and 2002. The Department then ranked the vessels based on participation and catch history, resulting in an eligibility list of 175 vessels. In 2005, an independent licence appeal process was initiated as the final stage in the licence limitation program. The Albacore Tuna Review Committee reviewed 58 appeals, approving 23 and denying 35; this resulted in a final eligibility list of 179 vessels.

In 2008, Canadian and USA officials signed amendments to the Treaty which included a defined fishing season of 4.5 months (June 15 to October 31) with in-season licence transfers (vessel replacements) prohibited except under extraordinary circumstances. As part of the revised 2008 Treaty, vessels ranked from 1-110 on the eligibility list of 179 vessels were permitted to harvest tuna in USA waters until the end of the 2011 season. By June 1 each year, the list of 110 authorized vessels was forwarded to USA officials. From 2009 to 2011, an average of 108 Canadian vessels entered the USA EEZ to harvest Albacore Tuna.

The revised 2008 Treaty expired on December 31, 2011 and discussions between Canada and the USA in late 2011 determined that further work was required before agreement could be reached on a new fishing regime. At those meetings, the USA government identified some concerns raised by their industry representatives, including the economic impact or benefit of the Treaty on USA coastal communities and harvesters, crowding on the fishing grounds in the USA EEZ, and the overall capacity of the Canadian tuna fleet. Canada tabled several proposals in order to address the concerns; however, the USA government advised that they would not be entering into an agreement for the 2012 season and reciprocal fishing and port access was suspended for that year.

Canada and the USA met again in February and April 2013 and were able to agree to a new fishing regime for the 2013 season. This regime included a shortened season for Canadian vessels fishing in the USA EEZ (from June 15 to September 15) and access to the USA EEZ being limited to the top 45 Canadian vessels on the USA68 eligibility list. The number of USA vessels permitted to access the Canadian EEZ was not limited beyond historical levels and USA vessels were allowed to fish in Canadian waters from June 15 to October 31 and access Canadian ports from June 1 to December 31. Subsequent bilateral discussions have extended this same regime through to December 31, 2019.

I.8 Consultation

DFO has a broad mandate, with the authority to regulate and enforce activities, develop policy, provide services and manage programs. To help ensure 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. DFO Pacific Region undertakes consultations in order to meet the duty to consult with First Nations, improve departmental decision-making processes, promote understanding of fisheries, oceans and marine transport issues, and strengthen relationships.

The Tuna Advisory Board (TAB) is the Department's primary consultative body which provides advice and recommendations on operational and policy issues related to the Pacific Albacore Tuna fishery. 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 TAB membership in Appendix 9.

I.9 Approval Process

This plan is approved by the Regional Director General for the Pacific Region.

2 STOCK ASSESSMENT, SCIENCE AND TRADITIONAL KNOWLEDGE

2.1 Biological Synopsis

Albacore Tuna (*Thunnus alalunga*) are one of six abundant, widely distributed, and economically important tuna species in the Pacific Ocean. There are separate stocks of albacore in the North and South Pacific Oceans; biological and tagging information provide evidence that little or no mixing of these stocks occurs across the equator. Mature albacore from the North Pacific stock spawn in tropical and subtropical waters of the Central and Western Pacific Ocean from 10° to 25° N latitude, between Hawaii and Taiwan/Philippines. Immature albacore disperse from the spawning area northward and then some fish move eastward across the Pacific in surface waters where they recruit into jig and pole and line fisheries at 2 years of age. Albacore in the jig and pole and line catches in the Eastern Pacific Ocean range in size from 4 kg to 15 kg and two to four years of age. About half of the North Pacific albacore mature at five years and all albacore are mature by six years of age. Mature albacore inhabit subtropical areas in the Central and Western Pacific Ocean and are not part of the stock component that annually migrates into the Eastern Pacific Ocean.

Albacore are a valuable species with a long history of exploitation in the North Pacific Ocean (NPO). The total catch of albacore in the NPO for all nations combined peaked at 126,175 metric tonnes (t) in 1976 and then declined to a low of 37,274 t in 1991. In the early 1990s, catches increased again, peaking in 1999 at 119,297t. During the 5 year period from 2011 to 2015 catches have averaged 82,596t. During this period, fisheries based in Japan accounted for 62 % of the total harvest, followed by fisheries in the USA (17 %), Canada (5 %) and Chinese Taipei (4 %). Other countries harvested 12 % of the NPO albacore catch and included Korea, Mexico, China, Vanuatu, Tonga, Belize, Cook Islands and Ecuador.

While various fishing gears have been employed over the years to harvest albacore in the NPO, the main gears used over the 2011-2015 period were longline (40%), pole and line (35%), and troll (21%). Pole and line and troll gears fish the surface waters and catch immature juvenile albacore. Longline gear fishes deeper in the water column and targets sexually mature adult albacore. Other gears used to harvest NPO albacore since the mid-1990s include purse seine, gill net, set nets, and recreational fishing gears, which combined accounted for roughly 4% of the total catch between 2008 and 2012.

2.2 Ecosystem Interactions

North Pacific albacore are found in the epipelagic zone of sub-tropical and temperate waters of the open ocean and are associated with transition zone chlorophyll fronts as this is an area of sharp temperature changes (fronts) and high primary production, which attracts prey species. Albacore maintain a fast, continuous swimming lifestyle and are opportunistic predators, feeding primarily on fish. Small schooling pelagic species such as sardine (*Sardina pilchardus*, *Sardinops sagax*), anchovy (*Engraulis spp.*), and mackerel (*Scomber spp.*, *Trachurus spp.*) are the most common fish encountered in the diet of albacore in all oceans. Along the west coast of North America, Pacific Hake (*Merluccius productus*), Pacific Saury (*Cololabis saira*), Northern Anchovy (*Engraulis mordax*) and squids are important prey in the diet of juvenile albacore while sardine (*S. sagax*) are not important. Adult albacore have few predators, although they occasionally may be preyed on by large marine mammals, sharks, and billfishes.

Trolling operations are carried out at or close to the surface of the ocean and catches of non-target fish species, and incidentally caught turtles, marine mammals and seabirds are generally negligible in troll fisheries world-wide. Trolling gear does not make contact with the seabed and contact with the epipelagic zone is minimal because of the nominal dimensions of the fishing gear. Incidental catch reported in the Canadian North Pacific albacore fishery includes Skipjack Tuna (*Katsuwonus pelamis*), Pacific Bluefin Tuna (*Thunnus orientalis*), Dolphinfish or Mahi-Mahi (*Coryphaena hippurus*), Yellowtail (*Seriola lalandi*), Blue Shark (*Prionace glauca*) and Shortfin Mako Shark (*Isurus oxyrinchus*). Species which have no commercial value may be returned to the sea alive immediately after hooking, as fish are caught individually. Barbless hooks are commonly used, so stress and injuries can be kept to a minimum.

2.3 Indigenous Traditional Knowledge/Traditional Ecological Knowledge

Traditional Ecological Knowledge (TEK) in the form of observations and comments collected from commercial and aboriginal harvests over many years have contributed to decisions on scientific survey locations and are considered in management decisions (for fisheries in general, not specifically for tuna).

2.4 Precautionary Approach

The Department follows the Sustainable Fisheries Framework (SFF), which is a toolbox of policies for DFO and other interests to sustainably manage Canadian fisheries in order to conserve fish stocks and support prosperous fisheries. The SFF includes a decision-making framework incorporating a precautionary approach to commercial, recreational, and food-

social-ceremonial fishing (<http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm>).

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 action or failure to take action to avoid serious harm to fish stocks or their ecosystem. This approach is widely accepted internationally as an essential part of 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.

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. A key component of the Precautionary Approach Framework requires that when a stock has declined to the Critical Zone, a rebuilding plan must be in place with the aim of having a high probability of the stock growing out of the Critical Zone within a reasonable timeframe.

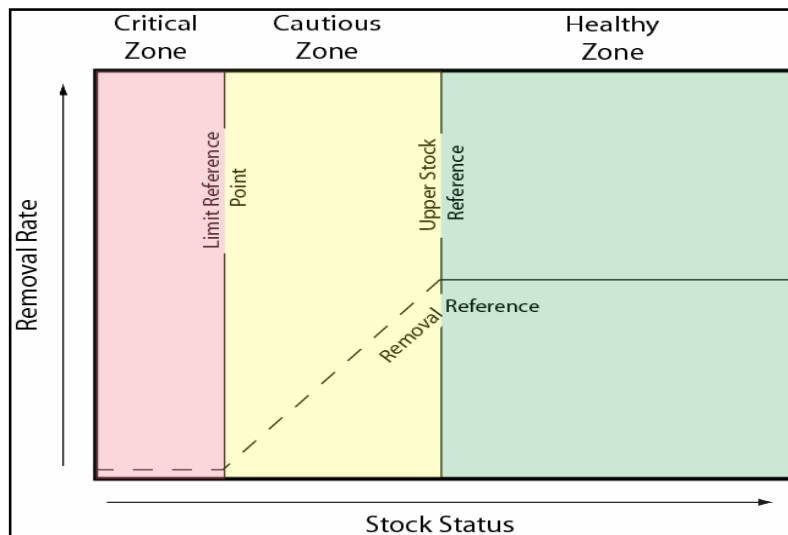


Figure 2. The DFO harvest strategy compliant with the precautionary approach.

More information related to the precautionary approach is available at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm>

2.5 Science Research and Other Activities

The Albacore Working Group (ALBWG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) is the primary body for North Pacific Albacore Tuna science. Canada is a member of the ISC and scientists from Fisheries and Oceans Canada are part of the ALBWG along with scientists from Japan, Taiwan, USA, Mexico, Korea, the Inter-American Tropical Tuna Commission (IATTC), and the Secretariat of the Pacific Community (SPC).

The ALBWG has noted that significant uncertainties in the stock assessments and resulting scientific advice provided to the IATTC and the WCPFC stem from the outdated assumptions and parameterization of the model based on 40 yr.-old data. For example, maturity and fecundity data are at least 40 years old and are recognized as significant uncertainties in current stock assessments. Expansive home ranges, lack of dense schooling behaviour, attainment of a large adult size, and the rarity of the small juveniles and largest adult sizes in fisheries have limited the ability of researchers to collect samples in numbers sufficient to investigate pertinent life history questions. These uncertainties are also affecting the ability of the ALBWG to assess the utility of biological reference points for North Pacific albacore.

The ALBWG has identified and prioritized research needs. The priority areas for research are: (1) age and growth modelling to improve the assessment model fit to the data; (2) spatial pattern analysis to investigate regional differences in growth and movements; (3) CPUE analyses to investigate discrepancies among indices, particularly the potential impact of temporal changes in catchability and selectivity on the indices; and (4) maturity research to develop a length-based maturity schedule. Although sex-specific age and growth data were used in the 2017 assessment, there continues to be a need for age and growth data for albacore less than 2 years old (0, 1) and older than age 9 in all regions of the North Pacific Ocean as these ages are not well sampled by commercial fisheries in any country.

2.6 Stock Assessment

Stock assessments for Albacore Tuna in the North Pacific Ocean are prepared approximately every three years by the ALBWG. The most recent stock assessment was completed in July 2017. In this assessment the ALBWG concluded that the North Pacific albacore stock is healthy, current productivity is sufficient to sustain recent exploitation levels, the stock is likely not overfished, and overfishing is likely not occurring. An executive summary of the stock assessment can be found in Appendix 3.

3 SOCIAL, CULTURAL, AND ECONOMIC IMPORTANCE

3.1 Indigenous

Tuna fishing for Food, Social, and Ceremonial (FSC) purposes is permitted; however, information on access and use is limited. .

3.2 Recreational

There is recreational interest in fishing for Albacore Tuna when stock distribution allows. This interest may increase as offshore technology improves the ability of recreational harvesters to access the stock.

3.3 Commercial

Pacific Albacore Tuna is one of the most valuable finfish in Canada's major Pacific fisheries, both in terms of price per kilogram and total landed value in the fishery.¹ The price per kilogram for Pacific Albacore Tuna has increased significantly in recent years, reaching \$8.90 in 2017 (based on preliminary sales slip data). The average annual total landed value from 2012-2017 was \$17 million (in 2017 dollars), although, as seen in Table 1, total catch has varied considerably from year.

Table 1: Total Pacific Albacore Tuna Catch and Landed Value for Canadian Vessels

| Year | Total Catch (Kg)* | Price per Kg (nominal)** | Price per Kg (2017\$) | Total Value (Expanded 2017\$)* |
|------|-------------------|--------------------------|-----------------------|--------------------------------|
| 2012 | 2484069.964 | \$4.47 | \$4.73 | \$11,749.65 |
| 2013 | 5070479.352 | \$4.56 | \$4.75 | \$24,084.78 |
| 2014 | 4780268.345 | \$3.09 | \$3.16 | \$15,105.65 |
| 2015 | 4382786.76 | \$3.20 | \$3.29 | \$14,419.37 |
| 2016 | 2841763.776 | \$7.10 | \$7.26 | \$20,631.21 |
| 2017 | 1830808.523 | \$8.90** | \$8.90 | \$16,294.20 |

*Total catch weight based on logbooks (DFO Resource Management).

**Price per kilogram based sales slip data (DFO Economics).

***Total value is calculated by multiplying the (average) price per kilogram from fish slips by the total catch weight reported in logbooks. Total values are presented in 2017 dollars.

****2017 price information is preliminary.

¹ For comparison to other fisheries see: British Columbia Seafood Industry Year in Review 2016, BC Ministry of Agriculture, 2017.

4 MANAGEMENT ISSUES

The following section highlights a number of ongoing, longer-term issues identified with respect to the management of Pacific albacore. Shorter-term and/or annual management issues are identified in fishing plans for each fishery (Appendices 4-8).

4.1 First Nations

No identified issues.

4.2 Recreational

Improvements to catch monitoring programs for recreational fisheries are under development. For example, DFO is currently developing the pilot iREC survey which captures catch and effort information on recreationally harvested species in the Pacific Region. In addition, DFO has been working with recreational sector participants on the recreational tuna logbook program to capture detailed catch and effort data.

4.3 Commercial

Tuna Licence for Canada's EEZ

For operators of Canadian-flagged vessels, commercial tuna access in Canada's Pacific EEZ is provided by way of a primary licence with Schedule II privileges. Prior to 2012 all holders of primary licences with Schedule II privileges were permitted to harvest tuna without the need for an additional licence. Since 2013, a separate category CT tuna licence has been required in addition to a primary licence.

The commercial tuna fleet has indicated a number of challenges with respect to the current licensing system for tuna and would generally prefer tuna be managed using a standalone licence, separate from any Schedule II associations.

The Department has examined the potential to pursue a regulatory amendment that would remove Pacific tuna from Schedule II, part II of the *Pacific Fishery Regulations* and create a separate licence category for tuna. This examination has included external and internal consultation to determine the benefits, risks, and requirements associated with the potential regulatory amendment. In 2018 the Department made the decision not to pursue a regulatory amendment at this time.

Effort Limitation for Canadian-flagged Vessels

At present, there is no limit on catch or effort in the tuna fishery for operators of Canadian vessels harvesting tuna in Canada's EEZ or the high seas. Canada has made commitments through IATTC and WCPFC resolutions to maintain total effort of Canadian vessels at or below an average of 2002-2004 levels; total effort has been 20-40% below these levels since 2012.

The Department has been engaged in a long-standing discussion with tuna harvesters, primarily through the Tuna Advisory Board (TAB), regarding the potential to limit effort in the Albacore Tuna fishery. TAB advisors communicated a need for limitation to address concerns about crowding on the fishing grounds and a potential influx of new participants to the fishery. In 2017 the Department conducted broad consultation with harvesters and coastal First Nations regarding management measures that could be used to manage effort in the Canadian fleet. Harvesters generally expressed a preference for a limitation regime based on limited entry rather than limits on vessel days, season length, or the introduction of a TAC or catch quotas. Harvesters provided varying perspectives regarding the preferred size of a limited fleet and the criteria by which a limited fleet would be defined.

In 2018 the Department conducted a detailed analysis of the options and benefits for limiting effort in the Albacore Tuna fishery. Considerable uncertainty was identified with regards to implications of different limitation scenarios, in particular with regards to impacts on historical participants in the fishery. Further, it was determined that the current management approach poses a low risk to both the conservation of the stock and the likelihood of breaching Canada's international commitments. The Department will continue to monitor stock status, fishing effort and fleet dynamics; however, further work to develop options or approaches to limit effort are not planned at this time.

International Progress on a Management Strategy Evaluation

Work on to advance a management strategy evaluation (MSE) for North Pacific Albacore Tuna is ongoing. The MSE evaluates possible target reference points and alternative harvest control rules and supports the application of the precautionary approach at the international level. This work is being led by the Albacore Working Group (ALBWG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (the ISC), a group that includes DFO scientists and is associated with both the IATTC and WCPFC.

Management objectives have been established and a suite of candidate reference points have been proposed through three Albacore Tuna MSE workshops involving managers, scientists and stakeholders. The ALBWG of the ISC has been working on evaluation of performances of

these proposed biological reference points and harvest control rules through the MSE processes. Additional information may be posted on the ISC website (<http://isc.fra.go.jp/>) as it becomes available.

5 OCEANS AND ECOLOGICAL CONSIDERATIONS

5.1 Gear Impacts

Albacore Tuna vessels currently use hook and line gear, primarily troll. Tuna fishing gear is deployed at the very top of the water column and under normal operating circumstances, there is no contact with benthic features and habitats and minimal to no environmental impacts generally. Tuna fishing by troll is a highly targeted; based on harvester reports there is minimal bycatch and little to no impact to marine mammals or sea birds.

5.2 Other Species Concerns

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.”

Encounters with SARA-listed species and other marine mammals and seabirds may occur in the tuna fishery. The Department and the fishing industry collect information on these encounters on behalf of the Species at Risk program and Marine Mammal Unit of DFO and Canadian Wildlife Service of Environment Canada.

Under SARA it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any marine species listed as endangered or threatened. It is also prohibited to take, possess, collect, buy, sell or trade any part or derivative of an individual of these species. 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.

To view the list species currently listed under Schedule 1 of SARA, please visit:

http://www.sararegistry.gc.ca/species/schedules_e.cfm

Shark Codes of Conduct

Out of the fourteen shark species in Canadian Pacific waters, three species are listed under SARA. The Basking Shark (*Cetorhinus maximus*) is listed as Endangered, and the Bluntnose Sixgill Shark (*Hexanchus griseus*) and Tope Shark (*Galeorhinus galeus*) are listed as species of

Special Concern. The primary threats to shark species have been identified as bycatch and entanglement. In order to address the conservation concerns with shark species, it is important that measures are taken to reduce the mortality of sharks resulting from these primary threats. As such, commercial fishing licences have been amended to include a Condition of Licence for Basking Sharks that specify mitigation measures in accordance with SARA permit requirements. Additionally, two 'Code of Conduct for Shark Encounters' documents have been developed to reduce the mortality of Basking Shark, as well as other Canadian Pacific shark species such as Bluntnose Sixgill and Tope Shark resulting from entanglement and bycatch in commercial, aquaculture, and recreational fisheries. These guidelines include boat handling procedures during visual encounters with Basking Sharks, as well as best practices for handling Canadian Pacific shark species during entanglement encounters.

The code of conduct for sharks can be found at http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/shark-requin/conduct_shark-conduite_requin-eng.html and the code of conduct for Basking Sharks is available at http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/shark-requin/conduct_basking-conduite_pelerin-eng.html.

Whale and Leatherback Turtle Sightings

DFO 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. More information on how to report can be found here: <http://wildwhales.org/sightings/>.

To report a sea turtle contact the BC Sea Turtle Sighting Network. More information on how to report can be found here: <https://seaturtle.ca/turtle-sighting/>.

Resident Killer Whale

Southern Resident Killer Whales (SRKW) were listed as Endangered under SARA in 2003. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard, and the Minister of Environment and Climate Change Canada determined that the SRKW were facing imminent threats to survival and recovery. Given the status of the population and ongoing threats to SRKW recovery, DFO implemented a number of measures in 2018, including measures aimed at

increasing prey availability and accessibility for SRKW—particularly Chinook salmon—and reducing threats related to physical and acoustic disturbance in key foraging areas.

DFO is reviewing the 2018 measures, in consultation First Nations and stakeholders, with a view to determining whether different and/or additional measures may be required in 2019—these may include fishery closures or other area-based measures implemented pre-season or (in some cases) in-season. Where possible, DFO will continue to consult with First Nations and stakeholders through established consultation and advisory processes, including the IFMP process.

Further information regarding SRKW and DFO recovery measures can be obtained by contacting the DFO Marine Mammal Unit (Corey Jackson, Regional Manager, Marine Mammals, Corey.Jackson@dfm-mpo.gc.ca).

USA Marine Mammal Protection Act

In 2016, the US published new regulations (80 FR 54390) implementing the *Marine Mammal Protection Act* (MMPA) import provisions pertaining to the reduction of marine mammal bycatch in foreign commercial fishing operations. Every four years, the US publishes information on all fisheries that export to the US in the List of Foreign Fisheries (LFF). A harvesting nation intending to export fish and fish products to the US after January 1, 2022, must apply to the US National Oceanic and Atmospheric Administration (NOAA) for a comparability finding for each of its commercial fisheries listed in the LFF.

To receive a comparability finding for a fishery, the US MMPA import provisions mandate that the harvesting nation demonstrate (1) the prohibition of intentional mortality or serious injury of marine mammals in the course of commercial fishing operations, and (2) the implementation of a regulatory program comparable in effectiveness to the US, including bycatch estimates from at-sea observer programs and management/mitigation measures.

DFO will be working closely with the commercial fishing industry and other stakeholders to facilitate the process under these new regulatory requirements in the US. Further information regarding the US-MMPA import provisions can be obtained by contacting the DFO Marine Mammal Unit (Lee Harber, Marine Mammal Advisor, Lee.Harber@dfm-mpo.gc.ca).

Amended Marine Mammal Regulations

On June 22, 2018 the amended *Marine Mammal Regulations* came into force. These amendments include requirements for boats to maintain a minimum approach distance of 200m from all

Killer Whales. The amended regulations also provide clarification on what it means to disturb a marine mammal, including feeding, swimming or interacting with them, moving an individual (or enticing/causing it to move), separating a marine mammal from its group or going between it and a calf, trapping marine mammals between a vessel and the shore or between boats, as well as tagging or marking a marine mammal.

Further information regarding the Marine Mammal Regulations can be obtained by contacting the DFO Marine Mammal Unit (Paul Cottrell, Marine Mammal Coordinator, Paul.Cottrell@dfo-mpo.gc.ca).

5.3 Oceans and Habitat Considerations

In October 2017, the Government of Canada announced that it has reached its first milestone of protecting 5% of marine and coastal areas. The federal government remains committed to protecting 10% of Canada's marine and coastal areas by 2020. The 2020 target is both a domestic target (Canada's Biodiversity Target 1) and an international target as reflected in the Convention on Biological Diversity's Aichi Target 11 and the United Nations General Assembly's 2030 Agenda for Sustainable Development under Goal 14. The 2017 and 2020 targets are collectively referred to as Canada's marine conservation targets. More information on the background and drivers for Canada's marine conservation targets is available <http://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html>.

To meet this target, Canada is establishing Marine Protected Areas (MPAs) and "other effective area-based conservation measures" ("Other Measures"), in consultation with industry, non-governmental organizations, and other interested parties. An overview of these tools, including a description of the role of fisheries management measures that qualify as Other Measures is available online at <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-si-eng.html>.

Oceans Act

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.

On June 15, 2017, Bill C-55 was proposed to amend the *Oceans Act*, to facilitate the Marine Protected Area designation process, without impacting sound science or public opportunity for input. The changes would allow for interim ocean protection during the 7-10 year MPA designation process, require the application of the precautionary principle in decision making, and strengthen enforcement powers and fines to align with current provisions in other legislation, such as the *Environmental Enforcement Act*.

For more information on the *Oceans Act* and Canada's Ocean Strategy, please visit:

<http://www.dfo-mpo.gc.ca/fm-gp/sustainable-durable/fisheries-peches/framework-eng.htm>

For information on the proposed amendments to the *Ocean's Act*, please visit:

<http://www.dfo-mpo.gc.ca/oceans/conservation/act-loi-eng.html>

Sustainable Fisheries Framework

The Sustainable Fisheries Framework is a toolbox of existing and new policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. The Sustainable Fisheries Framework provides planning and operational tools that allow these goals to be achieved in a clear, predictable, transparent, and inclusive manner, and provides the foundation for new conservation policies to implement the ecosystem and precautionary approaches to fisheries management. These new policies include:

- Managing the Impacts of Fishing on Sensitive Benthic Areas;
- New Fisheries for Forage Species;
- A Fishery Decision-Making Framework Incorporating the Precautionary Approach;
- Guidance for the Development of Rebuilding Plans under the Precautionary Approach Framework: Growing Stocks out of the Critical Zone;
- Policy on Managing Bycatch; and
- Ecological Risk Assessment Framework (ERAF) for Coldwater Corals and Sponge Dominated Communities.

For more information on the Sustainable Fisheries Framework and its policies, please visit:

<http://www.dfo-mpo.gc.ca/fm-gp/sustainable-durable/fisheries-peches/framework-eng.htm>

Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries

DFO finalized the "Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries" (the Framework) in 2012. The Framework directs that an ecological risk assessment be undertaken for all fisheries to determine the level of monitoring required to

provide information necessary to manage for the ecosystem risks posed by a fishery, while allowing for final monitoring and reporting programs to reflect the fishery's unique characteristics.

Risk assessments are performed using an Excel-based tool that provides for a consistent approach to a structured conversation regarding ecological risk and other resource management considerations. Draft risk assessments will be initially completed by DFO, then presented to harvesters for review, comment, and revision through existing advisory processes established for fisheries management purposes. Where no advisory process exists, engagement will occur through alternative means.

Should the risk assessment indicate a gap between the current level and target level of monitoring identified through the risk assessment, options to address the monitoring gap are to be identified through discussion between DFO and harvesters. The feasibility of these options (e.g. cost, technical considerations) is also to be considered through these discussions. The Strategic Framework directs that monitoring and reporting programs are both cost-effective and tailor-made for a fishery. As such, a collaborative approach is required.

Where monitoring options are determined to be feasible, the current monitoring and reporting program is to be revised to incorporate these options so the program provides sufficient information to resource managers to manage the ecological risk of the fishery effectively. Where monitoring options are not feasible, alternative management approaches are required to reduce the ecological risk posed by the fishery. If there is no gap between the current and target level of monitoring, then the management approach would not require any change.

The Department has drafted a risk assessment which assesses monitoring levels required for the Albacore Tuna commercial and recreational fisheries. A summary of the draft risk assessment is included in Appendix 12. Comments on the findings from all resource users are now welcome and the full risk assessment is available on request (contact Bradley.Langman@dfo-mpo.gc.ca).

As of February 2019, the Department is finalizing a draft national Fishery Monitoring Policy. That national Policy—an evolution of the existing Strategic Framework—looks to bring consistency in the development, delivery and evaluation of monitoring programs for all federally-managed wild fisheries in Canada, and will ultimately supersede the existing Pacific Framework.

More information on the Pacific Framework and risk assessment is available on the internet at:

www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework_monitoring-cadre_surveillance/page-1-eng.html.

Pacific North Coast Integrated Management Area

As part of Canada's Oceans Strategy, DFO initiated an integrated management planning process for the Pacific North Coast Integrated Management Area (PNCIMA), one of five national Large Ocean Management Areas identified in Canada's Ocean Action Plan. 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, and marks a shift toward a broader ecosystem approach to ocean management. The goal of the PNCIMA initiative was to bring stakeholders together to develop an integrated management plan for the region that achieves conservation, sustainable resource use, and economic development goals for oceans and coastal areas, as well as complementing and linking existing processes and tools, including IFMPs.

In early 2017, the PNCIMA Plan was signed by Fisheries and Oceans Canada, First Nations, and the Province of British Columbia. The plan focuses on the overall management of PNCIMA, in order to enable marine planning, management, and decision making to occur at appropriate spatial scales, as well as to promote the interactions among human activities and between human activities and the ecosystem. For more information on PNCIMA, please visit <http://www.pncima.org>. The full PDF of the PNCIMA plan can be found here: <http://www.pncima.org/media/documents/2016-plan/2316-dfo-pncima-report-v17-optimized.pdf>

Marine Protected Areas Network Planning

The *Oceans Act* mandates DFO's Minister with leading and coordinating the development and implementation of a national network of marine protected areas (MPAs). Nationally, MPA Network planning is proceeding in four priority bioregions under the National Framework for Canada's Network of Marine Protected Areas, including the Northern Shelf Bioregion (NSB). The NSB extends from the top of Vancouver Island (Quadra Island/ Bute Inlet) and reaches north to the Canada - Alaska border. This bioregion has the same footprint as PNCIMA.

In the Pacific Region, the Department and other federal agencies are collaborating with the Government of B.C. and Pacific North Coast First Nations to develop a MPA network for the NSB. The planning process in the NSB is guided by the Canada-BC MPA Network Strategy (2014) and the National Framework for Canada's Network of Marine Protected Areas.

Stakeholders and local governments are participating in the planning process through advisory committees at regional and sub-regional scales, workshops, and sector meetings.

Through the Network Action Plan, the MPA Network planning process will identify areas for protection. These areas will be established and implemented on a priority basis through a variety of legislative or regulatory tools.

More information on MPA Network Planning can be found at: <http://mpanetwork.ca>

Marine Protected Areas

DFO is also responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated three MPAs in the Pacific Region.

MPA regulations and management plans articulate any restrictions on activities taking place within the MPA, where applicable. More information on MPAs can be found at: <http://dfo-mpo.gc.ca/oceans/mpa-zpm/index-eng.html>.

Endeavour Hydrothermal Vents (EHV) MPA

The EHV MPA was designated in 2003. The hydrothermal vents lie in waters 2,250 m deep 250 km southeast of Vancouver Island. There is occasional commercial fishing in the MPA, and pelagic fishing is not considered to be in conflict with the objectives of the MPA. Any licenced fishing in the MPA that takes place very near the ocean surface and will continue as it does not significantly impact the hydrothermal vents ecosystem. More information can be found online at: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/endeavour-eng.html>. All commercial groundfish fisheries are restricted within the Endeavour MPA.

SGaan Kinghlas-Bowie Seamount (SK-B) MPA

The SK-B MPA, designated under Canada's *Oceans Act* in 2008, is 180 km west of Haida Gwaii rising from a depth of over 3,000 m to within 24 m of the sea surface, making it one of the shallowest seamounts in the North Pacific, and the shallowest in Canada. The MPA comprises the SGaan Kinghlas – Bowie, Hodgkins and Davidson Seamounts of the Kodiak-Bowie seamount chain and has a total area of approximately 6,131 square kilometres.

The SK-B MPA has been established to conserve and protect the unique biodiversity and biological productivity of the area's marine ecosystem, including and the surrounding waters, seabed, and subsoil.

The MPA is cooperatively managed by DFO and the Council of the Haida Nation (CHN) through the SK-B Management Board (the Board), which was established under a Memorandum of Understanding (MOU), signed in 2007. The Board has equal representation from DFO and the CHN and operates on a consensus basis in developing recommendations to Canada and the Haida Nation on the management and planning of the MPA. Under the MOU, the Board is mandated to develop a management plan for the MPA. To fulfil this mandate, the Board collaborates with stakeholders by requesting and considering advice from the integrated, cross sector SK-B Advisory Committee.

Since 2018, DFO and the CHN, have been co-developing the SK-B MPA Management Plan which is now near completion. The Plan is intended to guide the conservation and protection of the SK-B Seamount ecosystem and support the development of a monitoring plan for the MPA. The SK-B MPA was closed to all commercial fishing except sablefish trap in 2008. In January 2018, the Government of Canada and the Haida Nation agreed to increase the level of protection in the SK-B MPA by closing the area to sablefish trap as well. This closure shows a precautionary management approach to the protection of sensitive benthic habitats in support of the MPA objectives.

Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs (HS/QCS) MPA

The HS/QCS MPA, designated under the *Oceans Act* in February 2017, is located in the Northern Shelf Bioregion of the Pacific Region, southeast of Haida Gwaii, North and South of the entrance to the Douglas Channel. The reefs are made up of large colonies of glass sponges and are estimated to be 9,000 years old. They are located at depths of 140 m to 240 m below the surface. The MPA is comprised of three individual areas known as the Northern Reef, the two Central Reefs, and the Southern Reef. Together these three areas cover approximately 2,410 km².

The HS/QCS MPA has been established to conserve the biological diversity, structural habitat, and ecosystem function of the glass sponge reefs. The slow growth and fragility of these sponges make the reefs particularly vulnerable to damage and disturbance since recovery may take tens to several hundreds of years. Due to the highly sensitive nature and structure of the reefs, human activities in and around the reefs could pose a risk to the structural habitat, biological diversity and ecosystem function of the reefs.

Under the HS/QCS MPA Regulations, the CPZs are closed to all commercial, recreational, and Aboriginal fishing. Anchoring and cable installation, maintenance, and repair are also prohibited in the CPZs.

Management measures under the *Fisheries Act* restricting bottom contact and mid water trawl fishing activity in the MPA were implemented as of February 21, 2017. The VAMZs and AMZs are currently closed to all commercial bottom contact fishing activities for prawn, shrimp, crab, and groundfish (including halibut), as well as for midwater trawl for hake. These closures will be in effect until further notice. For more detail on the fishery closure within the Hecate Strait and Queen Charlotte Sound Glass Sponge Reef MPA, please review the FN0198 Fishery Notice.

DFO will develop a management plan for the MPA in collaboration with First Nations and in consideration of advice from an advisory committee, stakeholders, and the public. The Department will seek to align the plan with relevant IFMPs. This management plan will elaborate on the conservation and management objectives for the MPA and will address matters such as monitoring, enforcement and compliance.

Offshore Pacific Area of Interest

In May 2017, DFO announced a new Area of Interest (AOI) within the Offshore Pacific Bioregion off the coast of British Columbia, with the intention of making it one of Canada's largest Marine Protected Areas by 2020. This Offshore Pacific AOI is an important part of DFO's national approach to achieve the Government of Canada's Marine Conservation Target to increase Canada's marine and coastal protected areas from 0.9% to 10% by 2020.

The Offshore Pacific AOI is located in the southern portion of the Offshore Pacific Bioregion extending from the continental shelf break, west of Vancouver Island, to the Exclusive Economic Zone (EEZ) boundary with an area of approximately 140,000 km². At its closest point, the AOI is approximately 80 km from the west coast of Vancouver Island, but on average is 100-150 km off the coast and extends south to the Canada-US border. The Offshore Pacific AOI will protect ecologically and biologically significant areas (EBSAs), including seamounts and hydrothermal vents.

An Offshore Pacific AOI Advisory Committee has been established to provide a forum for engagement for the AOI and provide feedback on the proposed design of the potential MPA and the associated management approach. The interim conservation objective of the AOI is to contribute to the protection and conservation of the unique seafloor features and the ecosystems they support in Canada's Offshore Pacific Bioregion. This interim conservation objective was established based on discussions with DFO Science; it will be finalized after consultations are complete. The conservation objective will guide the development of regulations and future management actions within the potential MPA.

Offshore Pacific Seamounts and Vents Closure

In advance of potential MPA designation, fishery closures to restrict commercial and recreational bottom-contact fishing activities within the Offshore Pacific AOI were announced in October 2017. At approximately 83,000 km² in size, the closure serves to protect and conserve unique seafloor features, including seamounts and hydrothermal vents, identified through a Canadian Science Advisory Secretariat process as well as a number of species of regional importance, including corals, sponges, and other endemic or rare species.

The closure boundary was informed by available science and input received during consultations with First Nations, federal and provincial government agencies, industry and conservation organizations, and supports the AOI's interim conservation objective of contributing to the protection and conservation of the unique seafloor features and the ecosystems they support in Canada's Offshore Pacific Bioregion. Specific details of the closure can be found in the fishery notice here: https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=203516&ID=all.

More information on the Offshore Pacific AOI can be found on the internet here:

<http://www.dfo-mpo.gc.ca/oceans/aoi-si/offshore-hauturiere-eng.html>

National Marine Conservation Areas (NMCAs):

Gwaii Haanas

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5000 km² land-and-sea protected area in the southern part of Haida Gwaii (formerly the Queen Charlotte Islands), approximately 100 kilometres off the north coast of British Columbia. The Haida Nation designated the area a Haida Heritage Site in 1985. The terrestrial part of Gwaii Haanas was designated a National Park Reserve by the Government of Canada soon after, and Canada and the Haida Nation have been managing the area cooperatively since 1993. In 2010, the Gwaii Haanas marine area was designated a National Marine Conservation Area Reserve.

Gwaii Haanas is managed by the Archipelago Management Board (AMB), a cooperative body made up of three representatives of the Council of the Haida Nation and three representatives of the Government of Canada (Fisheries and Oceans Canada (1) and Parks Canada (2)). The AMB is guided by the Gwaii Haanas Agreement (1993) and the Gwaii Haanas Marine Agreement (2010), which describes how Canada and the Haida Nation will manage Gwaii Haanas cooperatively.

In November 2018, following an extensive consultation process, a new management plan for Gwaii Haanas was approved by Canada and the Haida Nation. The Gina 'Waadluxan KilGuhlGa Land-Sea-People plan includes a shared vision, guiding principles based on Haida cultural values, goals and objectives, and zoning for the land and the sea. The plan will be in place for the next decade.

To develop the zoning plan, key ecological and cultural features were identified using a range of ecological data and traditional knowledge. A set of design considerations, which included minimizing socio-economic impacts, was used to develop an initial zoning proposal. This proposal was reviewed with stakeholder groups including the commercial and recreational fishing sectors and major changes were made to the zoning plan based on advice the AMB received.

The final zoning plan includes several areas of strict protection, where commercial and recreational fishing will be prohibited. Please see Appendix 2 of this IFMP for descriptions of existing closures.

The Gwaii Haanas Gina 'Waadluxan KilGuhlGa Land-Sea-People Management Plan 2018 is available here: <https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/info/consultations>.

Scott Islands Marine National Wildlife Area

The Scott Islands Marine National Wildlife Area (NWA) is located off the northwestern tip of Vancouver Island and covers 11 546 km². It was established in 2018 and is the first protected marine area established by Environment and Climate Change Canada (ECCC) under the *Canada Wildlife Act*. The five Scott Islands, which are already protected by the Province of British Columbia (BC), and surrounding marine environment make up one of the most productive and biologically diverse ecosystems on the Canadian Pacific coast, particularly for seabirds. The conservation objective of the marine NWA is to conserve migratory seabirds and species at risk as well as the habitats, ecosystems, and marine resources that support them.

ECCC leads the Scott Islands marine NWA planning and management and works with other federal departments with responsibilities in the marine environment including DFO, Transport Canada (TC) and Natural Resources Canada. Fishing and shipping within the marine NWA will continue to be managed by DFO and TC respectively. The *Scott Islands Protected Marine Area Regulations*, in conjunction with additional measures by DFO and TC to address fishing and shipping related concerns in the area, will provide the regulatory framework for the management of human activities within the marine NWA.

The Quatsino First Nation, the Tlatlasikwala First Nation, and the Province of BC have expressed interest in participating in the collaborative management of the marine NWA, and discussions are ongoing to develop a management agreement for the area. ECCC and management partners will collaboratively develop a management plan for the area. A final management plan is expected in 2019, which will consider advice and input from an advisory committee with technical and scientific working groups, stakeholders through existing processes, and the public.

ECCC will continue to work collaboratively with DFO to implement voluntary and regulatory measures under the marine NWA management plan as well as relevant Integrated Fisheries Management Plans to mitigate fishing impacts. This will include measures to improve information on seabird prey habitat impacts and measures to mitigate seabird by-catch as well as initiatives by the existing ECCC-DFO-Pacific Seabird By-catch Working Group.

In support of the conservation objectives of the Scott Islands mNWA, DFO is consulting on new regulations under the *Fisheries Act* to restrict certain fisheries that pose a risk to seabirds. The proposed regulations would prohibit fishing for three key forage fish species that serve as a key food source for seabirds—Pacific sand lance, Pacific saury, and North Pacific krill—as well as prohibit groundfish bottom trawling in portions of the marine NWA, consistent with existing fisheries closures. The regulations could also restrict fishing activities that may be deemed to pose a risk to the conservation objectives of the area, based on the best available science, such as salmon gill net and seine. For further information on this, please contact Aleria Ladwig at Aleria.ladwig@dfo-mpo.gc.ca.

More information on the Scott Islands marine NWA can be found at:

<https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/scott-islands-marine.html>.

The Scott Islands Protected Marine Area Regulations can be found at: <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-119/index.html>.

Rockfish Conservation Areas

Between 2003 and 2007, DFO established 164 Rockfish Conservation Areas (RCAs) in the Pacific Region for the long-term protection and conservation of a portion of inshore rockfish populations and their habitat.

DFO is currently undertaking a multi-year review of the conservation effectiveness of RCAs. A review of RCAs is timely as it has been more than ten years since they were established. In addition, some RCAs potentially could qualify as Other Effective Area Based Conservation Measures (OEABCMs) and contribute to Canada's Marine Conservation Target of protecting ten percent of marine waters by 2020.

The RCA Review has three areas of focus:

1. RCA Boundary/Location Review – an assessment of ecological attributes in RCAs to help prioritize those RCAs that may have lower conservation benefit to rockfish;
2. Risk assessment of permitted human activities in RCAs;

These two reports will be published through the Canadian Science Advisory Secretariat (CSAS) and will subsequently inform the Review.

3. Engagement with First Nations and stakeholders. The conservation effectiveness of RCAs might be improved by adjusting boundaries or through relocation, changing management measures, conducting more research, and increasing monitoring and compliance. RCAs in the Northern Shelf Bioregion have been selected for the first phase of engagement starting in the fall of 2018. Engagement in other bioregions will occur in subsequent years.

Information on Rockfish Conservation Areas is available online at: <http://dfo-mpo.gc.ca/rockfish-conservation> or for further information on this, please contact Neil.Ladell at Neil.Ladell@dfo-mpo.gc.ca.

6 OBJECTIVES

6.1 National

DFO aims to:

- Meet conservation objectives and ensure healthy and productive fisheries and ecosystems
- Base management decisions on the best available scientific information
- Manage First Nations fisheries for FSC purposes in a manner consistent with the Sparrow Decision (SCC 1990) and other relevant court decisions (*R v. Gladstone 1996 and Ahousaht*) and treaty obligations
- Work collaboratively with commercial and recreational sectors to provide fishing opportunities in a manner that ensures the long term sustainability of the resource
- Provide stability and predictability in fisheries management and improved governance through an open and transparent consultation process
- Foster shared stewardship
- Manage commercial fisheries to improve economic performance, provide certainty for participants and to optimize harvest opportunities

6.2 Pacific Region

The overall goal of Fisheries Management in the Pacific Region is the conservation of Canada's fisheries resources and sustainable resource utilization to ensure priority (after conservation) FSC access for First Nations and generate economic prosperity. This is accomplished through close collaboration with resource users and stakeholders based on shared stewardship consistent with treaty and Indigenous rights. Fisheries Management is responsible for management of the Indigenous, commercial, and recreational fishing in the Pacific Ocean and creating the conditions for a vibrant and innovative aquaculture industry.

Fisheries Management will continue to develop and implement the Sustainable Fisheries Framework by integrating the precautionary and ecosystem approach frameworks into IFMPs with the goal of protecting vulnerable marine and freshwater ecosystems and vulnerable stocks from significant adverse impacts, and to help ensure long term sustainable management and support economic prosperity.

6.3 Pacific Albacore Tuna Resource Management

The Department has specific objectives for the management of Pacific Albacore Tuna for each of the five issues specified below. Details on how performance with regards to these objectives will be evaluated are provided in Section 10.

Stock Conservation: to ensure that harvest of Pacific Albacore Tuna is conducted in a sustainable manner and to support the use of the precautionary approach to fisheries management within Regional Fisheries Management Organizations.

Ecosystem Processes: to ensure conservation of the Pacific Albacore Tuna stock, and manage for ecosystem impacts of fish harvest activities. Scientific management principles will be applied in a risk-based and precautionary manner based on the best scientific advice available, and through comprehensive monitoring of fish harvest activities.

Access for Indigenous People: to continue to provide opportunities for First Nations to harvest for food, social and ceremonial purposes, in a manner consistent with the *Sparrow Decision* (SCC 1990), and other court decisions. For more information, see Appendix 4 or visit:

<http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html>

Consultation: to maintain an open and transparent consultation process for discussions of harvest management issues for the Pacific Albacore Tuna fishery, including the development of the annual IFMP, activities related to Regional Fisheries Management Organisations, and the long-term direction of the fishery.

Compliance: to continue to monitor fishing activity using hauls, logbooks and aerial surveillance in cooperation with the US Coast Guard and other enforcement authorities. This program will be annually assessed for compliance and effectiveness.

7 ACCESS AND ALLOCATION

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

7.1 Indigenous

Indigenous harvest of Pacific Albacore Tuna for FSC purposes may occur coast wide where authorized by a communal licence.

Fisheries chapters in modern Indigenous treaties may articulate a treaty fishing right for FSC purposes that could be protected under Section 35 of the *Constitution Act, 1982*. Commercial access may be provided either through the general commercial fishery or a Harvest Agreement, which is negotiated at the same time as the treaty and is referenced in the treaty, but is not protected under the Constitution Act.

Four modern treaties (Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), Maa-nulth First Nations Final Agreement (MNA) and Tla'amin Final Agreement) have been ratified in British Columbia. Tsawwassen and Maa-nulth First Nations Treaties came into effect on April 3, 2009 and April 1, 2011, respectively. Most recently, the Tla'amin First Nations Treaty came into effect on April 5, 2016. These agreements articulate a treaty right to food, social and ceremonial harvest of fish and describe the role for First Nations in fisheries management.

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) - have Aboriginal rights to fish within their Fishing Territories and to sell that fish. DFO is working with the Five Nations to implement a Fishery Management Plan ("FMP") for their fishing by March 31, 2019. The FMP could lead to in-season management changes.

7.2 Recreational

Recreational harvest of Pacific Albacore Tuna is permitted through a British Columbia Tidal Waters Sport Fishing Licence. The daily limit for Pacific Albacore Tuna is 20 pieces and the possession limit is 40 pieces.

7.3 Commercial

Commercial harvest of Pacific Albacore Tuna is permitted in the high seas, Canadian waters and USA waters where appropriately licenced. There is no restriction on the number of licences available for harvest in the high seas or Canadian waters. 45 Canadian vessels are eligible each year for licences permitting harvest in USA waters. There is no limit to the total allowable catch in Canada's commercial Pacific Albacore Tuna fishery.

8 MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

Please see the Aboriginal, Recreational and Commercial Fishing Plans, Appendix 4 to 8 for details on the fishery including:

- Fishing Season;
- Closed Areas;
- Control and Monitoring of Removals;
- Licensing;
- Fishery Monitoring Programs; and
- Habitat Protection Measures.

9 SHARED STEWARDSHIP ARRANGEMENTS

Stewardship refers to the care, supervision or management of something, especially the careful and responsible management of something entrusted to one's care. In the context of fisheries management, stewardship is often referenced in regards to "shared stewardship," whereby participants will be effectively involved in fisheries management decision-making processes at appropriate levels, will contribute specialized knowledge and experience, and share in accountability for outcomes.

There are no formal shared stewardship arrangements (i.e. Joint Project Agreements) for tuna in the Pacific Region. However, stakeholders work closely with Fisheries Management staff in pre-season, in-season, and post-season processes, providing expert knowledge and specialized experience to inform management decisions and cooperatively develop solutions to management issues.

10 PERFORMANCE / EVALUATION CRITERIA

10.1 National

- Pacific Albacore Tuna conservation objectives are met such that fisheries and ecosystems are healthy and productive.
- Harvest opportunities are provided in a manner consistent with the Sparrow Decision (SCC 1990) and other relevant court decisions and treaty obligations.
- Reasonable effort has been made to provide opportunities for economic prosperity while meeting conservation objectives.
- Consultation and management processes are stable, transparent, and predictable.

10.2 Pacific Region

- The Pacific Albacore Tuna fishery is executed in accordance with the requirements outlined in the IFMP.
- The monitoring program provides accurate information on catch and effort as necessary for management of the tuna resource.
- Proper controls are in place for management and control of the fishery and the conservation and protection of fish.
- First Nations and stakeholders are engaged and informed with regards to management decisions; solutions to issues related to management of the tuna fishery are cooperatively developed.

10.3 Pacific Albacore Tuna Resource Management

Stock Conservation

- Fishing effort is maintained at or below levels specified in the IATTC Conservation and Management Measure (CMM) 2005-02.
- International Science Committee is engaged to determine stock levels and provide advice to RFMOs consistent with the precautionary principle.

Ecosystem Processes

- Mechanisms are in place to monitor the fishery by gathering catch and effort information through the hail and logbook programs.

Access for Indigenous People

- Mechanisms are in place for the Department to receive requests for FSC harvest authorizations; requests that received are processed in a timely manner.

Consultation

- A draft IFMP is distributed with 30 days for review and feedback.

-
- Pre-season and post-season meetings are held with the Tuna Advisory Board.
 - The Department participates in bilateral meetings with the USA in order to facilitate Treaty-related discussions and negotiations.

Compliance

- Aerial surveillance is conducted and results compared to relevant authorizations.
- Hail and logbook compliance is reviewed; non-compliance is addressed through appropriate measures.
- U.S. and international enforcement counterparts are engaged where appropriate.

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APPENDIX I. POST-SEASON REVIEW

Note that the objectives for 2018/19 have been updated; the performance measures and objectives noted here are for the 2017/18 season and therefore reflect the objectives laid out in the IFMP covering that season. The post-season review for 2018/19 will reflect the updated objectives and performance measures specified above.

Stock Conservation and Ecosystem Processes

| Performance Measure | DFO Activity |
|---|--|
| Coordinate with fishery scientists through the International Science Committee to determine stock levels and provide advice to RFMOs. | DFO led the ALBWG conducting and reporting of the most recent stock assessment. Canada also participates in the international management strategy evaluation process for Albacore Tuna and continues to provide national catch and effort data to the RFMOs on an annual basis. |
| Maintain fishing effort of Albacore Tuna at current levels as per the Conservation and Management Measure (CMM) 2005-02. | Fishing effort for Canadian vessels is tracked through hails and logbooks. These data indicate that Canada did not surpass levels (as per CMM 2005-03) in 2018. |
| Continue to monitor the fishery by gathering catch and effort information for the Pacific Albacore Tuna fishery through the hail and logbook program. | All vessels participating in the fishery were required to maintain a logbook of daily catch (and bycatch), effort, landings and transshipments and forward these data to DFO by November 1, 2018. All vessels were further required to report fishing activities through the hail program. |
| Review harvest activities so they occur in a manner that will minimize impacts to sensitive fish habitats and populations. | DFO reviewed logbook data and engages with harvesters to understand impacts of the fishery. No significant negative impacts to other species or ecosystems have been identified. |
| Provide catch, effort and biological data to RFMOs in charge of the conservation and management of Pacific Albacore Tuna. | Canada had a high logbook compliance rate (100%) and reported all aggregated catch (including bycatch) and effort data to the IATTC and WCPFC prior to the annual reporting deadline. |

Consultation

| Performance Measure | DFO Activity |
|--|---|
| Hold pre-season planning meetings and seek stakeholder advice on development of the IFMP allowing for 30 days for review and feedback on IFMP draft content. | The TAB pre-season planning meeting was held on February 15, 2018. Additional calls with and meetings were held with TAB advisors as necessary to discuss specific items related to management planning. The draft IFMP was made available for review and comment and the public was advised via Fisher Notice. |
| Facilitate consensus building among stakeholders on issues related to the management of the fishery. | TAB provided formal advice and recommendations to the Department on operational and policy issues taking into account the views of those they represent and departmental policies as well as international agreements. |
| Hold post-season meetings to review issues encountered during the season and to develop options for addressing and resolving them. | The TAB post-season review meeting was held on January 18, 2018. |

Compliance

| Performance Measure | DFO Activity |
|--|---|
| Develop and implement measures for the effective monitoring and control of the fishery that are consistent with domestic policies and international requirements in cooperation with international enforcement counterparts. | In 2018, as a Conditions of Licence, all vessel masters were required to notify Canadian authorities of their fishing activities through the hail program, to maintain and submit harvest logbooks, and register vessels with the IATTC and WCPFC as appropriate. |
| Monitor compliance with Conditions of Licence in coordination with USA and international enforcement counterparts. | There remains some level of non-compliance with reporting requirements (particularly the timing of hails); however, the Department is working to address these issues with stakeholders through the advisory process and with vessel owners on an individual basis to address any violations. |

APPENDIX 2. TUNA FISHERY AREA CLOSURES

Area 2

Closed year-round in Subareas 2-1, 2-63 to 2-68 and that portion of Subarea 2-69 between Hunter Point to Fame Point inside the 50-fathom contour line. (CHS Chart 3869). The intent of the closure is to reduce harvesting pressure on localized stocks of fish and to provide improved access to First Nations for Food, Social and Ceremonial purposes.

Areas 12 to 20, 28 and 29

Strait of Georgia/Johnstone/Juan de Fuca and Fraser River.

Area 121

Portions of Subareas 121-1 and 121-2 inside a line connecting the following latitude and longitude co-ordinates: 48°34'N, 125°06'W thence to 48°34'N, 124°54.20'W thence to 48°29.62'N, 124°43.40'W thence following the International Boundary between Canada and the USA to 48°29.30'N, 124°58'W then to the beginning point.

Rockfish Conservation Areas

Effective February 1, 2007, a suite of Rockfish Conservation Areas (RCAs) came into effect. There are 164 RCAs in the current suite, and the majority of the closed areas are located within the Strait of Georgia. Designation of the closed areas was a result of over three years of consultation with many stakeholders. The descriptions associated with the RCA's can be found at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acs/index-eng.htm>

Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site

As noted in section 5.2.1.4.1 of the front section of the IFMP, a new management plan for the Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site was approved by Canada and the Haida Nation in November 2018, following an extensive consultation process. The final zoning plan includes several areas of strict protection, where commercial and recreational fishing will be prohibited (see Management Plan in weblink below). The implementation of these closures may take some time. However, steps are being taken to undertake this work and each closure will be communicated via Fishery Notice as it is implemented.

Users of the Gwaii Haanas marine area should be aware that adjacent land is managed under the authority of the Canada National Parks Act and its regulations and, as specified in the Gwaii Haanas Agreement (1993), there is "no extraction or harvesting by anyone of the

resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). There are specific requirements for visiting the terrestrial portion of Gwaii Haanas, and advanced planning is necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information. For background information, see IFMP section 5.3.

The Gwaii Haanas Gina 'Waadluxan KilGuhlGa Land-Sea-People Management Plan is available here: <https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/info/consultations>.

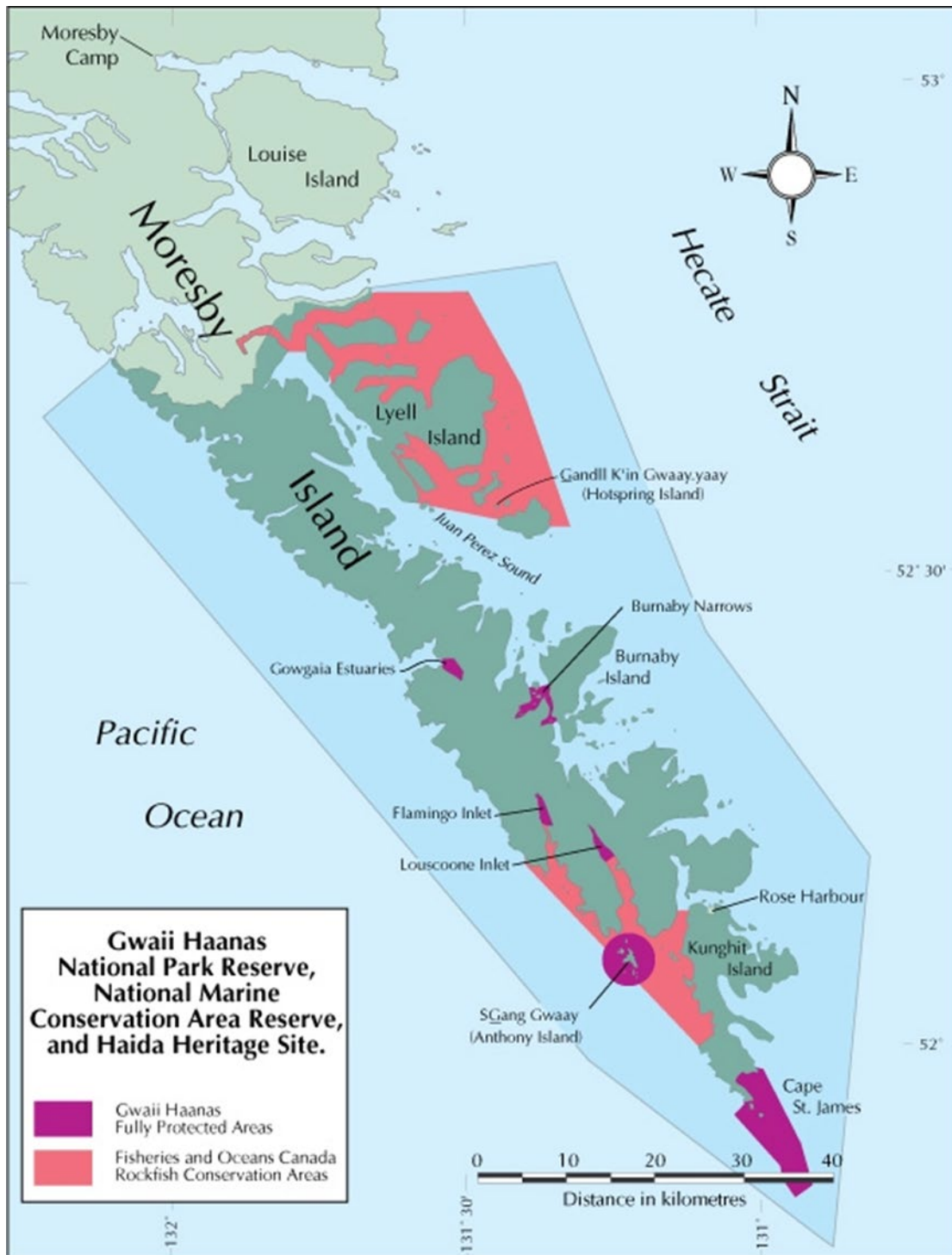


Figure 4: Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Current closures)

Until the new zoning plan is implemented and communicated through subsequent Fishery Notices, the following commercial and recreational closures remain in effect:

(1) Burnaby Narrows

Those waters of Subareas 2-13 and 2-16 inside a line commencing at 52°23.049 minutes N and 131°23.438 minutes W east to 52°23.077 minutes N and 131°22.908 minutes W, following the southern shoreline of Kat island east to 52°23.107 minutes N and 131°22.274 minutes W, then east to 52°23.295 minutes N and 131° 21.34 minutes W, following the western shoreline of Burnaby Island south to 52° 20.951 minutes N and 131°20.509 minutes W, then west to 52°20.733 minutes N and 131°21.072 minutes W, and then north following the eastern shoreline of Moresby Island back to the point of commencement. [Burnaby Narrows]

(2) Louscoone Estuary

Those waters of Subareas 2-33 and 2-34 north of a line drawn from 52°11.836 minutes N and 131°15.658 minutes W east to 52°12.271 minutes N and 131°14.594 minutes W. [Louscoone Estuary]

(3) Flamingo Estuary

Those waters of Subarea 2-37 north of a line drawn from 52°14.456 minutes N and 131°22.234 minutes W southeast to 52°14.246 minutes N and 131°21.489 minutes W. [Flamingo Estuary]

(4) Gowgaia Estuary

Those waters of Subarea 2-41 east of a line drawn from 52°24.944 minutes N and 131°32.138 minutes W southeast to 52°24.238 minutes N and 131°32.024 minutes W. [Gowgaia Estuary]

(5) Cape Saint James

Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at 51°56.523 minutes N and 131°01.522 minutes W, southwest to 51°55.627 minutes N and 131°02.574 minutes W, then southeast to 51°52.5 minutes N and 130°57.919 minutes W, then south to 51°51.676 minutes N and 130°57.805 minutes W, the southeast to 51°50.349 minutes N and 130°56.442 minutes W, then northeast to 51°51.062 minutes N and 130°54.717 minutes W, then north to 51°53.888 minutes N and 130°55.608 minutes W, then northwest to 51°58.671 minutes N and 130°59.464 minutes W, and then west to 51°58.743 minutes N and 131°00.606 minutes W, and then following the southern shore of Kunghit Island west to the point of commencement. [Cape Saint James]

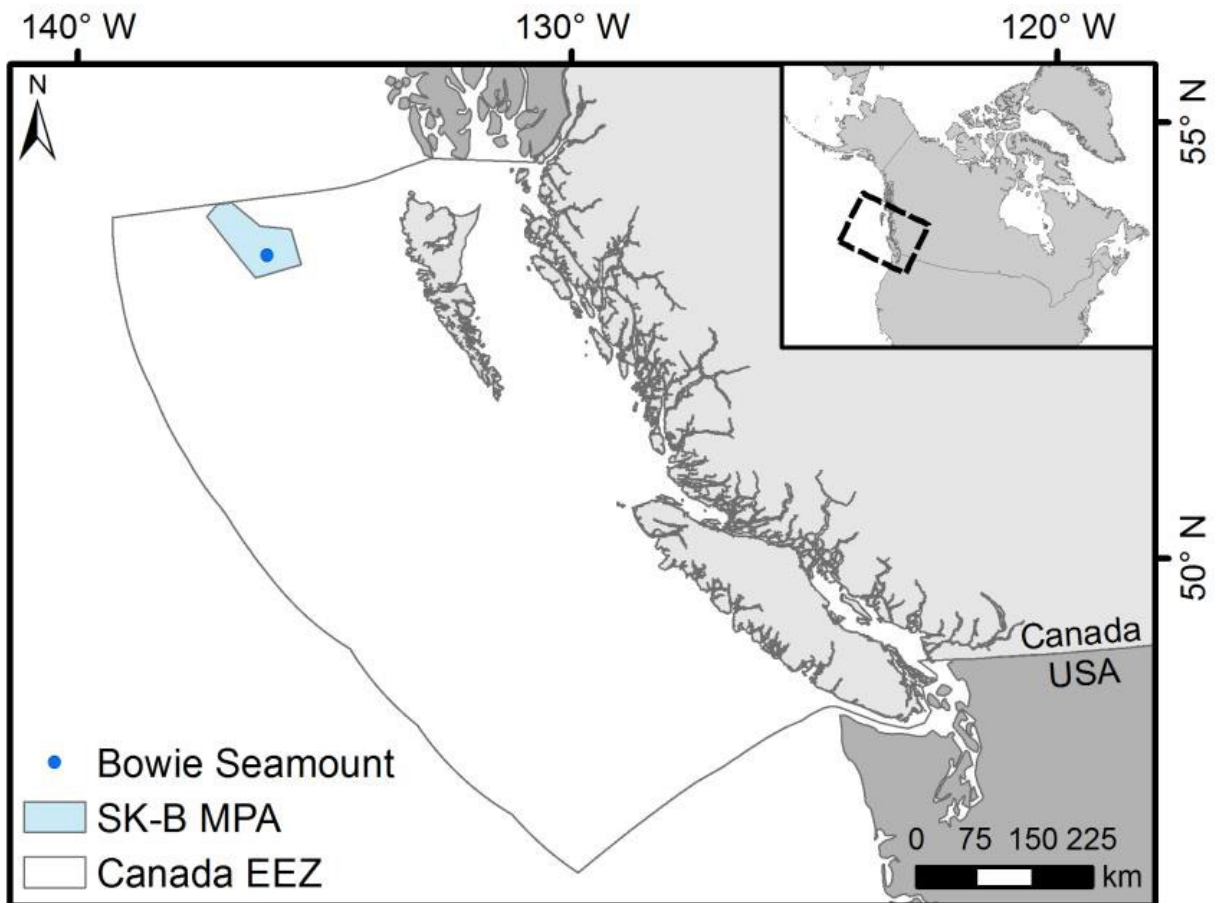
(6) SGang Gwaay

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 minutes N and 131°13.178 minutes W. [SGang Gwaay]

SGaan Kinghlas-Bowie Seamount Marine Protected Area

The SK-B MPA is closed year-round. The MPA's regulations establish the outer boundary of the MPA as the area of the Pacific Ocean that includes the SK-B, Hodgkins and Davidson Seamounts — consisting of the seabed, the subsoil and the water column above the seabed — which 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.

Figure 5: Location of Bowie Seamount and SGaan Kinghlas-Bowie Marine Protected Area (SK-B MPA) within Canada's EEZ (Exclusive Economic Zone)



APPENDIX 3. STOCK ASSESSMENT SUMMARY

Stock Identification and Distribution: The north Pacific Albacore Tuna (*Thunnus alalunga*) stock area consists of all waters in the Pacific Ocean north of the equator to 55°N. All available fishery data from this area were used for the stock assessment, assuming that there is instantaneous mixing of albacore on a quarterly basis, i.e., a single well-mixed stock.

Major changes from the 2014 assessment: There were three major changes to the base case model compared to the previous assessment in 2014. 1) Most importantly, a new procedure was used to standardize the Japanese longline abundance index (1996 – 2015) used to indicate trends in adult albacore abundance and the results represent a substantial improvement relative to 2014 and earlier assessments. This new index had good contrast and, based on Age-Structured Production Model (ASPM) diagnostic analyses, informative on both population trend and scale. 2) The start year of the base case model was changed from 1966 (in 2014) to 1993 (in 2017). This change eliminated the influence of poorly fit size composition data from the Japanese longline fleets in 1975 – 1992, and eliminated the conflict between these size composition data and the primary adult albacore indices. 3) In previous assessments, the instantaneous rate of natural mortality (M) was assumed to be 0.3 y⁻¹ for both sexes at all ages. The basis for this assumption was reviewed and found to be poorly supported. Sex-specific M-at-age vectors were developed from a meta-analysis, with a sex-combined M that scaled with size for ages 0-2, and sex-specific M fixed at 0.39 and 0.48 y⁻¹ for age-3+ males and females, respectively.

Catches: During the modeling period (1993-2015), the total reported catch of north Pacific albacore reached a peak of 119,300 t in 1999 and then declined in the early 2000s, followed by a recovery in later years with catches fluctuating between 68,900 and 93,100 t in recent years (2010- 2015) (Fig. ES1). Surface gears (troll, pole-and-line), which primarily harvest juvenile albacore, have accounted for approximately twice as much albacore catch as longline gear (Fig. ES2).

Data and Assessment: All north Pacific albacore catch and size composition data from ISC member countries (Canada, China, Chinese Taipei, Japan, Korea, and USA) and non-member countries were compiled for the assessment. Coherent fishery definitions, especially for the Japan longline and pole-and-line fisheries, improved model fits to the data and model diagnostics. Thirteen relative abundance indices (standardized catch-per-unit-effort) were provided by Japan, USA, and Chinese Taipei. Based on a thorough review of all fishery data and preliminary model runs, the Albacore Working Group (ALBWG) fitted the base case model to one abundance index, the Japanese longline index (S1) from the fleet operating south of 30°N

and west of 160 °E (1996-2015). The S1 index was chosen because it represented the best information on trends for the adult age-classes of female albacore, had good contrast, and the results of ASPM analyses provided evidence that the S1 index was informative on both population trend and scale.

The north Pacific Albacore Tuna stock was assessed using a length-based, age-, and sex-structured Stock Synthesis (SS Version 3.24AB) model over the 1993-2015 period. Sex-specific growth curves from the 2014 assessment were used because of evidence of sexually dimorphic growth, with adult males attaining a larger size-at-age than females after maturity. Sex-specific M-at-age vectors were developed from a meta-analysis, with a sex-combined M that scaled with size for ages 0-2, and sex-specific M fixed at 0.48 and 0.39 y⁻¹ for age-3+ females and males, respectively. The steepness of the Beverton-Holt stock-recruitment relationship was assumed to be 0.9, based on two prior analyses. The assessment model was fitted to the S1 index (1996-2015) and all representative size composition data in a likelihood-based statistical framework. All fleets were assumed to have dome-shaped length selectivity, and age-based selectivity for ages 1-5 was also estimated for surface fleets (troll and pole-and-line) to address age-based changes in juvenile albacore availability and movement. Selectivity was assumed to vary over time for fleets with important changes in fishing operations. Maximum likelihood estimates of model parameters, derived outputs, and their variances were used to characterize stock status. Several sensitivity analyses were conducted to evaluate changes in model performance or the range of uncertainty resulting from changes in model parameters, including natural mortality, stock-recruitment steepness, starting year, selectivity estimation, variability of size-at-age and weighting of size composition data.

An age-structured production model diagnostic analysis, showed that the estimated catch-at-age and fixed productivity parameters (growth, mortality and stock-recruitment relationship without annual recruitment deviates) were able to explain trends in the S1 index. Based on these findings, the ALBWG concluded that the base case model was able to estimate the stock production function and the effect of fishing on the abundance of the north Pacific albacore stock. The link between catch-at-age and the S1 index adds confidence to the data used, and represents a major improvement in the 2017 assessment of the north Pacific albacore stock. Due to the moderate exploitation levels relative to the productivity, the production function was weakly informative about north Pacific albacore stock size, resulting in asymmetric uncertainty in the absolute scale of the stock, with more uncertainty in the upper limit of the stock than the lower limit. It is important to note that the primary aim of estimating the female spawning biomass (SSB) in this assessment was to determine if the estimated SSB was lower than the limit reference point (i.e., determine whether the stock is in an overfished condition). Since the lower

bound is better defined, it adds confidence to the ALBWG's evaluation of stock condition relative to the limit reference point.

Stock Status: Estimated total stock biomass (males and female at age-1+) declines at the beginning of the time series until 2000, after which biomass becomes relatively stable (Fig. ES3A). Estimated female SSB exhibits a similar population trend, with an initial decline until 2003 followed by fluctuations without a clear trend through 2015 (Fig. ES3B). The estimated SPR (spawners per recruit relative to the unfished population) in 2015 is 0.53, which corresponds to a moderate exploitation intensity (i.e., $1-SPR = 0.47$). Instantaneous fishing mortality at age (F-at-age) is similar in both sexes through age-5, peaking at age-4 and declining to a low at age-6, after which males experience higher F-at-age than females up to age 13 (Fig. ES4). Juvenile albacore aged 2 to 4 years comprised, on average, 70% of the annual catch between 1993 and 2015 (Fig. ES5) as reflected by the larger impact of the surface fisheries (primarily troll, pole-and-line) which remove juvenile fish, relative to longline fisheries, which primarily remove adult fish (Fig. ES6).

Stock status is depicted in relation to the limit reference point (LRP; 20%SSB_{current}, F=0) adopted by the Northern Committee (NC) of the Western and Central Pacific Fisheries Commission (WCPFC) for the stock and the equivalent fishing intensity (F20%; calculated as $1-SPR_{20\%}$) (Fig. ES7A). The Kobe plot shows that the estimated female SSB has never fallen below the LRP since 1993, albeit with large uncertainty in the terminal year (2015) estimates. Even when alternative hypotheses about key model uncertainties such as natural mortality and growth were evaluated, the point estimate of female SSB in 2015 (SSB₂₀₁₅) did not fall below the LRP, although the risk increases with these more extreme assumptions (Fig. ES7B). The SSB₂₀₁₅ was estimated to be 80,618 t and was 2.47 times greater than the LRP threshold of 32,614 t (Table ES1). Current fishing intensity, F₂₀₁₂₋₂₀₁₄ (calculated as $1-SPR_{2012-2014}$), was lower than potential F-based reference points identified for the north Pacific albacore stock, except F_{50%} (calculated as $1-SPR_{50\%}$) (Table ES1). Based on these findings, the ALBWG concludes that: 1) the stock is likely not overfished, and 2) overfishing is likely not occurring.

Biological Reference Points: Biological reference points were computed with the base case model (Table ES1). It should be noted that the 20%SSB_{current}, F=0 LRP is based on dynamic biomass and fluctuates depending on changes in recruitment (Fig. ES3B). In addition, all F-based reference points were calculated as the fishing intensity (1-SPR) equivalents of the reference points. The point estimate of maximum sustainable yield (MSY; includes male and female of all age classes removed by fisheries) was 132,072 t and the point estimate of female SSB to produce MSY (SSB_{MSY}) was 24,770 t. The ratio of F₂₀₁₂₋₂₀₁₄/F_{MSY} was estimated to be

0.61 and the ratio of $SSB_{2015}/20\%SSB_{current}$, $F=0$ was estimated to be 2.47. Current fishing intensity ($F_{2012-2014}$) is below F_{MSY} and all MSY -proxy reference points except $F_{50\%}$, and SSB_{2015} is well above the LRP threshold (Table ES1).

Future Projections: Two 10-yr projection scenarios, constant $F_{2012-2014}$ and constant catch (average of 2010-2014 = 82,432 t) were conducted externally to the base case model to evaluate impacts on future female SSB. Future recruitment was based on the expected recruitment variability ($\sigma_R = 0.5$) and estimated autocorrelation ($R = -0.13$) of the recruitment time series (1993 – 2015) in the base case model. The overall sex-specific F -at-age was estimated from the base case model and used (scaled to the appropriate catch in the constant catch scenario) to remove albacore from the appropriate age and sex in the projected populations. There were two main sources of uncertainty in the projections: 1) uncertainty in the total biomass estimates; and 2) uncertainty in the future recruitment. Projections started in 2015 and continued for 10 years through 2025.

The projections show that the current fishing intensity ($F_{2012-2014}$) is expected to reduce female SSB to 63,483 t (CI: 36,046 - 90,921 t) by 2025, with a 0.2 and <0.01 % probability of being below the LRP by 2020 and 2025, respectively (Fig. ES8). Median catch is expected to increase in 2017 and 2018 and then decline to about 60,000 t in 2024 when fishing at $F_{2012-2014}$ (Fig. ES8). However, median future catch is expected to be below the average catch level for 2010-2014 (82,432 t – red line in Fig. ES8). This result is most likely due to low estimated recruitment in 2011, which is expected to reduce female SSB beginning in 2015, the first year of the projection period. In contrast, employing the constant catch harvest scenario is expected to reduce female spawning biomass to 47,591 t (CI: 5,223 - 89,958 t) by 2025 and increases the probability that female SSB will be below the LRP to about 3.5 and 30 % in 2020 and 2025, respectively (Fig. ES9). The probabilities of female SSB falling below the LRP may be higher than estimated here because the future projections software does not incorporate all the estimated uncertainty from the base case model into the projections. It should be noted that the constant catch scenario is inconsistent with current management approaches for north Pacific Albacore Tuna adopted by the Inter-American Tropical Tuna Commission (IATTC) and the WCPFC.

Conservation Advice: Based on the projection results, the stock performs better under the constant $F_{2012-2014}$ harvest intensity scenario with respect to the LRP than the constant catch scenario. Median female SSB is expected to decline slightly over 10 years with a negligible probability of declining below the LRP threshold during this period, when a constant fishing intensity harvest scenario is applied to the stock. In contrast, there is a substantially greater probability that female SSB will decline below the LRP by 2025 under a constant catch harvest

scenario. Although the probabilities of declining below the LRP in both harvest scenarios are likely higher in the future, even the most extreme results from other model runs with plausible alternative assumptions showed that female SSB is not likely to decline below the LRP. Thus, the ALBWG concludes that: 1) the north Pacific albacore stock is healthy, and 2) that current productivity is sufficient to sustain recent exploitation levels.

Key Uncertainties: The ALBWG notes that the lack of sex-specific size data, uncertainty in growth and natural mortality, and the simplified treatment of the spatial structure of north Pacific albacore population dynamics are important sources of uncertainty in the assessment.

| Quantity | Base Case | Growth | CV = 0.06 for Linf |
|------------------------------|-----------|---------|--------------------|
| MSY (t) A | 132,072 | 92,027 | 118,836 |
| SSBMSY (t) B | 24,770 | 42,098 | 22,351 |
| SSB0 (t) B | 171,869 | 270,879 | 156,336 |
| SSB2015 (t) B | 80,618 | 68,169 | 63,719 |
| SSB2015/20%SSBcurrent, F=0 B | 2.47 | 1.31 | 2.15 |
| F2012-2014/FMSY | 0.61 | 0.89 | 0.68 |
| F2012-2014/F0.1 | 0.58 | 0.90 | 0.65 |
| F2012-2014/F10% | 0.56 | 0.81 | 0.63 |
| F2012-2014/F20% | 0.63 | 0.91 | 0.71 |
| F2012-2014/F30% | 0.72 | 1.04 | 0.81 |
| F2012-2014/F40% | 0.85 | 1.21 | 0.96 |
| F2012-2014/F50% | 1.01 | 1.47 | 1.16 |

A – MSY includes male and female juvenile and adult fish

B – Spawning stock biomass (SSB) in this assessment refers to mature female biomass only.

Table ES1. Estimates of maximum sustainable yield (MSY), female spawning biomass (SSB) quantities, and fishing intensity (F) based reference point ratios for north Pacific Albacore Tuna for the base case assessment and important sensitivity analyses. SSB0 and SSBMSY are the unfished biomass of mature female fish and at MSY, respectively. The Fs in this table are not based on instantaneous fishing mortality. Instead, the Fs are indicators of fishing intensity based on SPR and calculated as 1-SPR so that the Fs reflects changes in fishing mortality. SPR is the equilibrium SSB per recruit that would result from the current year’s pattern and intensity of fishing mortality. Current fishing intensity is based on the average fishing intensity during 2012-2014 (F2012-2014).

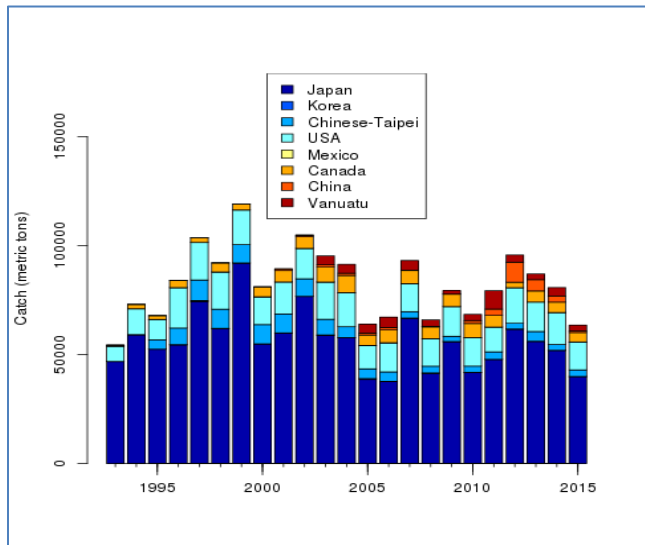


Figure ES1. Estimated total annual catch of north Pacific albacore (*Thunnus alalunga*) by all countries harvesting the stock, 1993-2015. ISC member country catches and catches by Vanuatu, which might include small catches by other countries such as Tonga, Belize, Cook Islands, and Marshall Islands.

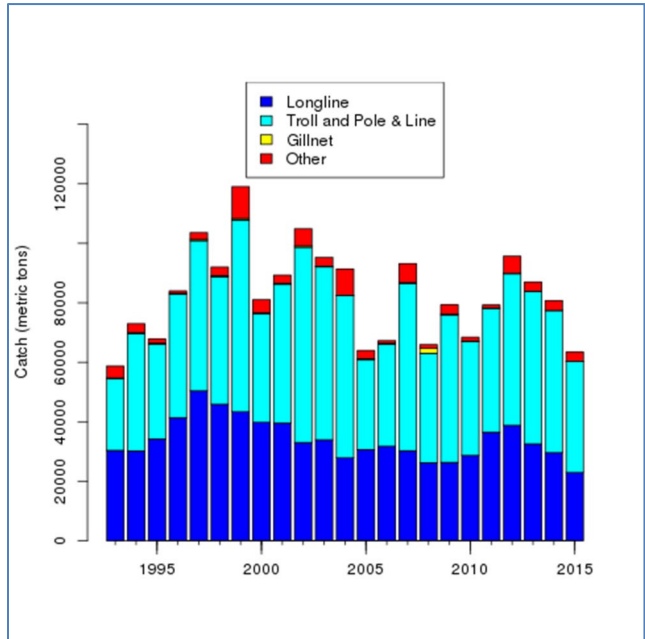


Figure ES2. Estimated catches of north Pacific albacore (*Thunnus alalunga*) by major gear types, 1993-2015. The Other gear category includes catches with purse seine, recreational gear, hand lines, and harpoons.

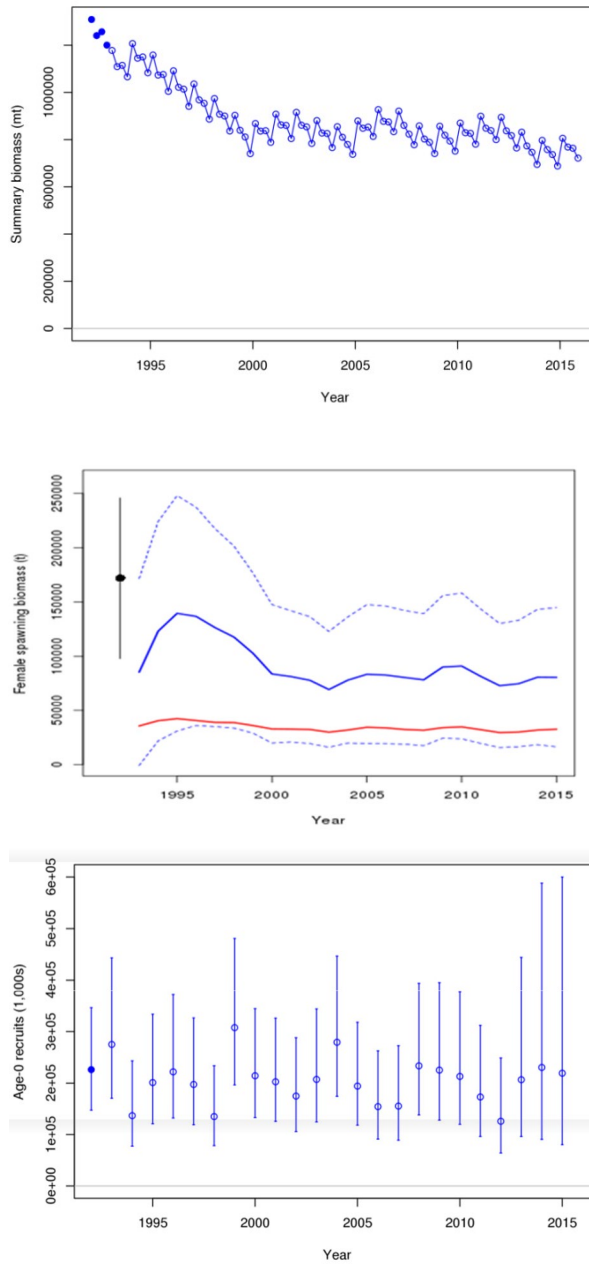


Figure ES3. Maximum likelihood estimates of (A) total age-1+ biomass (open circles) (B), female spawning biomass (SSB) (solid blue line), and (C) age-0 recruitment (open circles) of north Pacific Albacore Tuna (*Thunnus alalunga*). Dashed lines (B) and vertical bars (C) indicate 95% confidence intervals of the female SSB and recruitment estimates respectively. Red line indicates the 20%SSBcurrent, F=0 limit reference point, which is based on dynamic SSB0. Closed black circle and error bars in (B) are the maximum likelihood estimate and 95% confidence intervals of unfished female spawning biomass, SSB0. Since the assessment model represents time on a quarterly basis, there are four estimates of total biomass (A) for each year, but only one annual estimate of female SSB (B) and recruitment (C).

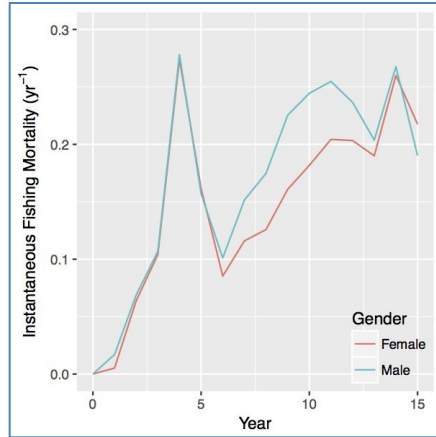


Figure ES4. Estimated sex-specific instantaneous fishing mortality-at-age (F-at-age) for the 2017 base case model, averaged across 2012-2014.

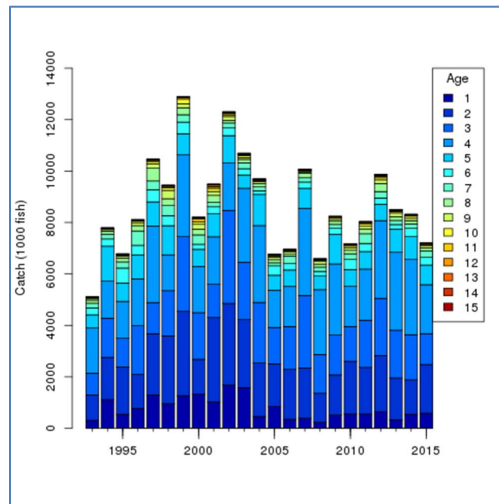


Figure ES5. Historical catch-at-age of north Pacific albacore (*Thunnus alalunga*) estimated by the 2017 base case model.

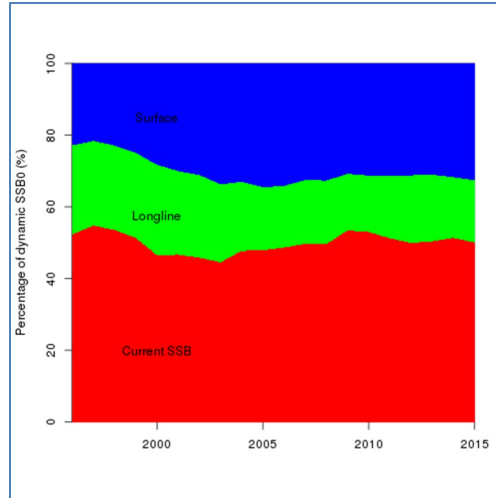


Figure ES6. Fishery impact analysis on north Pacific albacore (*Thunnus alalunga*) showing female spawning biomass (SSB) (red) estimated by the 2017 base case model as a percentage of dynamic unfished female SSB (SSB₀). Colored areas show the relative proportion of fishing impact attributed to longline (USA, Japan, Chinese-Taipei, Korea and others) (green) and surface (USA, Canada, and Japan) (blue) fisheries (primarily troll and pole-and-line gear, but including all other gears except longline).

APPENDIX 4. INDIGENOUS FISHING 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:
<http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html>

APPENDIX 5. RECREATIONAL FISHING PLAN

Tidal Water Sport Fishing - Licensing and Regulations

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 DFO Tidal Waters Sport Fishing licence is required for the recreational harvest of all species of fish and invertebrates. The daily maximum for Pacific Albacore Tuna is 20 pieces, with a possession limit of 40 pieces. Tidal Waters Sport Fishing licences may be purchased for a 1, 3, 5 day, or annual period. Fees depend on licence duration, age (senior, adult, juvenile) and residency status. Licences for juveniles (ages 15 and under) are free. Check for applicable fees and purchase your licence online via the National Recreational Licensing System:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/application-eng.html>

The regulations for recreational fishing are summarized online in the British Columbia Tidal Waters Sport Fishing Guide, which lists closed times, catch limits, size limits (where applicable) and open/closed areas: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>. When required, Fishery Notices are issued to advise of changes to the regulations which are kept up-to-date in the online Sport Fishing Guide; view or sign-up to receive Fishery Notice notifications by email at: <http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm>.

Supporting Sustainable Fisheries - Catch Reporting and the (iREC) Survey

The Sport Fishing Advisory Board (SFAB) is the primary consultative body for the recreational fishing community, and includes representatives from all geographic regions in BC, and the BC Wildlife Federation, and the Sport Fishing Institute of BC. The SFAB and the recreational fishing sector strongly support effective fishery monitoring and catch reporting programs in recreational fisheries. The SFAB has been working with DFO on initiatives to strengthen fishing monitoring and catch reporting in the recreational fishery for a number of years.

Recreational harvesters are required as a condition of the Tidal Waters Sport Fishing Licence to report information on their recreational fishing activity and catch to DFO representatives when requested to do so, whether in person or via an internet survey. Recreational harvesters may be requested by a Fishery Officer or designated DFO representative at the dock, or through a creel or internet survey to provide catch/effort information on their recreational fishing activities.

The Internet Recreational Effort and Catch (iREC) Survey was initiated in 2012 to provide monthly estimates of effort for all methods of recreational fishing. Survey participants will be selected at time of licence purchase, and have their iREC survey access code printed to their

licence. A reminder notice will also be sent by email. By completing the survey, fishers provide information essential to understanding the full impacts of the recreational fishery, and thus support sustainable fishery management. More information on the iREC Survey is available at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec-iarc/index-eng.html>

APPENDIX 6. COMMERCIAL FISHING PLAN – CANADIAN VESSELS IN THE CANADIAN EEZ AND HIGH SEAS

Overview

Fishery Covered

This commercial fishing plan covers Canadian vessels harvesting Albacore Tuna in Canada's Exclusive Economic Zone (EEZ) and the high seas of the Pacific Ocean (i.e. areas outside the EEZs of Canada or other states). The commercial fishing plan for USA vessels operating in Canada's EEZ can be found in Appendix 7. The commercial plan for Canadian vessels operating in the USA EEZ can be found in Appendix 8.

Changes from Previous Season

Four major changes are being introduced for the 2019/2020 season for Canadian vessels operating in Canada's EEZ and the high seas. First, the use of longline gear is no longer permitted under the CT licence. Second, all vessels must be registered with the Inter-American Tropical Tuna Commission (IATTC); this was previously only a requirement for vessels operating south of 50 degrees North latitude. Third, vessel operators wishing to harvest tuna in the convention area of the Western Central Pacific Fisheries Commission (WCPFC) will need to request from DFO an amended specific Conditions of Licence in order to do so. Finally, from the start of the 2019 season, a "Hail-In Report" will be required if a vessel operator has ceased tuna fishing operations for a period greater than 7 days and a "Change of Zone Report" will be required when crossing into a new zone for a period greater than 48 hours, regardless of the intended purpose of entering the new zone. Further information on all of these changes is provided below.

Conditions of Licence

The Conditions of Licence provided with each licence issued stipulate specific requirements harvesters must meet. The IFMP outlines only some of these requirements and does not provide the full information necessary to ensure compliance. Harvesters are required to comply with Regulations and Conditions of Licence.

General Stipulations

Licences

Commercial harvest of Albacore Tuna is permitted under the authority of vessel-based category CT licence or a vessel-based Section 68 High Seas licence.

Areas

Harvesters operating under the authority of a CT licence are permitted to harvest tuna in Canada's EEZ with the exception of those closed areas specified in Appendix 2.

Harvesters operating under the authority of a CT licence or under the authority of a Section 68 High Seas licence are permitted to harvest tuna in the high seas area (outside the EEZ of any state) of the IATTC Convention Area. The IATTC Convention Area can be generally considered to encompass the Eastern Pacific Ocean (see Figure 1 in Section 1.6 of the IFMP); detailed boundaries are specified in Licence Conditions.

Harvesters operating under the authority of a CT licence or under the authority of a Section 68 High Seas licence are not permitted to harvest tuna in the WCPFC Convention Area unless authorized through amended Conditions of Licence. The WCPFC Convention Area can be generally considered to encompass the Western Pacific Ocean, west of 150 degrees West longitude (see Figure 1 in Section 1.7 of the IFMP); detailed boundaries are specified in Licence Conditions. Harvesters can request amended Conditions of Licence authorizing harvest in the WCPFC Convention Area from the Tuna Resource Manager (Bradley.Langman@dfo-mpo.gc.ca / 604-666-2188).

Times

CT licences authorize fishing from April 1, 2019 to March 31, 2020. Section 68 High Seas licences authorize fishing from January 1, 2019 to December 31, 2019.

Gear

Harvesters operating under the authority of a CT licence are permitted to use hook and line gear, not including longline gear. No other gear types are permitted.

Harvesters operating under the authority of a Section 68 High Seas licence to use hook and line gear; longline gear may be permitted if requested. No other gear types are permitted.

Permitted Species

These five species are authorized for capture under Schedule II to the Pacific Fishery Regulations, 1993.

- Albacore Tuna (*Thunnus alalunga*)
- Pacific Bluefin Tuna (*Thunnus orientalis*)
- Pacific Bonito (*Sarda chiliensis*)
- Skipjack Tuna (*Katsuwonus pelamis*)

-
- Yellowfin Tuna (*Thunnus albacares*)

The following additional species may be permitted as incidental catch under authority of a Section 68 High Seas licence. Vessels fishing under the authority of a CT licence are not permitted to retain these species:

- Bigeye Tuna (*Thunnus obesus*)
- Marlins (*Tetrapturus* sp.; *Makaira* sp.)
- Yellowtail (*Seriola lalandi*)
- Sail-fishes (*Istiophorus* sp.)
- Blackfin Tuna (*Thunnus atlanticus*)
- Swordfishes (*Xiphias gladius*)
- Little Tuna (*Euthynnus* sp.)
- Sauries (*Scomberesox* sp.; *Colobais* sp.)
- Frigate Mackerel (*Auzis* sp.)
- Dolphin fish (Mahi Mahi) (*Coryphaena* sp.)
- Pomfrets (Family *Bramidae*)

Licensing

Fees

Licence fee for a CT licence is \$30. The licence fee for a Section 68 High Seas licences is \$500.

Eligibility

Both the CT and the Section 68 High Seas licences are vessel-based and all vessels receiving these licences must be registered Canadian commercial vessels. For vessels not currently registered as a Canadian commercial fishing vessel, a completed Application for Commercial Vessel Registration and applicable fee must be submitted. The registration requirements are outlined on the reverse of that application. The registration requirement for a marine survey report does not have to be met for vessels designated solely for a high seas licence.

In order to be eligible to apply for a CT licence, a commercial or communal commercial licence with Schedule II privileges is required. If the primary licence with Schedule II privileges is replaced or relinquished an associated CT licence will no longer be valid.

Section 68 High Seas licences do not require a primary licence.

Licence Issuance

CT licences are issued through the National Online Licensing System (NOLS) (<https://fishing-peche.dfo-mpo.gc.ca/>). Once registered, users can use the 'Submit Request' NOLS function to

initiate services for these licences. Users can pay licence fees and print licence documents through their NOLS accounts.

Completed applications for Section 68 High Seas licences may be submitted through NOLS or by email to the Pacific Fisheries Licencing Unit. The vessel owner or authorized representative must sign the application form. High Seas applications for species other than tuna will be forwarded to the appropriate DFO Fishery Manager or Co-ordinator for review and approval prior to licence issue.

Additional information is available from the Pacific Fisheries Licencing Unit:

- Telephone: 1-877-535-7307 (ask for “Pacific Region”)
- Fax: 604-666-5855
- Email: fishing-peche@dfo-mpo.gc.ca (specify “Pacific Region” in subject line)

Regional Fishery Management Organizations

Inter-American Tropical Tuna Commission (IATTC)

All Canadian tuna vessels operating in the Pacific Ocean, including within Canada’s Pacific EEZ, must be listed on the IATTC Regional Vessel Registry. Harvesters can check the IATTC Regional Vessel Registry (www.iattc.org/VesselDataBaseENG.htm) to ensure that their vessel is registered. Registration forms are available from the Tuna Resource Manager (Bradley.Langman@dfo-mpo.gc.ca / 604-666-2188).

Beginning January 1, 2020, the IATTC is requiring that all vessels over 12 metres in length have an International Maritime Organization (IMO) number. IMO numbers can be obtained at no cost online at <https://imonumbers.lrfairplay.com>. Harvesters should obtain this number and provide it to the Tuna Resource Manager no later than December 31, 2019.

Western and Central Pacific Fisheries Commission (WCPFC)

Harvesters wishing to fish for tuna in the WCPFC Convention Area will need to request amended Conditions of Licence from the Tuna Resource Manager. These amended Conditions of Licence will be issued once it has been confirmed that the various requirements specific to harvesting in the WCPFC Convention Area have been met.

All vessels used to harvest tuna in the WCPFC Convention Area must be listed on the WCPFC Record of Fishing Vessels (<https://www.wcpfc.int/record-fishing-vessel-database>). Vessels on this list must be authorized annually.

All vessels used to harvest tuna in the WCPFC Convention Area must also have a vessel monitoring system (VMS) approved and registered with the WCPFC Secretariat. Only certain VMS units and service providers are accepted. Vessel operators must sign an authorization form permitting the WCPFC Secretariat to track the vessel while operating in the WCPFC Convention Area.

Certain additional requirements for fishing in the WCPFC Convention Area depend on the specific location, type of harvest (fresh or frozen fish), gear type, and other considerations. Harvesters will need to discuss with the Tuna Resource Manager how these requirements relate to their intentions for fishing in the WCPFC Convention Area.

To request authorization to fish in the WCPFC Convention Area and obtain the necessary registration forms contact the Tuna Resource Manager (Bradley.Langman@dfo-mpo.gc.ca / 604-666-2188).

Fishery Monitoring

Financial Responsibilities

Commercial tuna licence holders fund the fishery monitoring program which consists of, logbooks, vessel hails, associated data entry, and the provision of data to DFO. Licence holders are also responsible for the cost of VMS units, installation, operation, and maintenance; however, the costs associated with management of VMS data are covered by the Department.

Logbook

Harvesters must keep an accurate harvest log (logbook) with complete records of all catch (including bycatch), dates and times, coordinates, and offload information. Harvesters are also requested to provide length measurements for a sample 10 fish at the start of each successful day. Logbooks must be submitted by November 1, 2019 and data must be provided to the Department in an acceptable electronic format. A sample logbook page is included in Appendix 10.

Logbooks that meet the requirements of the Department are available for purchase from the Canadian Highly Migratory Species Foundation (CHMSF) by calling (250) 658-0179. The purchase of the CHMSF logbook includes a service to receive hard copy (paper) logbooks and to verify, edit, keypunch, and provide the data in the required format to the Department.

In the event that a CT licenced vessel does not fish the current fishing season, the vessel owner is required to submit a nil report. One page from the harvest log identifying the vessel, licence

tab number and the year with 'nil' entered in the body of the log and signed by the licence holder constitutes a nil report.

Vessel Hail Program

The telephone and email hail component of the fishery monitoring program for the Pacific Albacore Tuna fishery collects data such as vessel name, date, time and location of fishing activities. The objective of this program is for DFO to be able to accurately determine and report on which vessels are fishing, and the fishing zones they are active in, at any given time during the fishing season. This information is also needed as part of the post season reporting of fishing effort and catch areas. All hail reports must be submitted to the industry selected hail service provider (Archipelago Marine Research Ltd.) who then provides the data to DFO. The costs for this service are provided through the purchase of a CHMSF logbook. Licence holders who have not purchased a CHMSF logbook must make alternative arrangements with the service provider.

All vessel operators are required to submit a "Hail-Out Report" before leaving port to start fishing at the beginning of the season or after having submitted a "Hail-In Report" during the season. A "Hail-In Report" is required if the vessel has ceased fishing for more than 7 days.

All vessel operators are required to submit a "Change of Zone Report" if they cross into a different zone for a period of greater than 48 hours. There are 4 fishing zones in Canada's Pacific Albacore Tuna fishery: (1) the Canadian EEZ, (2) the USA EEZ, (3) the High Seas of the IATTC Convention Area, and (4) the High Seas of the WCPFC Convention Area (a map of the IATTC and WCPFC convention areas is included in Section 1.7 of the IFMP). Hails must be made within 24 hours, or the next business day, and may be provided by telephone or email. Specific on hail requirements are provided in the Conditions of Licence.

Other Information

National Oceanic and Atmospheric Administration Fisheries Southwest Science Center

Tagging Project

The Southwest Fisheries Science Centre (SWFSC) is working with The American Fishermen's Research Foundation (AFRF) on an albacore tagging project. The objective of the project is to better understand the movements of North Pacific Albacore. Tags can be identified by the presence of a green dart tag behind the dorsal fin and a plastic coated stalk protruding from the rear portion of the belly. The SWFSC is offering a \$500 (U.S. dollars) reward for the return of a tagged fish with the archival tag in place along with the date, latitude and longitude of where

the tagged fish was caught and the gear used to catch the fish. The reward can be obtained by returning the tagged fish and capture information to:

National Marine Fisheries Service
Southwest Fisheries Science Centre
8604 La Jolla Shores Dr.
La Jolla, CA 92037

More information on the tagging program can be found at:
<http://swfsc.noaa.gov/textblock.aspx?Division=FRD&id=1194>

APPENDIX 7. COMMERCIAL FISHING PLAN – USA VESSELS IN THE CANADIAN EEZ

Overview

The activities of USA-flagged tuna vessels (USA vessels) in the Canadian EEZ are governed by the *Treaty between the Government of the United States of America and the Government of Canada on Pacific Coast Albacore Tuna Vessels and Port Privileges* (the Treaty) and by Canada’s domestic legislation and regulations.

The *Coastal Fisheries Protection Act* (CFPA) and the *Coastal Fisheries Protection Regulations* (CFPR) are the legislative tools for authorizing foreign fishing vessel access to, and activities in, Canadian fisheries waters and ports. Under the CFPA, foreign fishing vessels are prohibited from entering Canadian fisheries waters and ports for any purpose unless authorized to do so by the Act, the Regulations, any other law of Canada or a treaty.

General Stipulations

Licences

All USA vessels must obtain a Canadian EEZ Tuna Fishing Licence from DFO prior to commencing fishing in Canada’s EEZ (new provision in 2018).

All USA vessels must obtain a Canadian Port Access Licence from DFO prior to accessing Canadian ports. The Port Access Licence is formally known as the “Authorization for Port Activity and Exclusive Economic Zone (EEZ) Entry by a Foreign Vessel”.

Areas

Under the terms of the Treaty, authorized USA vessels are permitted to harvest tuna at a distance of 12 miles from shore throughout Canada’s EEZ, with the exception of the areas closed to all commercial tuna fishing specified in Appendix 2.

Pursuant to the Treaty, USA vessels are authorized to enter, land catch, sell or tranship catch, and obtain fuel, supplies, repairs and equipment at the following Canadian ports:

- a) Coal Harbour
- b) Port Hardy
- c) Prince Rupert
- d) Victoria
- e) Vancouver

f) Ucluelet

Note that the vessel master and crew of USA vessels entering port are required to clear with Canadian Customs and Border Services Agency (CBSA) prior to any person or cargo being allowed to disembark the vessel.

Times

Under the terms of the Treaty, authorized USA vessels are permitted to fish for Albacore Tuna in Canadian fisheries waters from June 15, 2019 to October 31, 2019 and may access Canadian ports for various activities from June 15, 2019 to December 31, 2019.

Gear

Within Canada's EEZ, commercial tuna fishing is permitted with hook and line gear not including longline gear.

Permitted Species

Under the terms of the Treaty, authorized USA vessels are permitted to harvest tuna Albacore Tuna (*thunnus alalunga*) in Canadian fisheries waters.

Licencing

Fees

There are no fees for either the Port Access Licence or the EEZ Fishing Licence.

Eligibility

In order to be eligible for either a Port Access Licence or a EEZ Fishing Licence, USA vessels must:

1. Be listed on the USA authorized Treaty vessel list, and
2. Not have any history of serious enforcement issues in Canada's EEZ.

Under the terms of the Treaty, all USA vessels intending to fish in Canadian waters or access Canadian ports must be on the USA authorized Treaty vessel list prior to entry. The USA authorized Treaty vessel list is administered by USA government fisheries officials (contact albacore.fish@noaa.gov or 562-980-4238 for more information).

Licence Issuance

To apply for either a Port Access Licence or a EEZ Fishing Licence, USA vessel operators or their authorized agents must complete a "License Application and Authorisation for Port

Activity and Exclusive Economic Zone (EEZ) Entry by a Foreign Vessel” (application form) and submit this to DFO. Applicants can submit an application for one or both licences using the same form.

The application form can be found at <http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/forms/2015/EEZ-ZEE-eng.pdf>. Completed applications can be submitted to:

Mail:

Pacific Fishery Licence Unit
401 Burrard St, Suite 200
Vancouver, BC, V6C 3S4

Email: fishing-peche@dfo-mpo.gc.ca (specify Pacific Region in the subject line)

Fax: 604-666-5855

Fishery Monitoring

In coordination with USA authorities, DFO monitors the locations of USA vessels operating in Canadian waters, the amount of Albacore Tuna catch by USA vessels in Canadian waters, and landings of Albacore Tuna by USA vessels in Canadian ports.

Vessel Locations

Operators of USA vessels entering Canadian fisheries waters for the purposes of transiting to port or fishing for Albacore Tuna are required to report (Hail-In) to 24 hours prior to entry into Canadian fisheries waters, and report (Hail-Out) within 24 hours of stopping fishing or departing from port.

Vessel masters must communicate with Canadian Coast Guard (Prince Rupert) to provide the vessel’s position of entry and position of exit, their Canadian Coast Guard documentation number, their State registration number, and all other relevant information. Communications to Canadian authorities must be made to Canadian Coast Guard (Prince Rupert) via:

- a) VHF channel 26 (within a 60 mile range);
- b) MF channel 2054 (within a 200 mile range);
- c) HF channel 4125 (within a 400 mile range);
- d) Using a satellite phone or cellular phone and dialling 250-627-3081

Note that the vessel master and crew of USA vessels entering port are also required to clear with Canadian Customs and Border Services Agency (CBSA) prior to any person or cargo being allowed to disembark the vessel.

The locations of USA vessels in Canadian waters is also monitored by surveillance aircraft, radar and satellite technologies, and additional information provided from USA authorities.

Catch and Landings

Under the terms of the Treaty, operators of all USA vessels must submit information detailing the amount (number and weight) of Albacore Tuna caught in Canadian waters to USA fisheries authorities who must subsequently provide this information to DFO. DFO also collects information on USA vessel Albacore Tuna landings in Canada directly from Canadian fish buyers and processors.

APPENDIX 8. COMMERCIAL FISHING PLAN – CANADIAN VESSELS IN THE USA EEZ

Overview

The activities of Canadian tuna vessels in the Exclusive Economic Zone (EEZ) of the USA are governed by the *Treaty between the Government of the United States of America and the Government of Canada on Pacific Coast Albacore Tuna Vessels and Port Privileges* (the Treaty) as well as Canada's domestic legislation and regulations. Additionally, the entirety of the USA EEZ falls within the IATTC Convention Area and Canada is therefore obliged to ensure that Canadian vessels operating in the USA EEZ comply with the requirements of relevant IATTC resolutions.

Fishery Covered

This commercial fishing plan covers Canadian vessels harvesting Albacore Tuna in the EEZ of the USA. The commercial plan for Canadian vessels operating in the Canadian EEZ and the high seas can be found in Appendix 6. The commercial fishing plan for USA vessels operating in Canada's EEZ can be found in Appendix 7.

Changes from Previous Season

From the start of the 2019 season, a "Hail-In Report" will be required if a vessel operator has ceased tuna fishing operations for a period greater than 7 days and a "Change of Zone Report" will be required when crossing into a new zone for a period greater than 48 hours, regardless of the intended purpose of entering the new zone.. Further information on these changes is provided below.

Conditions of Licence

The Conditions of Licence provided with each licence issued stipulate specific requirements harvesters must meet. This commercial fishing plan outlines some of these requirements; however, it does not provide the full information necessary to ensure compliance. Vessel masters are required to review and understand the Conditions of Licence when these are issued.

General Stipulations

Licences

Commercial harvest of tuna in USA waters by Canadian vessels is permitted under the authority of a USA Section 68 ("USA68") licence. Other licence categories do not authorize tuna fishing in the USA EEZ.

Areas

Harvesters operating under the authority of a USA68 licence are permitted to harvest tuna at a distance of 12 miles from shore throughout the USA EEZ, with the exception of any areas closed by USA authorities.

Canadian fishing vessels authorized to fish Albacore Tuna in USA waters may (pursuant to Article III of the Treaty) enter, land their catches, sell or tranship their catch, obtain fuel, supplies, repairs and equipment at the ports listed below (USA Customs Service contact information in parenthesis):

- Bellingham, Washington (Port of Bellingham, 360-734-5463)
- Westport, Washington (Serviced out of Aberdeen, Washington, 360-532-2030 or 360-580-2146)
- Astoria, Oregon (1402 Marine Drive, Astoria, Oregon 97103, 503-325-5541 08:00 to 16:30 Weekdays)
- Newport, Oregon (1430 SE Bay Blvd., Newport, Oregon 97365, 541-265-6456 08:00 to 16:00 Weekdays)
- Coos Bay, Oregon (3229 Broadway Street, Suite E, North Bend, Oregon 97459, 541-756-2396 08:00 to 16:00 Weekdays)
- Eureka, California (317 3rd Street, Suite 6, Eureka, California 95501, 707-442-4822 08:30 to 16:30 Weekdays)

Vessels are required to clear with USA Customs and Border Protection and are reminded of the requirement that sanitary facilities must be closed off prior to entry to any USA port. For USA customs requirements or for additional information, visit <https://www.cbp.gov/> or <http://www.us-immigration.com> or phone the National Customer Service Center at 1-800-375-5283.

Times

Under the terms of the Treaty, authorized Canadian vessels are permitted to access USA waters from June 15, 2019 to September 15, 2019.

Gear

Under the terms of the Treaty, authorized Canadian vessels are permitted to use troll gear only and the use of live bait is not permitted.

Permitted Species

Under the terms of the Treaty, authorized Canadian vessels are permitted to harvest Albacore Tuna (*Thunnus alalunga*) only.

Licencing

Fees

The licence fee is \$500 for USA68 licences 1-45 (issued to vessels ranked 1-45 on the eligibility list). There is no fee for USA68 licences 46-179 as these licences do not permitted access to fish.

Eligibility

Eligibility for USA68 licences is limited to vessels on the previously established 1-179 eligibility ranking for Canadian vessels under the Treaty (see Section 1.7 of the IFMP for background). Only vessels on this list can receive a USA68 licence. Each USA68 licence issued corresponds with the 1-179 ranking; for example, the vessel ranked #54 on the 1-179 list will receive USA68 licence #54 (USA68-54).

Under the terms of the current Treaty regime only vessels ranked 1-45 on the eligibility list are permitted to fish in the USA EEZ. As such, the USA68 licences issued to vessels ranked 46-179 do not authorize fishing.

Eligibility may be transferred from one vessel to another provided the replacing vessel meets certain criteria. For eligibilities 46-179, the replacing vessels cannot be larger than the outgoing vessel. For eligibilities 1-45, the replacing vessel:

1. cannot be larger than the outgoing vessel,
2. must also be on the 1-179 eligibility list,
3. must have a history of fishing in the USA EEZ, and
4. must not have had any enforcement incidents in the USA EEZ.

Note that all transfers of eligibilities 1-45 must be approved by a Canada-USA Joint Review Committee which typically meets once annually in May or June each year. Requests for eligibility transfer should be received by the Pacific Fisheries Licencing Unit before May 15, 2019 in order to be considered. Eligibilities 1-45 cannot be transferred during the fishing season, although temporary replacements may be possible under extenuating circumstances.

Licence Issuance

Eligible vessels do not have apply annually to receive USA68 licences or maintain their position on the eligibility.

Fishery Monitoring

Financial Responsibilities

Commercial tuna licence holders fund the fishery monitoring program which consists of, logbooks, vessel hails, associated data entry, and the provision of data to DFO. Licence holders are also responsible for the cost of VMS units, installation, operation, and maintenance; however, the costs associated with management of VMS data are covered by the Department.

Logbook

Harvesters must keep an accurate harvest log (logbook) with complete records of all catch (including bycatch), dates and times, coordinates, and offload information. Harvesters are also requested to provide length measurements for a sample 10 fish at the start of each successful day. Logbooks must be submitted by November 1, 2019 and data must be provided to the Department in an acceptable electronic format. A sample logbook page is included in Appendix 10.

Logbooks that meet the requirements of the Department are available for purchase from the Canadian Highly Migratory Species Foundation (CHMSF) by calling (250) 658-0179. The purchase of the CHMSF logbook includes a service to receive hard copy (paper) logbooks and to verify, edit, keypunch, and provide the data in the required format to the Department.

Vessel Hail Program

The telephone and email hail component of the fishery monitoring program for the Pacific Albacore Tuna fishery collects data such as vessel name, date, time and location of fishing activities. The objective of this program is for DFO to be able to accurately determine and report on which vessels are fishing, and the fishing zones they are active in, at any given time during the fishing season. This information is also needed as part of the post season reporting of fishing effort and catch areas. All hail reports must be submitted to the industry selected hail service provider (Archipelago Marine Research Ltd.) who then provides the data to DFO. The costs for this service are provided through the purchase of a CHMSF logbook. Licence holders who have not purchased a CHMSF logbook must make alternative arrangements with the service provider.

All vessel operators are required to submit a "Hail-Out Report" before leaving port to start fishing at the beginning of the season or after having submitted a "Hail-In Report" during the season. A "Hail-In Report" is required if the vessel has ceased fishing for more than 7 days.

All vessel operators are required to submit a “Change of Zone Report” if they cross into a different zone for a period of greater than 48 hours. There are 4 fishing zones in Canada’s Pacific Albacore Tuna fishery: (1) the Canadian EEZ, (2) the USA EEZ, (3) the High Seas of the IATTC Convention Area, and (4) the High Seas of the WCPFC Convention Area (a map of the IATTC and WCPFC convention areas is included in Section 1.7 of the IFMP). More details on hail requirements can be found in Conditions of Licence. Hail information for Canadian vessels entering or exiting the USA EEZ is shared with USA fisheries authorities.

In the event that a vessel does not fish the current fishing season, the vessel owner is required to submit a nil report. One page from the harvest log identifying the vessel, licence tab number and the year with ‘nil’ entered in the body of the log and signed by the licence holder constitutes a nil report.

Other Information

National Oceanic and Atmospheric Administration Fisheries Southwest Science Center Tagging Project

The Southwest Fisheries Science Centre (SWFSC) is working with The American Fishermen’s Research Foundation (AFRF) on an albacore tagging project. The objective of the project is to better understand the movements of North Pacific albacore. Tags can be identified by the presence of a green dart tag behind the dorsal fin and a plastic coated stalk protruding from the rear portion of the belly. The SWFSC is offering a \$500 (U.S. dollars) reward for the return of a tagged fish with the archival tag in place along with the date, latitude and longitude of where the tagged fish was caught and the gear used to catch the fish. The reward can be obtained by returning the tagged fish and capture information to:

National Marine Fisheries Service
Southwest Fisheries Science Centre
8604 La Jolla Shores Dr.
La Jolla, CA 92037

More information on the tagging program can be found at:

<http://swfsc.noaa.gov/textblock.aspx?Division=FRD&id=1194>

APPENDIX 9. TUNA ADVISORY BOARD MEMBERSHIP

| Advisor Name | Representation | Term Start (January 1 st) | Term End (December 31 st) |
|-----------------|---|--|--|
| Gregg Holm | USA Zone | 2017 | 2020 |
| Ian Bryce | USA Zone | 2017 | 2020 |
| Tad Larden | USA Zone | 2019 | 2022 |
| Peter de Greef | USA Zone | 2019 | 2022 |
| John Jenkins | Canadian Zone | 2019 | 2022 |
| Gordon Brooks | Canadian Zone | 2019 | 2022 |
| Bud Schuler | Canadian Zone | 2017 | 2020 |
| Troy Sawyer | Canadian Zone | 2017 | 2020 |
| Tom Hearty | High Seas Zone | 2019 | 2022 |
| Ron Kay | High Seas Zone | 2017 | 2020 |
| Lorne Clayton | Canadian Highly Migratory Species Foundation (CHMSF) | N/A | N/A |
| Mike Kelly | Sport Fishing Advisory Board | N/A | N/A |
| Scott Wallace | Marine Conservation Caucus | N/A | N/A |
| Blake Tipton | Processor/Buyer | N/A | N/A |
| Brad Mirau | Processor/Buyer | N/A | N/A |
| Larry Neilson | Province of BC | N/A | N/A |
| VACANT | First Nations Representative | N/A | N/A |
| Bradley Langman | DFO – Fisheries Management | N/A | N/A |
| Zane Zhang | DFO – Science | N/A | N/A |
| Nicole Gallant | DFO – Conservation and Protection | N/A | N/A |

APPENDIX 10. SAMPLE LOGBOOK PAGE

| 2018 CANADIAN PACIFIC ALBACORE TUNA LOGBOOK - PLEASE PRINT CLEARLY | | | | | | | | | | | | Submission Deadline: 1-Nov-2018 | | |
|--|-------------|-------------|---------------|-----------------|--------------------|-------------|-------------------|-----------------|-------------------|---|--------------------|------------------------------------|--------|---------------|
| VESSEL NAME | | YRN | SKIPPER Name: | | Tel: () - - - - - | | Email: | | OWNER Name: | | Tel: () - - - - - | | Email: | |
| Date (mm/dd) | Time (h:mm) | LAT (xx yy) | LONG (xxx yy) | Water Temp (°F) | Species Code | KEPT Number | Avg Fish Wt (lbs) | RELEASED Number | Avg Fish Wt (lbs) | Vessel Trip Data (Required) (Please start new page for new trip) | TIN | TRIP # | # Jigs | # Days Fished |
| | START | | | | Albacore | | | | | | | | | |
| | STOP | | | | Seabird | | | | | | | | | |
| Length (cm) | 1. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | | | | | |
| | START | | | | Albacore | | | | | | | | | |
| | STOP | | | | Seabird | | | | | | | | | |
| Length (cm) | 1. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | | | | | |
| | START | | | | Albacore | | | | | | | | | |
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| Length (cm) | 1. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | | | | | |
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| Length (cm) | 1. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | | | | | |
| | START | | | | Albacore | | | | | | | | | |
| | STOP | | | | Seabird | | | | | | | | | |
| Length (cm) | 1. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | | | | | |
| Date | Comment: | | | | | | | | | | | | | |
| Date | Comment: | | | | | | | | | | | | | |
| | | | | | | | | | | | | Page _____ of _____ for Trip _____ | | |

WESTE PAGE8: Send to CHEWSF, c/o H. SELL, General Delivery, Gabriola Island, BC V8R 1B6 (tel 250-247-8258 fax 250-247-8258) TunaLogbook@shaw.ca YELLOW PAGES: Print for your files

APPENDIX I I. FISHING VESSEL SAFETY

Overview – Fishing Vessel Safety

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 TC; emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In BC, WorkSafeBC exercises jurisdiction over workplace health and safety and conducts inspections on commercial fishing vessels in order to ascertain compliance with the Workers Compensation Act (WCA) and the Occupational Health and Safety Regulation (OHSR). DFO (Fisheries and Aquaculture Management [FAM] and CCG) and TC through a Memorandum of Understanding (MOU, 1996) have formalized cooperation to establish, maintain and promote a safety culture within the fishing industry.

Before departing on a voyage the owner, master, or operator must ensure that the fishing vessel is capable of and safe for the intended voyage and fishing operations. Critical factors for a safe voyage include the seaworthiness of the vessel, having the required personal protective and life-saving 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 training
- Fish Safe – Stability Education Program & 1 Day Stability Workshop
- Fish Safe – SVOP/Safe on the Wheel Course
- Fish Safe – Safest Catch Program – **FREE** for BC commercial fishers
- First Aid training
- Radio Operators Course
- Fishing Masters Certificate training

-
- Small Vessel Operators Certificate training
 - Publications:
 - Transport Canada Publication TP 10038 *Small Fishing Vessel Safety Manual* (can be obtained at Transport Canada Offices from their website at: <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm>)
 - Amendments to the *Small Fishing Vessel Inspection Regulations* (can be obtained from: <http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php>)
 - Gearing Up for Safety – WorkSafeBC
 - Safe At Sea DVD Series – Fish Safe
 - Stability Handbook – Safe at Sea and Safest Catch – DVD Series
 - Safest Catch Log Book
 - Safety Quick

For further information see:

- www.tc.gc.ca/eng/marinesafety/menu.htm
- www.fishsafebc.com
- www.worksafebc.com

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 surface on stability (i.e. loose water or fish on deck), loading and unloading operations, watertight integrity 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. These instructions must 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.

The *Fishing Vessel Safety Regulations* currently require, with certain exceptions, a full stability assessment for vessels between 15 and 150 gross tons that do not exceed 24.4 metres in length and include fishing vessels involved in the catch of herring or capelin. In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) [No. 03/2017](#) announcing the coming into force of the *New Fishing Vessel Safety Regulations*. The initial regulations were published in the Canada Gazette Part II on July 13, 2016 and came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

As of July 13, 2017, the following fishing vessels must successfully undergo a stability assessment by a competent person:

- A new fishing vessel that has a hull length of more than 9 m;
- A fishing vessel more than 9 m and that has undergone a major modification or a change in activity that is likely to adversely affect its stability ;
- A fishing vessels that is fitted with an anti-roll tank at any time;
- A fishing vessel more than 15 gross tonnage and used for catching herring or capelin during the period beginning on July 6, 1977 and ending on July 13, 2017

A fishing vessel that is not required to undergo a stability assessment shall have adequate stability to safely carry out the vessel's intended operations. Guidelines have been developed and are available online to help small fishing vessel owners and operators meet their regulatory requirements. Additionally, Transport Canada published a Stability Questionnaire ([SSB No. 04/2006](#)) and Fishing Vessel Modifications Form ([SSB No. 01/2008](#)) which enable operators to identify the criteria which will trigger a stability assessment. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires one, or to receive guidance on obtaining competent assessor.

In 2008, TC is updating [SSB No. 01/2008](#), which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular inspections and entered on the vessel's inspection record. However, information gathered during the Transportation Safety Board's (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2005 and found a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: [M05W0110](#) - *Morning Sunrise*, [M07M0088](#) - *Big Sisters*, [M08W0189](#)

- *Love and Anarchy*, [M09L0074](#) – *Le Marsouin I*, [M10M0014](#) - *Craig and Justin*, [M12W0054](#) – *Jessie G*, [M12W0062](#) - *Pacific Siren*, [M14P0121](#) – *Five Star*, [M15P0286](#) – *Caledonian*, M16A0140 – C19496NB, M17C0061 – *Emma Joan* and M17P0052 – *Miss Cory*.

Vessel masters are advised to carefully consider stability when transporting gear. Care must be given to the stowage and securing of all traps, cargo, skiffs, equipment, fuel containers and supplies and also to correct ballasting. Know the limitations of your vessel; if you are unsure contact a reputable marine surveyor, naval architect or the local Transport Canada Marine Safety office.

WorkSafeBC's Occupational Health and Safety Regulation (OHSR) requires owners of fishing vessels to provide documentation on board, readily accessible to crewmembers, which describes vessel characteristics, including stability.

In 2013, Fish Safe developed a code of best practices for the food and bait herring fishery and the prawn fishery: 'Food and Bait – Best Practice Reminders'; 'Prawn Industry - Best Industry Recommended Practices.' Please contact Ryan Ford at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Ryan Ford – Cell phone: (604) 739-0540 - Email: ryan@fishsafebc.com.

Emergency Drill Requirements

The Canada Shipping Act 2001 requires that the Authorized Representative of a Canadian Vessel shall develop procedures for the safe operation of the vessel and for dealing with emergencies. The Act also requires that crew and passengers receive safety training. The Marine Personnel Regulations require that all personnel on board required to meet the minimum safe manning levels have received MED (Marine Emergency Duties) training to an A1 or A3 level, depending on the vessel's voyage limits, within 6 months of serving aboard. MED A3 training is 8 hours in duration and is applicable to seafarers on fishing vessels less than 150 GRT that are within 25 miles from shore (NC2). MED A1 training is 19.5 hours duration and is applicable to all other fishing vessels.

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.

WorkSafeBC's Occupational Health and Safety Regulation (OHSR) requires written rescue and evacuation procedures for work on or over water. Additionally, fishing vessel masters must establish procedures and assign responsibilities to each crewmember to cover all emergencies,

including the following: crewmember overboard, fire on board, flooding of the vessel, abandoning ship, and calling for help. Fishing vessel masters are also required to conduct emergency drills with the crew for the established procedures.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The reports findings highlighted the lack of safety drills and safety procedures and practices.

The Safest Catch program, delivered by Fish Safe and **free** to BC commercial fishers, includes comprehensive practice of drills such as abandon ship, man overboard and firefighting drills.

Cold Water Immersion

Drowning is the number one cause of death in BC's fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees C. BC waters are usually below 15 degrees C. Normal body temperature is around 37 degrees Celsius; cold water rapidly draws heat away from the body. 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 WorkSafeBC Bulletin *Cold Water Immersion* (available from the WorkSafeBC website at www.worksafebc.com).

WorkSafeBC currently requires workers who are employed under conditions which involve a risk of drowning to wear a PFD or lifejacket with sufficient buoyancy to keep the worker's head above water. Where there is a risk of entering the water, the use of a PFD will prepare a crewmember to remain afloat, to survive the effects of cold shock, reduce the need to swim and give rescuers time to respond.

It has been demonstrated time and again that, when worn, PFD's save lives - and the chance of surviving a mishap increases significantly when these devices are worn while working on deck.

Resulting from the TSB investigations into the *Diane Louise* - [M14P0110](#) and the *Caledonian* - [M15P0286](#) fishing vessel accidents, the Board recommended that both TC and WorksafeBC require that persons wear a suitable personal flotation devices (PFDs) at all times when: on the deck of a commercial fishing vessel; or, when on board a commercial fishing vessel without a deck or deck structure, and ensure that programs are developed to confirm compliance.

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 8 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 Coast Guard website at: <http://www.ccg-gcc.gc.ca/eng/CCG/Home> or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.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 **Victoria or Prince Rupert** or from the Coast Guard website:
www.ccg-gcc.gc.ca/Pacific).

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 (250) 363-8904 or from the Coast Guard website: <http://www.ccg-gcc.gc.ca/eng/CCG/Home>.

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/voyage 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.

WORK SAFE BC

WorkSafeBC exercises jurisdiction over workplace health and safety, including the activities of crews of fishing vessels. Commercial fishing, diving, and other marine operations are subject to the provisions of the *Workers Compensation Act (WCA)* and requirements in Part 24 of the Occupational Health and Safety Regulation (OHSR).

Examples of Part 24 regulatory requirements related to fishing include, but are not limited to, the requirement to establish emergency procedures, to conduct emergency drills, to provide immersion suits for the crew, to provide stability documentation for the vessel, safe work procedures, injury reporting, correction of unsafe working conditions, etc.

Other sections of the OHSR also apply to commercial fishing operations. For example, Part 3 addresses training of young and new workers, first aid, and employer incident/accident investigations. Part 4 addresses general conditions such as maintenance of equipment, workplace conduct and impairment. Part 8 addresses issues related to safety headgear, safety footwear, and personal flotation devices (PFDs). Part 12 addresses issues related to tools, machinery and equipment, including safeguarding. Part 15 addresses issues related to rigging.

Additionally, Part 3 of the WCA defines the roles and responsibilities of owners, employers, supervisors and workers. (Fishing vessel masters are considered to be employers under the WCA)

The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: www.worksafebc.com

NOTE: Regarding the OHSR requirement to wear PFD's, WorkSafeBC has produced a video entitled "Turning the Tide – PFD's in the Fishing Industry". For more information on PFD use, including a link to the video, please access the following site:

<https://www.worksafebc.com/en/about-us/news-events/news-releases/2018/November/new-fishing-industry-safety-video?origin=s&returnurl=https%3A%2F%2Fwww.worksafebc.com%2Fen%2Fsearch%23q%3DTurning%2520the%2520Tide%26sort%3Drelevancy%26f%3Alanguage-facet%3D%5BEnglish%5D>

For further information, contact an Occupational Safety Officer:

| | | |
|-------------|--------------------------|----------------|
| Bruce Logan | Vancouver/Richmond/Delta | (604) 244-6477 |
| Mark Lunny | Courtenay | (250) 334-8732 |

| | | |
|------------------|-----------|----------------|
| Cody King | Courtenay | (250) 334-8733 |
| Gregory Matthews | Courtenay | (250) 334-8734 |
| Jessie Kunce | Victoria | (250) 881-3461 |

or the Manager of Interest for Marine and Fishing, Pat Olsen (250) 334-8777

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, Industry and Labour Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com

FISH SAFE BC

Fish Safe encourages Vessel masters and crew to take ownership of fishing vessel safety. Through this industry driven and funded program Fish Safe provides fishing relevant tools and programs to assist fishers in this goal. The Fish Safe Stability Education Program and 1 Day Stability Workshop are available to all fishers who want to improve their understanding of stability and find practical application to their vessel's operation. The SVOP (Small Vessel Operator Proficiency) Course is designed to equip crew with the skills they need to safely navigate during their wheel watch. The Safest Catch Program, along with fisher-trained Safety Advisors, is designed to give fishers the tools they need to create a vessel specific safety management system.

Fish Safe is managed by Ryan Ford, Program Manager and support staff including John Krgovich, Program Coordinator, Stephanie Nguyen, Program Assistant, Rhoda Huey, Bookkeeper/Administrative Assistant and an experienced team of fisher Safety Advisors. All activities and program development is directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board fishing vessels). The Advisory Committee meets two to three times annually to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

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

| | |
|---------------------------|---|
| Ryan Ford | |
| Program Manager | Cell: (604) 739-0540 |
| Fish Safe | Office: (604) 261-9700 |
| #100, 12051 Horseshoe Way | Email: ryan@fishsafebc.com |
| Richmond, BC V7A 4V4 | www.fishsafebc.com |

Transportation Safety Board

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or determine civil or criminal liability. Under the TSB Act, all information collected during an investigation is completely confidential.

In 2014 the TSB released three investigation reports:

- the collision between trawl fishing vessel [Viking Storm](#) and US long line fishing vessel *Maverick* and the subsequent fatality,
- the person over board off the prawn fishing vessel [Diane Louise](#) and the subsequent fatality, and
- the capsizing of the crab fishing vessel [Five Star](#) and subsequent fatality.

In 2016 the TSB released one investigation report:

- the capsizing of the trawl [Caledonian](#) and subsequent fatalities.

In 2018 the TSB released two investigation reports:

- the capsizing and sinking of the [Miss Cory](#) and subsequent fatality.
- the sinking of the [Western Commander](#) and loss of life.

The TSB issued five recommendations following the *Caledonian* report. Three recommendations issued are aimed at ensuring all crews have access to adequate stability information that meets their needs. That means:

- All commercial fishing vessels should have a stability assessment appropriate for their size and operation.
- The information from that assessment must then be kept current, and it must be used to determine safe operating limits.

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline. Or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps.

Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that fishers can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many fishers still don't wear them. Regulations currently require that PFDs be worn only if fishers identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC and WorksafeBC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance.

For more information about the TSB, visit the website at www.tsb.gc.ca

For information about the TSB's investigation into fishing safety, or to view a brief video, visit: <http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp>

To view information on the TSB's recent safety Watchlist, visit: <http://www.tsb.gc.ca/eng/surveillance-watchlist/marine/2018/marine.asp>

Reporting an Occurrence: www.tsb.gc.ca/eng/incidents-occurrence/marine/

After a reportable occurrence happens; you can fill out the TSB 1808 form or call the TSB at the contact information below.

Glenn Budden, Investigator, Marine - Fishing Vessels
Transportation Safety Board of Canada
4 - 3071 No. 5 Road
Richmond, BC, V6X 2T4
Telephone: 604-666-2712
Cell: (604) 619-6090
Email: glenn.budden@tsb.gc.ca

APPENDIX 12. DRAFT RISK ASSESSMENT SUMMARY

Overview

In 2016 and 2017 DFO completed draft risk assessments for the commercial and recreational tuna fisheries. Risk assessments are required under the Department's Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries (see Section 5.3 of the IFMP for more information).

DFO completed separate risk assessments for four Canadian vessel Pacific Albacore Tuna fishery sectors: one for the recreational fishery in Canada's EEZ, and one each for the Canadian EEZ, the US EEZ, and the high seas. These risk assessments were completed using an Excel-based tool that provides a structured format for analysing various risk factors in fisheries. The tool generally multiplies the anticipated consequence that the fishery will have on a given risk factor by the likelihood that an event will impact a species or habitat function (for example).

A summary of the findings for Pacific Albacore Tuna is provided below. Overall results were identical for each of the four fishery sectors analysed. Comments on these findings are welcome and the full risk assessment is available on request (contact Bradley.Langman@dfo-mpo.gc.ca). After comments are considered, the Department hopes to finalize the risk assessment in 2019.

Ecosystem Risks

Current management of the fishery poses a low risk to the health of the Pacific Albacore Tuna stock. The stock assessment conducted by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean concluded that the stock is not likely overfished and that overfishing is not likely occurring.

The fishery also poses a low risk to bycatch species and ocean habitats. Bycatch of both released and retained species is infrequent and occurs in very low amounts. It is a surface fishery; gear does not make contact with benthic habitats.

Monitoring

Both the current and the target monitoring level, as defined through the draft risk assessment, are low. However, in completing the draft risk assessment the Department made note of a number of information gaps in the Pacific Albacore Tuna fishery. For example, there is currently

no independent verification of bycatch reporting in the commercial fishery and complete catch information is not available for the recreational fishery.

Next Steps

The draft risk assessment does not indicate a gap between the current level and target level of monitoring. Nonetheless, the Department will be exploring options to address identified information gaps where feasible.